Wilhelmsen Ships Service

PRODUCT CATALOGUE

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As your trusted supplier of marine products, we offer

- Tried and tested products, designed to consistently work in the harshest of marine environments
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- Environmentally compliant chemicals and products which comfortably meet current international standards
- Global warranties to back up our entire range of **Unitor™** and **Nal eet™** chemicals and products
- Quality in-depth documentation including safety data sheets, approval certi cates, user guides, operating instructions and spare part lists
- 24/7 customer service and after-sales support, as well as access to a wide selection of accessories, spares and consumables
- The opportunity to work with an established, globally recognised ISO 9001/ISO 14001 certi ed company – Wilhelmsen Ships Service

Wilhelmsen Ships Service

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Wilhelmsen Ships Service

PUMPS

We offer a complete range of pumps, levers and applicators, along with all their necessary accessories and spares.

CHEMICAL PUMP LEVER TYPE

422 637447

The hand pump is a simple and cost effective method of moving small and medium quantities of liquid from a 200 L barrel, 60 L drum or a 25 L pail (requires an adaptor). The pump is easy to mount and use and capable of pumping solvents and chemicals compatible with Viton and PTFE seals. The pumps moves 0,33 L per stroke.

Chemical pump lever type (set of 2 pumps).

Features

- Fast and simple liquid transfer
- Flexible

Bene ts

- Cost effective
- Ideal for smaller quantities of liquid
- Low maintenance

Accessories

Product number	Product name
655514	CONNECTION FOR HAND PUMP F/25L PAIL

1:1 OIL PUMP WITH SPOUT

422 711291

Suitable for transfer applications of low viscosity uids, diesel, non aggressive uids, short distances without reels. Needle valve for regulating pump speed is included. Designed for quiet and reliable operation and for 200l drums, spout and needle valve for ow control supplied. Wetted materials: steel, zink and aluminium

Features

- High ow - low pressure

Bene ts

- Handles most light to medium viscosity uids

2:1 CHEMICAL PUMP SST316

422 718890

2:1 chemical pump stainless steel 316 is made up of two main parts: a compressed air operated two-way piston air pump and a double-acting liquid pump.

Features

- Ef cient uid transfer

Bene ts

- Reliable air operated unit
- Solid design

Technical data

Max operating pressure	10 bar
Min air pressure	3 bar
Flow capacity, max	30 l
Air consumption	0.9
Weight	9.7 kg
Pump tube length	930 mm
Pump tube diameter	Ø 50 mm
Pump total length	1275 mm
Air inlet	1/4" BSP (f)
Fluid outlet	3/4" BSP (m)

The Unitor 2:1 pump stainless steel 316 is designed to move a broad spectrum of uids compatible with AISI 316, Viton and PFTE seals. It may NOT be used for other purposes or for pumping gasoline, or other explosive liquids. The unit is designed for 200 L drums; a spout and needle for ow control are supplied. Maximum permitted air pressure is 10 bar, this limit should NOT be exceeded.

10:1 HYDRA CLEAN CHEMICAL APPLICATOR

421 625293

The Unitor 10:1 Hydra-Clean chemical pump is ideal for a majority of uid handling tasks onboard. Delivered ready to use and includes strainer, hoses, spray gun and nozzle. Pumps are designed to be mounted on an open 200l/55GAL drum by use of a mounting bracket, and exible suction hose also allows for other installations.

Features

- Supplied ready for use including lubricator, hoses, spray gun and nozzle
- Stainless steel construction (AISI 304) with chemical resistant packings
- Can be used with cold or hot water up to 95 degrees Celsius
- Typical uids handled: cold water, hot water (up to 95 deg C.), detergent solutions, chemical solutions

Bene ts

- Fits all open head universal drums
- Air driven motors enable use in explosion classi ed areas

Technical data

Max working pressure	75 bar
Flowrate, normal	11,4 l/min
Air consumption	1,4 m3 / min
Max air input pressure	7,5 bar
Air inlet size	1/2" NPT (f)
Fluid outlet (after lter)	3/8" NPT (f)
Fluid outlet size (before filter)	1/2" NPT (f)
Connection size (gun inlet)	3/8" NPT (f)

With correct accessories this unit can apply chemicals vertically up to 12m. Ideal for applying chemicals and detergents onto surface, washing down, general transfer of uids and chemical injection into pressurised systems, e.g tank cleaning systems.

Application areas

- Applying chemicals and detergent onto surface
- Washing down
- General transfer of uids
- Injection of chemicals into pressurised system, e.g. tank cleaning systems

Accessories

Product number	Product name
659151	EXTENDABLE LANCE 5.5M W/OUT NOZZLE

Spare parts available for purchase:

Supplied with:

- Air lubricator
- Flexible suction hose
- Fluid intake lter
- Spray gun, nozzle and hose
- Fluid accumulator
- Pump mounting bracket

2:1 CHEMICAL APPLICATOR

422 718700

The Unitor 2:1 chemical pump is ideal for use when applying cleaning chemicals before washing with high pressure or the Unitor Cleaning Jet.

Features

- Fits in any standard 200 L drum
- Supplied ready to use
- Pre-lubricated air motor, has no need for an air lubricator

Bene ts

- Very low noise emission enables use onboard cruise or passenger vessels

Technical data

Weight	15.8 kg
Pressure	20 bar
Connection size/type	1/4''
Flowrate, normal	600 l/h
Air consumption	0.9
Hose length	10 m
Hose dimensions	1/4"
Hose connections	3/4" BSP (F) - 1/2" BSP (F)

This unit has been developed as an easy to use and economical alternative to the 10:1 Hydra Clean and is supplied ready to use with a hose, gun and drum ttings. The unit is designed to be mounted in a 200 L/55Gal drum. With the correct accessories this unit can apply chemicals vertically up to 10 m.

10 meter hose with long reach lance is included with the pump.

Ordering information

Supplied with:
10 meter 1/4" hose
Gun with long reach lance

Accessories

Product number	Product name
659151	EXTENDABLE LANCE 5.5M W/OUT NOZZLE

DOUBLE DIAPHRAGM PUMP 307 POLYPROPYLENE

422 604918

Designed to operate at low air pressure while delivering a smooth, reliable ow. Model 307 pumps are ideal for transferring a wide variety of uids.

Features

- Easy maintenance
- Fluid compatibility
- Unique, patented air valves
- Precision- tted parts

Bene ts

- Quick priming and immediate ow of product
- Handles uid viscosities up to 5000 cps and solids up to 0.09 in (2.29 mm)
- Excellent for abrasive, low-to-medium viscosity uids and shear sensitive materials

Technical data

Flow capacity, max	24.6 l/min
Suction height	2.1m (dry) 3.7m (wet)
Material	POLYPROPYLENE
Fluid inlet and outlet size	3/8"
Weight	2.4 kg

This pump is designed to operate at low air pressure while delivering a smooth, reliable ow. Model 307 pumps are ideal for transferring a wide variety of uids. The air motor body is contructed of polypropylene and stainless steel to resist external corrosion. This polypropylene wetted construction model is with Te on diaphragms and ball checks, suitable for most chemicals including acids and caustic uids.

Typical applications

- Sampling and testing
- Drum transfer for uids up to 1000 centipoise
- Circulation of low viscosity inks, detergents and chemicals
- Fluid circulation and evacuation
- Waste uid removal
- On-demand batch chemical metering
- Low viscosity adhesive supply
- Consistent low pressure process uid supply

Typical uids handled by this pump:

- Acids: Hydrochloric Sulphuric, Phosphoric
- Bleach: Sodium Hypochlorite (<12%)
- Base: Sodium Hydroxide, Ammonia, Hydrogen peroxide, Potassium hydroxide

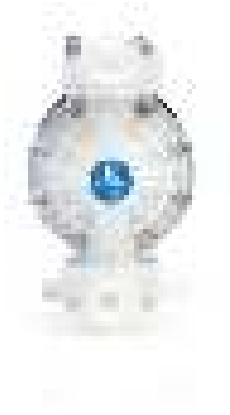
Accessories

Product Number	Product name
Recommended accessories	
607830	STAINLESS NIPPLE F/307
191874	20 UPM PLUG 1/4'' MALE BSP.T
191684	30 USH SOCKET 3/8'' HOSE
671701	AIR HOSE 3/8", PVC (50 MTR)
Recommended consumables	
671750	AIR HOSE 3/8", RUBBER
607832	FLUID SECTION REPAIR KIT F/MOD. 307
607833	AIR VALVE KIT

DOUBLE DIAPHRAGM PUMP 515 POLYPROPYLENE

422 634787

Designed to operate at low air pressure while delivering a smooth, reliable ow. Model 515 pumps are ideal for transferring a wide variety of uids.



Features

- Easy maintenance
- Fluid compatibility
- Unique, patented air valves
- Precision- tted parts

Bene ts

- Quick priming and immediate ow of product
- Handles uid viscosities up to 5000 cps and solids up to 0.09 in (2.29 mm)
- Excellent for abrasive, low-to-medium viscosity uids and shear sensitive materials

Technical data

Flow capacity, max	57 l/min
Suction height	7.6 m
Material	POLYPROPYLENE
Connection size/type	1/2"
Weight	2.9 kg

Both models Husky 515 and 716 are based on the same air motor and uid section, the only difference being the inlet and outlet connections. The 515 has 1/2"suction and discharge ports where the 716 has 3/4" suction and discharge ports. The pumps are well suited for a variety of utility duties requiring up to 60 lpm (15 Gal/min) with light to medium viscosity uids. The polypropylene or stainless steel body make them ideal for handling chemicals, cleaning uids and for water treatment applications. The 515/716 are small, easy to carry, and together with the drum suction kit (ts both 515/716 models) they are ideal to mount on top of a 60 (16 gal) or 200 l (55 Gal) pail.

Both models are tted with Te on and stainless steel diaphragms/balls/seats for maximum chemical compatibility, including acids and caustics.

Typical applications

- Sampling and testing
- General purpose
- Handles acids and caustics
- Medium abrasion resistance
- Not recommended for strong thinners
- Drum transfer of low to medium viscosity uids
- Fluid circulation and evacuation

Typical uids handled by this pump:

- Acids: Hydrochloric, Sulphuric, Phosphoric
  Bleach: Sodium hypochlorite (<12%)
  Base: Sodium hydroxide, Ammonia, Hydrogen peroxide, Potassium hydroxide
- Thinners: Alcohol, Tri, Ketones, Acetone, Dichlorobenzene, Toluene

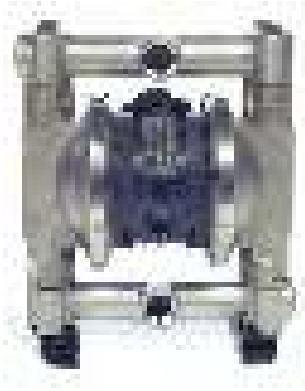
Accessories

Product number	Product name
Spare parts available for purchase:	
634795	SERVICE KIT F. 515/716
634811	AIR VALVE REP KIT
634819	DRUM SUCT. KIT F.515/716
729459	HOSE NIPPLES FOR 515 PUMP

DOUBLE DIAPHRAGM PUMP 716 STAINLESS STEEL

422 634803

Designed to operate at low air pressure while delivering a smooth, reliable ow. Model 716 is a durable pump in stainless steel, ideal for transferring a wide variety of uids.



Features

- Easy maintenance
- Fluid compatibility
- Unique, patented air valves
- Precision- tted parts

Bene ts

- Quick priming and immediate ow of product
- Handles uid viscosities up to 5000 cps and solids up to 0.09 in. (2.29 mm)
- Excellent for abrasive, low-to-medium viscosity uids and shear sensitive materials

Technical data

Flow capacity, max	61 l/min
Suction height	7.6 m
Material	STAINLESS STEEL
Connection size/type	3/4"
Weight	8.2 kg

Both models Husky 515 and 716 are based on the same air motor and uid section, the only difference being the inlet and outlet connections. The 515 has 1/2"suction and discharge ports where the 716 has 3/4" suction and discharge ports. The pumps are well suited for a variety of utility duties requiring up to 60 lpm (15 Gal/min) with light to medium viscosity uids. The polypropylene or stainless steel body make them ideal for handling chemicals, cleaning uids and for water treatment applications. The 515/716 are small, easy to carry, and together with the drum suction kit (ts both 515/716 models) they are ideal to mount on top of a 60 (16 gal) or 200 l (55 Gal) pail. Both models are tted with Te on and stainless steel diaphragms/balls/seats for maximum chemical compatibility, including acids and caustics.

Typical applications

- Sampling and testing
- General purpose
- Excellent abrasion resistance
- Handles acids and caustics
- Good with thinners
- Drum transfer of low to medium viscosity uids
- Fluid circulation and evacuation

Typical uids handled by this pump:

- Acids: Nitric, Cresyllic
- Bleach: Perchloroethylene,
- Base: Caustic soda, Sodium hydroxide (<12%), Ammonia (except Ammonium), Potassium hydroxide
- Thinners: Alcohol, Tri, Ketones, Acetone, Dichlorobenzene, Toluene

Accessories

Product number	Product name
634819	DRUM SUCT. KIT F.515/716
Spare parts available for purchase:	
634795	SERVICE KIT F. 515/716
634811	AIR VALVE REP KIT

DOUBLE DIAPHRAGM PUMP 1050 POLYPROPYLENE

422 777992

The polypropylene diaphragm pump is built with the highest quality precision parts. Long lasting even when used with abrasive uids, making this product very cost effective. Professionals turn to this pump because it offers an easy, hands-off solution to your uid handling needs.

Features

- Easy maintenance
- Fluid compatibility
- Unique, patented air valves
- Precision- tted parts

Bene ts

- Quick priming and immediate ow of product
- Handles uid viscosities up to 5000 cps and solids up to 0.09 in (2.29 mm)
- Excellent for abrasive, low-to-medium viscosity uids and shear sensitive materials

Technical data

Flow capacity, max	189 l/min
Suction height	8.8 m
Material	Polypropylene
Connection size/type	1"
Weight	8.2 kg

The 1 inch (25.4 mm) Husky 1050 double diaphragm pump features a stall-free, low pulsation air valve which provides a smooth and rapid changeover. Available in aluminum, polypropylene, conductive polypropylene, PVDF, stainless steel and hastelloy uid sections.

20% increase in uid ow compared to the Husky 1040

Accessories

Product Number	Product name
Recommended accessories	
191890	40 UPM PLUG 1/2'' MALE BSP.T
618595	SUCTION HOSE 1 IN 5 MTR
729461	HOSE NIPPLES F. 1050 AND 1040 PUMPS
Recommended consumables	
778167	HYTREL SEAT FOR 1050 ALU
778173	SST SEAT FOR 1050 ALU, POLY AND SST
778171	TEFLON BALL FOR 1050 ALU, POLY, SST
778170	SEAT FOR 1050 ALU AND POLY

DOUBLE DIAPHRAGM PUMP 1050 ALUMINIUM

422 777990

The diaphragm pump is built with the highest quality precision parts. Long lasting even when used with abrasive uids making this pump very cost effective. Professionals turn to this pump because it offers an easy, hands-off solution to your uid handling needs.

Features

- Easy maintenance
- Fluid compatibility
- Unique, patented air valves
- Precision- tted parts

Bene ts

- Quick priming and immediate ow of product
- Handles uid viscosities up to 5000 cps and solids up to 0.09 in (2.29 mm)
- Excellent for abrasive, low-to-medium viscosity uids and shear sensitive materials

Technical data

Flow Capacity, max	189 l/min
Suction height	8,8 m
Weight	10,5 kg
Connection size/type	1"

The 1 inch (25.4 mm) Husky 1050 double diaphragm pump features a stall-free, low pulsation air valve which provides a smooth and rapid changeover. Available in aluminum, polypropylene, conductive polypropylene, PVDF, stainless steel and hastelloy uid sections.

20% increase in uid ow compared to the Husky 1040.

Accessories

Product Number	Product name
Recommended accessories	
191890	40 UPM PLUG 1/2'' MALE BSP.T
618595	SUCTION HOSE 1 IN 5 MTR
729461	HOSE NIPPLES F. 1050 AND 1040 PUMPS
778169	HYTREL DIAP KIT FOR 1050 ALU & POLY
Recommended consumables	
778168	ACETAL BALL FOR 1050 ALU & POLY
778173	SST SEAT FOR 1050 ALU, POLY AND SST
778171	TEFLON BALL FOR 1050 ALU, POLY, SST
778170	SEAT FOR 1050 ALU AND POLY

DOUBLE DIAPHRAGM PUMP 1050 STAINLESS STEEL

422 777991

The stainless steel diaphragm pump is built with the highest quality precision parts. Long lasting even when used with abrasive uids making this product very cost effective. Professionals turn to this pump because it offers an easy, hands-off solution to your uid handling needs.

Features

- Easy maintenance
- Fluid compatibility
- Unique, patented air valves
- Precision- tted parts

Bene ts

- Quick priming and immediate ow of product
- Handles uid viscosities up to 5000 cps and solids up to 0.09 in (2.29 mm)
- Excellent for abrasive, low-to-medium viscosity uids and shear sensitive materials

Technical data

Flow Capacity, max	189 l/min
Suction Height	8,8 m
Connection size/type	1"
Weight	16,9 kg

The 1 inch (25.4 mm) Husky 1050 double diaphragm pump features a stall-free, low pulsation air valve which provides a smooth and rapid changeover. Available in aluminum, polypropylene, conductive polypropylene, PVDF, stainless steel and hastelloy uid sections.

20% increase in uid ow compared to the Husky 1040.

Accessories

Product Number	Product name
Recommended accessories:	
618595	SUCTION HOSE 1 IN 5 MTR
729461	HOSE NIPPLES F. 1050 AND 1040 PUMPS
778169	HYTREL DIAP KIT FOR 1050 ALU & POLY
778168	ACETAL BALL FOR 1050 ALU & POLY
778173	SST SEAT FOR 1050 ALU, POLY AND SST
778171	TEFLON BALL FOR 1050 ALU, POLY, SST
778170	SEAT FOR 1050 ALU AND POLY
191890	40 UPM PLUG 1/2'' MALE BSP.T

DOUBLE DIAPHRAGM PUMP 1590 POLYPROPYLENE

422 718643

The diaphragm pump is built with the highest quality precision parts. It combines low weight with long lasting, even when used with abrasive uids, making this pump very cost effective. Professionals turn to this pump because it offers an easy, hands-off solution to your uid handling needs.

Features

- Easy maintenance
- Fluid compatibility
- Unique, patented air valves
- Precision- tted parts

Bene ts

- Quick priming and immediate ow of product
- Handles uid viscosities up to 5000 cps and solids up to 0.09 in (2.29 mm)
- Excellent for abrasive, low-to-medium viscosity uids and shear sensitive materials

Technical data

Flow capacity, max	378 l/min
Suction height	5.48 m
Material	POLYPROPYLENE
Connection size/type	1 1/2"
Weight	16 kg

This is the highest capacity double diaphragm pump in its price class. With all the same durable features of the smaller model, the 1590 has 1,5" npt ports that can take on the heavier, more viscous materials and pump them faster with greater tolerance for suspended solids. Model 1590 has an air valve system that is 100% servicable without disassembly of the wetted parts, saving valuable maintenance time. This pump requires no air line lubrication,which also saves money.

- Highest reliability air valves for no stall operation
- No Lube air valves reduce routine maintenance
- High ow design with complete range of diaphragm options
- Rugged construction for long, trouble free perfomance
- Ideal for spill response and all types of transfer applications

Typical uids handled by this pump:

- Acids: Hydrochloric sulphuric, Phosphoric
- Bleach: Sodium hypochlorite (<12%)
- Base: Sodium hydroxide, Ammonia, Hydrogen peroxide, Potassium hydroxide

Accessories

Product number	Product name
718650	HOSE FLANGE FOR 1590 POLYPROPYLENE
574939	GUARDMAN FIRE HOSE 1 1/2" PER MTR
742916	SUCTION HOSE FOR 1590
729462	HOSE NIPPLES FOR 1590 PUMP

DOUBLE DIAPHRAGM PUMP 1590 ALUMINIUM

422 718635

The diaphragm pump is built with the highest quality precision parts. Long lasting, even when used with abrasive uids, making this pump very cost effective. Professionals turn to this pump because it offers an easy, hands-off solution to your uid handling needs.

Features

- Easy maintenance
- Fluid compatibility
- Unique, patented air valves
- Precision- tted parts

Bene ts

- Quick priming and immediate ow of product
- Handles uid viscosities up to 5000 cps and solids up to 0.09 in (2.29 mm)
- Excellent for abrasive, low-to-medium viscosity uids and shear sensitive materials

Technical data

Flow capacity, max	378 l/min
Suction height	5.48 m
Material	ALUMINIUM
Size	1 1/2"
Weight	15.2 kg

This is the highest capacity double diaphragm pump in its price class. With all the same durable features of the smaller model, the 1590 has 1,5"npt ports that can take on the heavier, more viscous materials and pump them faster with greater tolerance for suspended solids. Model 1590 has an air valve system that is 100% servicable without disassembly of the wetted parts, saving valuable maintenance time. This pump requires no air line lubrication, which also saves money.

- Highest reliability air valves for no stall operation
- No Lube air valves reduce routine maintenance
- High ow design with complete range of diaphragm options
- Rugged construction for long, trouble free perfomance
- Ideal for spill response and all types of transfer applications

Typical uids handled by this pump:

- Oil: Light oil, gear oil, mineral oil
- Fuel: Diesel, leaded petrol/gasoline, fuel oil
- Other: Seawater/brine, general waste water, white spirit, alcohol

Accessories

Product number	Product name
742916	SUCTION HOSE FOR 1590
574939	GUARDMAN FIRE HOSE 1 1/2" PER MTR
729462	HOSE NIPPLES FOR 1590 PUMP

DOUBLE DIAPHRAGM PUMP 2150 ALUMINIUM

422 604926

The diaphragm pump is built with the highest quality precision parts. It combines low weight with long lasting, even when used with abrasive uids, making this pump very cost effective. Chosen by professionals for it's easy, hands-off solution to uid handling needs.

Features

- Easy maintenance
- Fluid compatiability
- Unique, patented air valves
- Precision-Fitted Parts

Bene ts

- Quick priming and immediate ow of product
- Handles uid viscosities up to 5000 cps and solids up to 0.09 in (2.29 mm)
- Excellent for abrasive, low-to-medium viscosity uids and shear sensitive materials

Technical data

Flow capacity, max	568 l/min
Connection size/type	2"
Material	ALUMINIUM
Weight	26.3 kg

This is the highest capacity 2-inch double diaphragm pump in its price class. With all the same durable features of the smaller model, the 2150 has 2 in. npt ports that can take on the heavier, more viscous materials and pump them faster with greater tolerance for suspended solids. Model 2150 has an air valve system that is 100% servicable without disassembly of the wetted parts, saving valuable maintenance time. This pump requires no air line lubrication, which also saves money.

- Highest reliability air valves for no stall operation
- No Lube air valves reduce routine maintenance
- High ow design with complete range of diaphragm options
- Rugged construction for long, trouble free perfomance
- Ideal for spill response and all types of transfer applications

Typical uids handled by this pump:

- Oil: Light oil, gear oil, mineral oil
- Fuel: Diesel, leaded petrol/gasoline, fuel oil
- Other: Seawater/brine, general waste water, white spirit, alcohol

Accessories

Product number	Product name
729463	HOSE NIPPLES FOR 2150 PUMP
607817	SUCTION HOSE 2 IN 5 MTR
574947	GUARDMAN FIREHOSE 2" PER MTR
191890	40 UPM PLUG 1/2'' MALE BSP.T
191692	40 USH SOCKET 1/2" HOSE
671768	AIR HOSE 1/2", RUBBER
Spare parts available for purchase:	
607835	FLUID KIT F/MOD 2150 ALUM
607834	AIR VALVE SEAL KIT

DOUBLE DIAPHRAGM PUMP 2150 STAINLESS STEEL

422 607747

The diaphragm pump is built with the highest quality precision parts. It combines low weight with long lasting, even when used with abrasive uids, making this pump very cost effective. Professionals turn to this pump because it offers an easy, hands-off solution to your uid handling needs.

Features

- Easy maintenance
- Fluid compatiability
- Unique, patented air valves
- Precision- tted parts

Bene ts

- Quick priming and immediate ow of product
- Handles uid viscosities up to 5000 cps and solids up to 0.09 in (2.29 mm)
- Excellent for abrasive, low-to-medium viscosity uids and shear sensitive materials

Technical data

Flow capacity, max	568 l/min
Suction height	5.48 m
Material	STAINLESS STEEL
Connection size/type	2"
Weight	57.6 kg

This is the highest capacity 2-inch double diaphragm pump in its price class. With all the same durable features of the smaller model, the 2150 has 2 in. npt ports that can take on the heavier, more viscous materials and pump them faster with greater tolerance for suspended solids.

Model 2150 has an air valve system that is 100% servicable without disassembly of the wetted parts, saving valuable maintenance time. This pump requires no air line lubrication, which also saves money.

- Highest reliability air valves for no stall operation
- No Lube air valves reduce routine maintenance
- High ow design with complete range of diaphragm options
- Rugged construction for long, trouble free perfomance
- Ideal for spill response and all types of transfer applications

Accessories

Product number	Product name
574947	GUARDMAN FIREHOSE 2" PER MTR
607817	SUCTION HOSE 2 IN 5 MTR
Spare parts available for purchase:	
618884	FLUID KIT FOR SST 2150
607834	AIR VALVE SEAL KIT
729463	HOSE NIPPLES FOR 2150 PUMP

DOUBLE DIAPHRAGM PUMP 3300 ALU

422 764413

The all new 3300 Double Diaphragm pump combines increased performance with extended lifetime.

The Husky 3300, 3 inch (76.2 mm), pneumatic double diaphragm pumps feature a four bolt joint design, which provides even sealing pressure for leak-free operation and a three-piece manifold for increased installation exibility.

Technical data

Max fluid working pressure	8,6 bar
Air pressure operating range	1,4 - 8,6 bar
Max flow rate	1135 l/min

Flow rates up to 300 gpm (1,135 lpm) Modular stall-resistant air valve design Complete 3 inch family of diaphragm pumps available in aluminum or polypropylene center sections Heavy-duty construction Faster change over with spring loaded pilot valves

GREASE PUMP 50:1, FOR 20KG DRUMS

422 655530

The 50:1 features a unique air motor that enables quiet and reliable operation as well easy maintenance.

The pumps are recommended for mobile units and piped installations of moderate length, and are designed to dispense greases with a viscosity up to NLGI 3.

Technical data

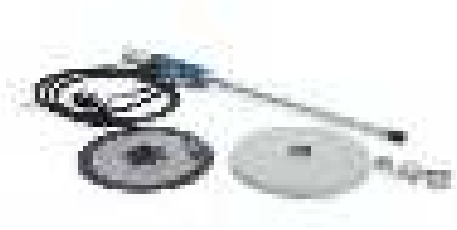
Hose length	4 m
Connection size/type	1/4''
Ratio	50:1

The 4 meter 3/8" hose has a inner tube of synthetic oil resistant layer. Outer layer is made of durable weather and oil resistand rubber. Reinforced by two braids of compact steel wire.

GREASE PUMP 50:1, FOR 50KG DRUMS

422 711309

The 50:1 features a unique air motor that enables quiet and reliable operation as well easy maintenance.



Features

- For greases with viscosity up to NLGI 3
- Supplied with 4 meter 3/8"
- Includes handy trolley

Bene ts

- Fast grease transfer, saving time
- Fits several sized drums

Technical data

Hose length	4 m
Hose dimension	3/8"
Ratio	50:1
Connection size/type	1/4''

The pumps are recommended for mobile units and piped installations of moderate length, and are designed to dispense greases with a viscosity up to NLGI 3.

The pump package includes a 2" bunge adapter for mounting the pump on top of the drum cover as well as a hose and applicator gun. The 50 kg unit is, in addition, supplied with a trolley for easy transport of the heavy grease drums.

The 4 meter 3/8" hose has a inner tube of synthetic oil resistant layer. Outer layer is made of durable weather and oil resistand rubber. Reinforced by two braids of compact steel wire.

Accessories

Product number	Product name
655605	GREASE HOSE 1/4", 6M
655639	HOSE FLEXIBLE FOR GREASEGUN 45CM
655621	UNION 1/4" MALE X 1/4" MALE

CART FOR GREASE PUMP

427 635259

*Note: Needs adapter for 5 Gal drums (635267)

Features

- Two solid wheels and foot
- Practical handle

Bene ts

- Easy transport of heavy grease drums

UNION 1/4" MALE X 1/4" MALE

423 655621

Union 1/4" male X 1/4" male adapter (for connection of two grease hoses)

HOSE FLEXIBLE FOR GREASEGUN 45CM

423 655639

Flexible hose for greasegun 45cm. Connects directly to gun, includes std. coupler.

CONNECTION FOR HAND PUMP FOR 25L PAIL

422 655514

Connection ring for 25L pail. Accessories can be used with product number 637447.

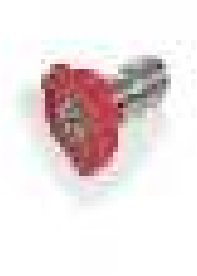
NOZZLE 03 - 0 DEGREES. FOR EXTENDABLE LANCE

436 718619

Pin point nozzle - no spread. Increased reach - cleans only spots

Bene ts

For longer reach



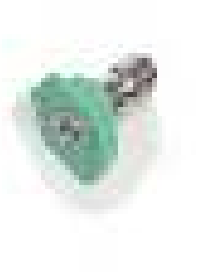
NOZZLE 03 - 25 DEGREES. FOR EXTENDABLE LANCE

436 718627

Wider angle enable larger coverage.

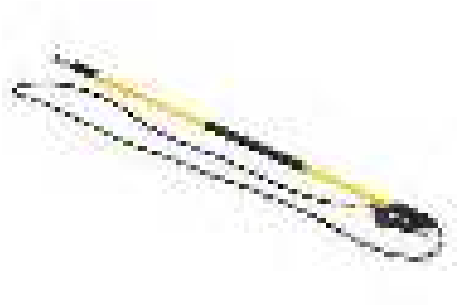
Bene ts

- Cover larger areas



HP EXTENDABLE LANCE 5,5M

436 659151



The Unitor 5,5m lance has been developed in order to enable chemical application above the normal reach of any standard pump. The lance has 3 telescopic tubes which, when extended, slide out to a full length of 5,5m. Inside the sliding tubes the uid is transported using a 3/8" hose which starts at the trigger and exits at the end of the lance in a quick connector. The quick connector enables rapid changing of the nozzle according to the task at hand- 25 for high volume or 0 for spot cleaning. The lance can be used with both the 10:1 and the smaller 2:1 chemical pumps as well as the high pressure cleaners.

Typical set up
Pump > Hose quick connector M & F > Heavy duty hose > Hose quick connector F & M > 5,5m lance > 25 nozzle

Features

- 3 telescopic tubes reach up to 5,5m
- Light weight and easy to operate

Bene ts

- Allows cleaning and access to elevated areas

Technical data

Max operating pressure	270 bar

Accessories

Product number	Product name
Nozzles	
718627	NOZZLE 03/25DGR. F/EXTENDABLE LANCE
718619	NOZZLE 03/0DGR. F/EXTENDABLE LANCE
Hoses	
586776	HEAVY DUTY HOSE 10 MTR
586792	HEAVY DUTY HOSE 15 MTR
586784	HEAVY DUTY HOSE 25 MTR
546036	COUPLING KIT ERGO 3000

FLUID KIT FOR MOD. 307

427 607832

Fluid section repair kit (diaphragms/balls/seats) for mod. 307, polypropylene

STAINLESS NIPPLE FOR 307

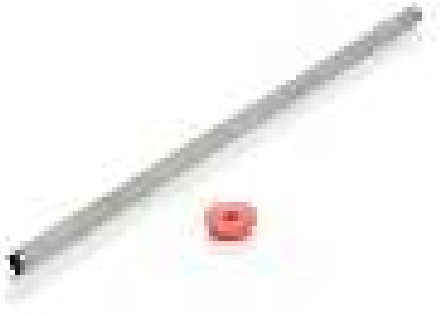
423 607830

Fluid connection nipple for model 307, stainless steel

DRUM SUCT. KIT FOR 515/716

423 634819

The drum suction kit ts direct onto the centre suction port on the Husky 515 and 716 pump. It is made of stainless steel for maximum corrosion resistance and is delivered with a 2" bung hole adapter for tight connection to the drum.



AIR VALVE REPAIR KIT

427 634811

Air valve seal kit for mod 515 & 716

AIR HOSE 3/8", PVC

401 671701

PVC reinforced hose, coil of 50 m. Working pressure 10-20 bar (depending on size.)

Can be used as suction and delivery hos for Double Diaphragm pump 307.

Technical data

Diameter	10 mm

HOSE NIPPLES FOR 515 PUMP

423 729459

Fluid connection nipple for model 515. Made of stainless steel.

Bene ts

- Simple connection for hose

SERVICE KIT FOR 515/716

423 634795

Fluid section repair kit (diahragms/balls/seats) for model 515 polypropylene , 716 stainless steel

FLUID KIT FOR 1040 SST + POLY

427 617738

Fluid section repair kit (diaphragms/balls/seats) for mod. 1040, polypropylene

FLUID KIT FOR MOD 1040 ALUMINIUM

427 617712

Fluid section repair kit (diaphragms/balls/seats) for mod. 1040, aluminium

HOSE NIPPLES FOR 1040 PUMP

423 729461

The male socket allows connection for 1" sized hoses. Recommend to use 1" Ear clam (777971) and pincher tool (768507) for fast connection of supply and delivery hose.

HOSE FLANGE FOR 1040 POLYPROPYLENE

423 634843

1" ANSI raised ange to 1" NPT(f) adapter, polypropylene

ACETAL BALL FOR 1050 ALU & POLY

427 778168

Contains 4 balls and O-rings. Easy to maintain.

Change of consumables prolongs the lifetime of your pump.

HYTREL DIAP KIT FOR 1050 ALU & POLY

427 778169

Contain two diaphragms

Features

- Change of ware parts / consumables prolongs lifetime.

Bene ts

- Easy to maintain

HYTREL SEAT FOR 1050 ALU

427 778167

Kit contains of 4 seats.

Features

- Easy to maintain

Bene ts

- Change of ware parts / consumables prolongs the lifetime of your pump.

SEAT FOR 1050 ALU AND POLY

427 778170

Kit contains 4 seats.

Features

- Easy to maintain.

Bene ts

- Change of ware parts / consumables prolongs the lifetime of your pump.

SST SEAT FOR 1050 ALU, POLY AND SST

427 778173

Kit contains 4 seats.

Features

- Easy to maintain.

Bene ts

- Change of ware parts / consumables prolongs the lifetime of your pump.

TEFLON BALL FOR 1050 ALU, POLY, SST

427 778171

Kit contain 4 balls and O-rings.

Features

- Easy to maintain

Bene ts

- Change of ware parts / consumables prolongs the lifetime of your pump.

SUCTION HOSE 1" 5M

423 618595

1", 5 meter suction hose for 1040 and 1050. Ideal for suction of uid into the DD Pump.

HOSE FLANGE FOR 1590 POLYPROPYLENE

423 718650

1 1/2" ANSI raised ange to 1 1/2" NPT(f) adapter, polypropylene

SUCTION HOSE FOR 1590.

423 742916

1 1/2", 5 meter suction hose for 1590. Ideal for suction of uid into the DD Pump.

HOSE NIPPLES FOR 1590 & 2150

The male socket allows connection for 1 1/2" sized hoses or 2" hoses. Simple connection for both supply and delivery hose.

Ordering information

Product Number	Product name
729462	HOSE NIPPLES FOR 1590 PUMP
729463	HOSE NIPPLES FOR 2150 PUMP

FLUID KIT FOR SST 2150

427 618884

Fluid section repair kit (diaphragms/balls/seats) for mod. 2150, stainless steel

FLUID KIT FOR MODELMOD 2150 ALUMINIUM

427 607835

Fluid section repair kit (diaphragms/balls/seats) for mod. 2150, stainless steel

SUCTION HOSE 2" IN 5M

423 607817

Ideal suction hose for 2150. Flexible hose.

BALL KIT FOR DIAPHRAGM 3300 ALU,POL

427 778166

The ball kit can be used for 3300 pumps made of aluminium and polyethylene.
Maintaining your pump ensure trouble free operation.

SERVICE KIT FOR ALUMINIUM 3275

427 634859

Fluid section repair kit (diaphragms/balls/seats) for mod. 3275, aluminium

AIR VALVE KIT

427 607833

Air valve kit for mod. 307

AIR VALVE REP KIT

427 634867

Air valve seal kit for mod. 3275

AIR VALVE SEAL KIT

427 607834

Air valve seal kit for mod. 1040 & 2150 (all models)

AIR TOOLS

Our range of pneumatic air tools includes air guns, drills, grinders and wrenches.

AIR HOSE, PVC

PVC reinforced hose, coil of 50 m. Working pressure 10-20 bar (depending on size)

Ordering information

Product number	Product name	
671693	AIR HOSE 1/4", PVC (50 MTR)	
671701	AIR HOSE 3/8", PVC (50 MTR)	
671719	AIR HOSE 1/2", PVC (50 MTR)	
671727	AIR HOSE 3/4", PVC (50 MTR)	
671735	AIR HOSE 1", PVC	50 MTR

AIR HOSE, RUBBER

Rubber reinforced hose, coil of 50 m. Working pressure 10 bar. More exible than PVC. Excellent mechanical wear characteristics.

Ordering information

Product number	Product name
671743	AIR HOSE 1/4", RUBBER
671750	AIR HOSE 3/8", RUBBER
671768	AIR HOSE 1/2", RUBBER
671776	AIR HOSE 3/4", RUBBER LTH=50MTR
671786	AIR HOSE 1", RUBBER

FLEXIBLE HOSE 30CM 3/8IN

401 183418

Air hose for use between tool and air supply hose. High felxibilty and reduces vibration wear on the operator.

Features

- 3/8" male in one end
- Plug ts 20, 30 and 40 series Unitor quick coupling
- Working pressure max 300 PSI / max 20 bar

Technical data

Length	300 mm

AIR LINE UNIT FIL/REG/LUB

401 624585

Air line unit lter/reg/lub

Features

- The unit is compact and the stainless steel frame (304 SST) gives exceptionally good protection of the fragile parts in case of tip-over
- The low centre of gravity of the unit increases stability and the Unitor series 400 stainless quick couplings at both inlet and outlet simpli es operation
- The FRL unit also features outlet by-passing the lubricator for oil free air for example during plasma cutting.

Bene ts

- Unitor airline unit lowers the maintenance costs and adds years of trouble free operation to every air operated tool

Accessories

Product number	Product name
191858	400 UPH PLUG 1/2'' HOSE
191700	400 USH SOCKET 1/2'' HOSE

AIR GUN AG-PRO 10

409 718940

The Unitor air gun AG-PRO 10 is ideal for quick removal of chips, dust and particulate from any surface. The short AG-PRO 10 is ideal for cleaning liquid, swarf or dust in the workshop.

Technical data

Length	100 mm
Connection size/type	1/8"

Accessories

Product number	Product name
191874	20 UPM PLUG 1/4'' MALE BSP.T

AIR GUN AG-PRO 30

409 718957

The Unitor air gun AG-PRO 30 is ideal for quick removal of chips, dust and particulate from any surface. Longer lance on the AG-PRO 30 allows projection of air ow directly to required areas.

Bene ts

- Long lance reach narrow areas with ease

Technical data

Length	300 mm
Connection size/type	1/4"

Accessories

Product number	Product name
191874	20 UPM PLUG 1/4'' MALE BSP.T

DECK PLANNER DP-PRO 200

400 734046

The DP-PRO 200 presents a combination of innovative technology with performance, tested features and bene ts in a rugged rotary planer unit. The modern integral design of the machine provides an easier to maneuver unit, end ensures even pro ling and a higher work rate. Suitable for rapidly removing scale, rust, paint and other deposits from steel surfaces in preparation for re-coating.

Features

- Fully adjustable operating height
- Vacuum port as standard
- Accurate depth control
- Variety of accessories

Bene ts

- Operator comfort
- Enable dust control if used with an industrial dust collector
- To regulate material removal to desired effect
- Offers the correct tool for every application

Technical data

Connection size/type	3/4''
Air consumption	4,6 m/-3-Vmin
Rotation speed	1600 RPM
Cutting width	195 mm

The DP Pro 200 is a tough deck planer machine built to tackle the most demanding applications of surface preparation and material removal from large area steel deck surfaces. At 45 kg it is light enough to easily manoeuvre between levels and the accurate depth control and variety of accessories enables material from light rust to heavy scale or paint to be removed at a rapid rate. Simple to use, the DP Pro 200 will take minimal operator training & requires little after sales management.

Accessories

Product number	Product name
Consumables:	
734053	CUTTING WHEEL REPL. KIT, DP-PRO 200
Accessories:	
191965	600 UPF PLUG 3/4'' FEMALE BSP.T

DECK SCALER DSH-PRO 11

400 734061

For use on large area decks & tank bottoms the DSH PRO 11 will fracture & reduce scale, corrosion & thick coatings in minutes. Eleven heads operating at 3000 blows per minute will rapidly break down the most stubborn surface contaminants.

Features

- Vibration damped
- Low pro le body height
- Optional vacuum shroud available
- 11 x 3000 blows per minute

Bene ts

- Increases operator comfort & safety
- For cleaning under steps & pipes
- To reduce hazardous & nuisance dust when used with an industrial dust collector
- Highly productive & effective means of coatings/ corrosion removal

Technical data

Connection size/type	3/4''
Air consumption	1,9 m/-3-V/min
Hamer frequency	11
Cutting width	252 mm

The Unitor DSH-PRO 11 is ideally suited for thick coating removal and surface preparation on large areas of deck and tank oor cleaning, complimenting the Unitor hand held scaling hammer range. Eleven heads impacting at 3000 strokes per minute break down the hardest of coatings.

Accessories

Product number	Product name
Consumables:	
734079	HAMMER REPLACEMENT KIT, DSH-PRO 11
Accessories:	
191965	600 UPF PLUG 3/4'' FEMALE BSP.T

DRILL REVERSIBLE AD-PRO 1800

404 722207

The AD-PRO 1800 is the perfect tool for light and medium duty drilling operations. Despite its light weight the AD-PRO 1800 is extremely durable and also highly ef cient - yet with a minimum amount of air consumed.

Features

- Lighter than any electrical drill in its class
- Ideal for light to medium drilling operations

Bene ts

- Lightweight
- Easy to operate
- Exhaust position does not stand in the way of ef ciency

Technical data

Rotation speed	1800
Air consumption	0.31
Drill diameter max	10 mm
Connection size/type	1/4''
Max air pressure	6,2 bar

Ordering information

Supplied with:
Hose nipple NPT (1 pc)

Accessories

Product number	**Product name**
Accessories:	
191874	20 UPM PLUG 1/4'' MALE BSP.T
632943	SAFETY SPECTACLES CLEAR
Consumables:	
614005	DRILL SET,HSS,KZ 29

ANGLE GRINDER AG-PRO 4 B VERSION

402 756901

The Unitor series of angle grinders is designed to cope with the daily tasks within the tough marine environment. Each unit is fully tested for reliability and endurance during onboard maintenance operations. The Unitor angle grinders are designed for fast and ef cient grinding, cutting and sanding.

Technical data

Disc size	100 mm

Please note that you must only use Unitor original consumables due to the high speeds of the units and the inherent danger of injury to the operator when using low quality consumables.

Accessories

Product number	Product name
Consumables:	
777697	CUP WIRE BRUSH 2.5" W 3/8"X24 UNF
633691	MOP DISCS 100X16MM, #36
191874	20 UPM PLUG 1/4'' MALE BSP.T
191684	30 USH SOCKET 3/8'' HOSE
671750	AIR HOSE 3/8", RUBBER

ANGLE GRINDER 5", AG-PRO 5.

402 721985

The Unitor series of angle grinders is designed to cope with the daily tasks within the tough marine environment. Each unit is fully tested for reliability and endurance during onboard maintenance operations. The unitor angle grinders are designed for fast and ef cient grinding, cutting and sanding. The units are small and lightweight but still extremely powerful. An ideal tool in con ned spaces.

Technical data

Rotation speed	10900
Max air pressure	6,2 bar
Air consumption	0.32
Connection size/type	1/4"
Disc size	125 mm

Please note that you must only use Unitor original consumables due to the high speeds of the units and the inherent danger of injury to the operator when using low quality consumables.

Not suitable for use with cup wire brush.

Ordering information

Supplied with:
Single ended spanner 17
hex. wrench key 6 mm
hose nipple

Accessories

Product number	**Product name**
Consumables:	
633547	CUTTING DISCS 125X3X22
633595	CUTTING DISCS 125X2,5X22
633603	GRINDING WHEELS, 5INCH, INOX, 10PCS
633555	GRINDING WHEELS, 5INCH, 10PCS
633715	MOP DISCS 125X22MM, #36
633723	MOP DISCS 125X22MM, #60
633731	MOP DISCS 125X22MM, #80
Accessories:	
191874	20 UPM PLUG 1/4'' MALE BSP.T
191684	30 USH SOCKET 3/8'' HOSE
671750	AIR HOSE 3/8", RUBBER

ANGLE GRINDER 7", AG-PRO 7

402 721977

The Unitor series of angle grinders is designed to cope with the daily tasks within the tough marine environment. Each unit is fully tested for reliability and endurance during onboard maintenance operations. The Unitor angle grinders are designed for fast and ef cient grinding, cutting and sanding.

Technical data

Connection size/type	3/8
Rotation speed	7600
Air consumption	0.44
Disc size	180 mm

Please note that you must only use Unitor original consumables due to the high rotational speeds of the units and the inherent danger of injury to the operator when using low quality consumables.

Ordering information

Supplied with:
Wrench and spanner
Hose socket 3/8"
Allan key
3 pieces: single ended spanner 17. hex. wrench key 6 mm
1 pc hose nipple

Accessories

Product number	Product name
Consumables:	
633563	CUTTING DISCS 7", 25 PCS
633611	CUTTING DISCS 7", 25 PCS INOX
633571	GRINDING DISCS 7", 10 PCS
633747	MOP DISCS 180X22MM, #60
633755	MOP DISCS 180X22MM, #80
633675	SANDING DISC 180MM, #36
777698	CUP WIRE BRUSH 4" W 5/8"X11 UNF
Accessories:	
191882	30 UPM PLUG 3/8'' MALE BSP.T
191692	40 USH SOCKET 1/2'' HOSE
671768	AIR HOSE 1/2", RUBBER

DIE GRINDER DG-PRO 18

402 722009

Compact and easy to handle tools with extremely high operating speeds. The units are compact, enabling easier operation in con ned spaces. Unitor DG-PRO units can be used for a wide range of tasks such as precision grinding, deburring of machined parts, removing welding slag and shaping of metals.

Technical data

Connection size/type	1/4''
Rotation speed	18000
Air consumption	0.34

Ordering information

Supplied with:
Single ended spanner
Hose nipple

Accessories

Product number	**Product name**
Consumables:	
536797	GRINDING STONES SET 10PCS
Accessories:	
191874	20 UPM PLUG 1/4'' MALE BSP.T

DIE GRINDER DG-PRO 22

402 722017

Compact and easy to handle tools with extremely high operating speeds. The units are compact, enabling easier operation in con ned spaces. Unitor DG-PRO units can be used for a wide range of tasks such as precision grinding, deburring of machined parts, removing welding slag and shaping of metals.

Technical data

Connection size/type	1/4"
Rotation speed	22000
Air consumption	0.22

Ordering information

Supplied with:
Single ended spanner
Hose nipple

Accessories

Product number	**Product name**
Consumables:	
536797	GRINDING STONES SET 10PCS
Accessories:	
191874	20 UPM PLUG 1/4'' MALE BSP.T

IMPACT WRENCH 1/2", IW-PRO 1/2

403 722173

The Unitor impact tool offer consists of a well proven range of wrenches capable of tackling all your daily needs on board. These tools should be choosen when quality, ergonomy and resistance to wear are of vital importance.

Features

- A rugged and well balanced tool for bolt sizes up to M12
- The IW-PRO 1/2" is reversible and has a built-in torque regulator

Technical data

Connection size/type	1/4"
Size	CAPACITY 16 MM
Torque, rated	542 NM
Air consumption	0.32

Accessories

Product number	Product name
Consumables:	
728833	IMPACT SOCKET SET FOR IW-PRO 1/2"
Accessories:	
191874	20 UPM PLUG 1/4'' MALE BSP.T

IMPACT WRENCH 3/4", IW-PRO 3/4

403 722181

The Unitor impact tool offer consists of a well proven range of wrenches capable of tackling all your daily needs on board. These tools should be choosen when quality, ergonomy and resistance to wear are of vital importance.

Features

- It is a well-balanced, powerful, reversible nutrunner, with adjustable torque
- IW-PRO 3/4" has the capacity for heavier-than-average jobs, and can tackle bolts up to size M22

Technical data

Connection size/type	3/8''
Size	CAPACITY 29 MM
Torque, rated	1220 NM
Air consumption	0.42

Accessories

Product number	Product name
Accessories:	
191882	30 UPM PLUG 3/8'' MALE BSP.T

IMPACT WRENCH 1", IW-PRO 1

403 722199

The Unitor impact tool offer consists of a well proven range of wrenches capable of tackling all your daily needs on board. These tools should be choosen when quality, ergonomy and resistance to wear are of vital importance.

Features

- A very powerful, reversible nutrunner with adjustable torque
- It can handle bolts up to size M30
- The exhaust air is directed downwards through the handle

Technical data

Connection size/type	1/2''
Size	CAPACITY 45 MM
Torque, rated	2440 NM
Air consumption	0.74

Accessories

Product number	Product name
Accessories:	
191890	40 UPM PLUG 1/2'' MALE BSP.T

NEEDLE SCALER JEX-2800 LOW VIBRATION

400 682062

The Unitor Jex-2800 represents a new generation of pneumatic scalers developed to suit the demand for a more user-friendly scaler. The new unit features an improved design with improved ergonomics. Vibration is lowered to reduce the user fatigue and increase ef ciency. The unit also features a quick needle-change system that requires no tools.

Technical data

Length	335 mm
Weight	3.1 kg
Connection size/type	3/8"
Air consumption	0.43
Needle size	3&4 MM

Ordering information

Supplied with:
Needle 3 x 180 mm 28 pcs
Mounted needle 4 x 180 mm 14 pcs
Needle supporter 4 mm 1 pc
Bushing 1 pc
Hose nipple 1 pc

Accessories

Product number	**Product name**
Consumables:	
728766	NEEDLES 3MM FOR NS-PRO SERIES
728774	NEEDLES 4MM FOR NS-PRO SERIES
Accessories:	
183418	FLEXIBLE HOSE 30CM 3/8IN

NEEDLE SCALER NS-PRO 19

400 722033

The Unitor NS-PRO chisel range helps you do the job right the rst time, regardless of how big the task is. Each unit has the performance features to give you "a dozen tools in one" easy-to-use, pneumatic instrument. NS-PRO chisels tackle each job effectively and effortlessly, with a minimum of operator effort needed.

Features

- Heavy duty and highly ef cient smaller needle scaler for applications, on board, where you do not need the biggest units
- These units can be used with 2 mm or 3 mm needles depending on application

Technical data

Connection size/type	1/4"
Air consumption	0.10
Needle size	2&3 MM

The NS-PRO chisels operate without springs. This means no springs to break, no irregular power, and the advantage of low air consumption. The needles adjust automatically to operate ef ciently on your workpiece irrespective of the contours.

Ordering information

Supplied with:
Needle 3 x 180 mm mounted
Hose nipple

Accessories

Product number	**Product name**
Consumables:	
728758	NEEDLES 2MM FOR NS-PRO SERIES
728766	NEEDLES 3MM FOR NS-PRO SERIES

NEEDLE SCALER NS-PRO 19 - STRAIGHT

400 722041

The Unitor NS-PRO chisel range helps you do the job right the rst time, regardless of how big the task is. Each unit has the performance features to give you "a dozen tools in one" easy-to-use, pneumatic instrument. NS-PRO chisels tackle each job effectively and effortlessly, with a minimum of operator effort needed.

Features

- Heavy duty and highly ef cient smaller needle scaler for applications, on boaard, where you do not need the biggest units
- These units can be used with 2 mm or 3 mm needles depending on application

The NS-PRO chisels operate without springs. This means no springs to break, no irregular power, and the advantage of low air consumption. The needles adjust automatically to operate ef ciently on your workpiece irrespective of the contours.

Technical data

Connection size/type	1/4"
Air consumption	0.14
Needle size	2&3 MM

Ordering information

Supplied with:
Needle 3 x 180 mm mounted on NS-PRO 19
Hose nipple

Accessories

Product number	**Product name**
Consumables:	
728758	NEEDLES 2MM FOR NS-PRO SERIES
728766	NEEDLES 3MM FOR NS-PRO SERIES

NEEDLE SCALER NS-PRO 28

400 722025

The Unitor NS-PRO chisel range helps you do the job right the rst time, regardless of how big the task is. Each unit has the performance features to give you "a dozen tools in one" easy-to-use, pneumatic instrument. NS-PRO chisels tackle each job effectively and effortlessly, with a minimum of operator effort needed.

Features

- Heavy duty and highly ef cient needle scaler for the most demanding applications on board
- The quality and ef ciency of this tool has made the NS-PRO 28 popular in the marine industry
- This unit removes thick layers of rust and scale hour after hour
- Can be used with both 3 mm and 4 mm needles depending on application

Technical data

Connection size/type	3/8"
Air consumption	0.21
Needle size	3&4 MM

The NS-PRO chisels operate without springs. This means no springs to break, no irregular power, and the advantage of low air consumption. The needles adjust automatically to operate ef ciently on your workpiece irrespective of the contours.

Ordering information

Supplied with:
Needle 3 x 180 mm mounted
Hose nipple

Accessories

Product number	**Product name**
Consumables:	
728758	NEEDLES 2MM FOR NS-PRO SERIES
728766	NEEDLES 3MM FOR NS-PRO SERIES
728774	NEEDLES 4MM FOR NS-PRO SERIES
Accessories:	
183418	FLEXIBLE HOSE 30CM 3/8IN

NEEDLE SCALER NS-PRO 66

400 722108

The Unitor NS-PRO chisel range helps you do the job right the rst time, regardless of how big the task is. Each unit has the performance features to give you "a dozen tools in one" easy-to-use, pneumatic instrument. NS-PRO chisels tackle each job effectively and effortlessly, with a minimum of operator effort needed.

Technical data

Connection size/type	1/4"
Air consumption	0.15
Needle size	2, 3 & 4 MM

The NS-PRO chisels are without springs. This means no springs to break, no irregular power, and the advantage of low air consumption. The needles adjust automatically to operate ef ciently on your workpiece irrespective of the contours.

Ordering information

Supplied with:
Needle 3 x 180 mm 35 pcs
Hose nipple

Accessories

Product number	**Product name**
Consumables:	
728758	NEEDLES 2MM FOR NS-PRO SERIES
728766	NEEDLES 3MM FOR NS-PRO SERIES
728774	NEEDLES 4MM FOR NS-PRO SERIES

CHISEL SCALER CS-PRO 62

400 722116

Power and performance to enable you to do scores of shipboard descaling and cleaning jobs quickly, ef ciently and economically.

Application areas:

- Removing old paint and rust from ship decks
- Dislodging solid matter from outer ship plates
- Removing concrete adhered to panels
- Cleaning steel tanks
- Dislodging scale from boilers, plus scores of other applications

Technical data

Length	620 mm
Connection size/type	3/8"
Air consumption	0.14

Ordering information

Supplied with:
Hose nipple
Hex wrench key

CHISEL SCALER CS-PRO 120

400 722124

Power and performance to enable you to do scores of shipboard descaling and cleaning jobs quickly, ef ciently and economically.

Application areas:

- Removing old paint and rust from ship decks
- Dislodging solid matter from outer ship plates
- Removing concrete adhered to panels
- Cleaning steel tanks
- Dislodging scale from boilers, plus scores of other applications

Technical data

Length	1200 mm
Connection size/type	3/8"
Air consumption	0,14

Ordering information

Supplied with:
Hose nipple
Hex wrench
Spanner

CHISEL HAMMER CH-PRO 25

400 722132

Chipping hammer CH-PRO 25 and CH-PRO 33 Straight makes chipping after welding easy. High power and high performance saves time and improves productivity.

Features

- Both are compact, economical units designed for all kinds of chipping work
- A ball lock system allows the chisel to be changed quickly and easily
- Locking or releasing the chisel requires only a slight turn of the stop ring
- The rugged construction assures long-lasting dependability and makes it well suited for use on board for jobs such as de-slagging and de-spattering of welds, cleaning metal surfaces of rust and scale, stripping paint, etc

Technical data

Length	250 mm
Connection size/type	1/4"
Air consumption	0.1

Ordering information

Supplied with:
Curved flat chisel
Hose nipple

CHISEL HAMMER CH-PRO 33

400 722140

Chipping hammer CH-PRO 25 and CH-PRO 33 Straight makes chipping after welding easy. High power and high performance saves time and improves productivity.

Features

- Both are compact, economical units designed for all kinds of chipping work
- A ball lock system allows the chisel to be changed quickly and easily
- Locking or releasing the chisel requires only a slight turn of the stop ring
- The rugged construction assures long-lasting dependability and makes it well suited for use on board for jobs such as de-slagging and de-spattering of welds, cleaning metal surfaces of rust and scale, stripping paint, etc

Technical data

Length	330 mm
Connection size/type	1/4"
Air consumption	0.21

Ordering information

Supplied with:
Curved flat chisel 2 pcs
Hose nipple

Accessories

Product number	**Product name**
Consumables:	
728790	CHISEL SET FOR CH-PRO 33

SCALING HAMMER SH-PRO 1

400 722157

These units have been developed in order to compliment the Needle scalers in more demanding applications for surface preparation and coating removal. They will cut through the toughest corrosion or sediments.

Technical data

Connection size/type	3/8''
Air consumption	0.14
Hamer frequency	1

Ordering information

Supplied with:

Hose nipple

Accessories

Product number	Product name
Consumables:	
722769	PISTON REPLACEMENT KIT FOR SH-PRO 1
Accessories:	
183418	FLEXIBLE HOSE 30CM 3/8IN

SCALING HAMMER SH-PRO 3

400 722165

These units have been developed in order to compliment the Needle scalers in more demanding applications for surface preparation and coating removal. They will cut through the toughest corrosion or sediments.

Technical data

Connection size/type	3/8''
Air consumption	0.22
Hamer frequency	3

Ordering information

Supplied with:
Hose nipple 2 pcs

Accessories

Product number	**Product name**
Consumables:	
722462	PISTON REPLACEMENT KIT FOR SH-PRO 3
Accessories:	
183418	FLEXIBLE HOSE 30CM 3/8IN

USH SOCKET

The Unitor couplers are time tested and proven to out-perform in all applications and to be totally leakage free. They are the result of many years of development aimed in one direction: an uncompromising standard of quality and ow performance in each and every application.

Features

- Time tested and proven over 30 years to be precision perfect and leakage free
- Helps you build ef cient air lines everywhere on board

Bene ts

- Uncompromising standard of quality and ow performance in each and every application

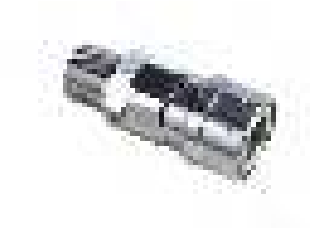
The plug and socket tting portion of couplings 20,30 and 40 are interchangeable, as are those of the 400, 600 and 800 couplings. This means that a coupling 20 may be connected to a 30 or 40, the only difference being the ow capacity of the couplings.

Ordering information

Product number	Product name
191676	20 USH SOCKET 1/4'' HOSE
191684	30 USH SOCKET 3/8'' HOSE
191692	40 USH SOCKET 1/2'' HOSE
191700	400 USH SOCKET 1/2'' HOSE
191718	600 USH SOCKET 3/4'' HOSE
633459	800 USH SOCKET 1" HOSE

USM SOCKET

The Unitor couplers are time tested and proven to out-perform in all applications and to be totally leakage free.



Features

- Time tested and proven for over 30 years to be precision perfect and leakage free
- Helps you build ef cient air lines everywhere on board

Bene ts

- Uncompromising standard of quality and ow performance in each and every application

The plug and socket tting portion of couplings 20,30 and 40 are interchangeable, as are those of the 400, 600 and 800 couplings. This means that a coupling 20 may be connected to a 30 or 40, the only difference being the ow capacity of the couplings.

Ordering information

Product number	Product name
191726	20 USM SOCKET 1/4'' MALE BSP.T
191734	30 USM SOCKET 3/8'' MALE BSP.T
191742	40 USM SOCKET 1/2'' MALE BSP.T
191759	400 USM SOCKET 1/2'' MALE BSP.T
191767	600 USM SOCKET 3/4" MALE BSP.T
633467	800 USM SOCKET 1" MALE BSP.T

USF SOCKET

Helps you build ef cient air lines everywhere on board. The Unitor couplers are time tested and proven to out-perform in all applications and to be totally leakage free.

Features

- Time tested and proven for over 30 years to be precision perfect and leakage free
- Helps you build ef cient air lines everywhere on board

Bene ts

- Uncompromising standard of quality and ow performance in each and every application

The plug and socket tting portion of couplings 20, 30 and 40 are interchangeable, as are those of the 400, 600 and 800 couplings. This means that a coupling 20 may be connected to a 30 or 40, the only difference being the ow capacity of the couplings.

Ordering information

Product number	Product name
191775	20 USF SOCKET 1/4'' FEMALE BSP.T
191783	30 USF SOCKET 3/8'' FEMALE BSP.T
191791	40 USF SOCKET 1/2'' FEMALE BSP.T
191809	400 USF SOCKET 1/2'' FEMALE BSP.T
191817	600 USF SOCKET 3/4'' FEMALE BSP.T
633475	800 USF SOCKET 1" FEMALE BSP.T

UPH PLUG

Helps you build ef cient air lines everywhere on board. The Unitor couplers are time tested and proven to out-perform in all applications and to be totally leakage free.

Features

- Time tested and proven for over 30 years to be precision perfect and leakage free
- Helps you build ef cient air lines everywhere on board

Bene ts

- Uncompromising standard of quality and ow performance in each and every application

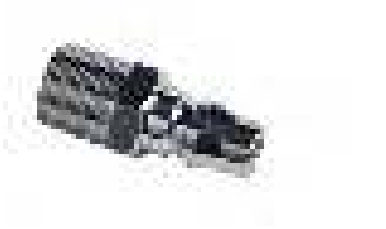
The plug and socket tting portion of couplings 20, 30 and 40 are interchangeable, as are those of the 400, 600 and 800 couplings. This means that a coupling 20 may be connected to a 30 or 40, the only difference being the ow capacity of the couplings.

Ordering information

Product number	Product name
191825	20 UPH PLUG 1/4" HOSE
191833	30 UPH PLUG 3/8'' HOSE
191841	40 UPH PLUG 1/2" HOSE
191858	400 UPH PLUG 1/2'' HOSE
191866	600 UPH PLUG 3/4'' HOSE
633483	800 UPH PLUG 1" HOSE

UPM PLUG

Helps you build ef cient air lines everywhere on board. The Unitor couplers are time tested and proven to out-perform in all applications and to be totally leakage free.



Features

- Time tested and proven for over 30 years to be precision perfect and leakage free
- Helps you build ef cient air lines everywhere on board

Bene ts

- Uncompromising standard of quality and ow performance in each and every application

20 UPM socket with 1/4” male thread, for air connection system

The plug and socket tting portion of couplings 20, 30 and 40 are interchangeable, as are those of the 400, 600 and 800 couplings. This means that a coupling 20 may be connected to a 30 or 40, the only difference being the ow capacity of the couplings.

Ordering information

Product number	Product name
191874	20 UPM PLUG 1/4'' MALE BSP.T
191882	30 UPM PLUG 3/8'' MALE BSP.T
191890	40 UPM PLUG 1/2'' MALE BSP.T
191908	400 UPM PLUG 1/2'' MALE BSP.T
191916	600 UPM PLUG 3/4'' MALE BSP.T
633491	800 UPM PLUG 1" MALE BSP.T

UPF PLUG

Helps you build ef cient air lines everywhere on board. The Unitor couplers are time tested and proven to out-perform in all applications and to be totally leakage free.

Features

- Time tested and proven for over 30 years to be precision perfect and leakage free
- Helps you build ef cient air lines everywhere on board

Bene ts

- Uncompromising standard of quality and ow performance in each and every application

316 Stainless steel

The plug and socket tting portion of couplings 20, 30 and 40 are interchangeable, as are those of the 400, 600 and 800 couplings. This means that a coupling 20 may be connected to a 30 or 40, the only difference being the ow capacity of the couplings.

Ordering information

Product number	Product name
191924	20 UPF PLUG 1/4'' FEMALE BSP.T
191932	30 UPF PLUG 3/8'' FEMALE BSP.T
191940	40 UPF PLUG 1/2'' FEMALE BSP.T
191957	400 UPF PLUG 1/2'' FEMALE BSP.T
191965	600 UPF PLUG 3/4'' FEMALE BSP.T

UNITOR MEDUSA AIR DISTRIBUTOR

405 193490

The Medusa is an ideal product for distributing air to several tools or other sources needing air

The inlet is from a 1/2" or a 3/4" hose with a 400, 600 and 800 series socket.

The ve outlets are for 1/4", 3/8" or 1/2" hoses with the respective 20, 30 or 40 series plug.

AIR MOTOR REP KIT FOR AD-PRO 1800

407 728659

Repair kit for the motor on the AD - Pro 1800. Maintaining your air tool ensure trouble free operation.

CUTTING WHEEL REPLACEMENT KIT FOR DP-PRO 200

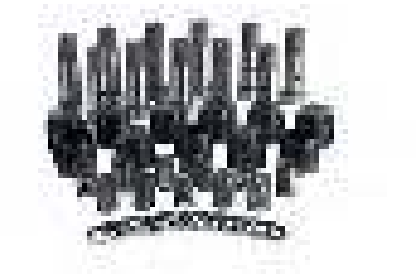
401 734053

Complete kit with 200 cutting wheels

HAMMER REPLACEMENT KIT DSH-PRO 11

401 734079

Hammer replacement kit DSH-PRO 11



HOSE CLAMP

Worm drive hose clamps are used where there is a need for rapid mounting/dismantling of hoses.

Ear clamps offer a better and safer solution comparred to worm type / jubilee clips when mounting hoses.
In some countries the use of worm type / jubilee clips is not allowed. Ear clamps are than the alternative product.

Ordering information

Product number	Product name
729442	HOSE CLAMP FOR 1/4" HOSE (10 PCS
729444	HOSE CLAMP FOR 1/2" HOSE (10 PCS)
729445	HOSE CLAMP FOR 3/4" HOSE (10 PCS)
729446	HOSE.CLAMP FOR 1" HOSE (10 PCS)

CLAMP 1 EAR

Ear clamps are commonly used where a minimal protrusion and a small clamping range is essential. They are commonly used for welding gas hoses. Also suitable for use with rubber hoses, plastic tubing and electrical cables.

Features

- Unique clamp design
- Specially deburred edges reduce the risk of damage to the part being clamped
- Material stainless steel

Bene ts

- Fast, simple and safe installation
- Tampering is visible
- Long lasting connection

Ordering information

Product number	Product name
768416	CLAMP 1 EAR 12,3-14,3MM 1/4" HOSE
768440	CLAMP 1 EAR 17,1-20,0MM OD HOSE
768432	CLAMP 1 EAR 15,6-17,8MM 3/8" HOSE
768457	CLAMP 1 EAR 22-24.8 MM 1/2 " HOSE
768481	CLAMP 1 EAR 26,5-30,0MM 3/4" HOSE
777971	CLAMP 1 EAR 29.3 - 34 MM 1" HOSE

GRINDING STONES SET 10 PCS

401 536797

Grinding stones set 10 pcs

Technical data

Quantity	10 -
Size	6 MM

CUTTING DISCS INOX

Unitor high quality cutting and grinding wheels ensure a highest possible degree of ef ciency without compromising on operator safety.

Unitor cutting discs are ideal to be used with electrical or air operated angle grinders.

Features

- Inox depressed wheels with soft bonding for use on stainless steel and high alloy stainless steel
- The soft bonding also enables the Inox wheels to be used on aluminium
- Iron free

Ordering information

Product number	Product name
633595	CUTTING DISCS 125X2,5X22
633611	CUTTING DISCS 7", 25 PCS INOX
633627	CUTTING DISCS 230X3X22

Supplied with:

- Pack of 25 pcs

CUTTING DISCS

Cutting and grinding consumables: Unitor high quality cutting and grinding wheels ensure the highest possible degree of ef ciency without compromising on operator safety.

Standard depressed wheels with medium bonding for general use on a variety of metals.

Ordering information

Product number	Product name
633515	CUTTING DISCS 100X2.5X16
633531	CUTTING DISCS 115X2.5X22
633547	CUTTING DISCS 125X3X22
633563	CUTTING DISCS 7", 25 PCS
633579	CUTTING DISCS 230X3X22

Supplied with:

- Pack of 25 pcs

Approvals

Applies to EN 12413

GRINDING DISCS

The Unitor high quality cutting and grinding wheels ensure the highest possible degree of ef ciency without compromising on operator safety.

Unitor cutting discs are ideal to be used with electrical or air operated angle grinders.

Standard depressed wheels with medium bonding for general use on a variety of metals.

Ordering information

Product number	Product name
633523	GRINDING DISCS, 4" - 10 PCS
633539	GRINDING DISCS 115X6X22
633555	GRINDING WHEELS, 5INCH, 10PCS
633571	GRINDING DISCS 7", 10 PCS
633587	GRINDING DISCS 230X6X22

SANDING DISC

The Unitor high quality abrasive bre discs and abrasive mop discs ensure the highest possible degree of ef ciency with a long service life.

Fibre discs to be used with backing pads. Unitor bre discs are made of aluminium oxide grain with resin bonding for multi purpose application on a wide range of metals.

Features

- Recognised by a low clogging rate
- Even grinding nish
- Ideal for applications requiring cool grinding

Ordering information

Product number	Product name
692582	SANDING DISC 100MM, #36
633675	SANDING DISC 180MM, #36

MOP DISCS

The Unitor high quality abrasive bre discs and abrasive mop discs ensure the highest possible degree of ef ciency with a long service life.

Features

- Recognised by a low clogging rate
- Even grinding nish
- Ideal for applications requiring cool grinding

Mop discs are made of abrasive coated aps fastened to a glass fabric backing plate. The even arrangement of the aps guarantees high exibility and constant high grinding performance over the tools complete service life. Unitor mop discs are made of alumina zirconia grain with resin bonding. This combination is equally suitable for application on steels, stainless steel, aluminium, plastic, wood, etc.

Unitor cutting discs are ideal to be used with electrical or air operated angle grinders.

Ordering information

Product number	Product name
633691	MOP DISCS 100X16MM, #36
633699	MOP DISCS 100X16MM, #60
633707	MOP DISCS 100X16MM, #80
633715	MOP DISCS 125X22MM, #36
633723	MOP DISCS 125X22MM, #60
633731	MOP DISCS 125X22MM, #80
633747	MOP DISCS 180X22MM, #60
633755	MOP DISCS 180X22MM, #80

Supplied with:

- Pack of 10 discs

CUP WIRE BRUSH 2.5" W 3/8"X24 UNF.

401 777697

Cup wire brush for use with AG-PRO 4/4B

CUP WIRE BRUSH 4" W 5/8"X11 UNF.

401 777698

Cup wire brush for use with AG-PRO 7

IMPACT SOCKET SET FOR IW-PRO 1/2"

401 728833

Impact socket set for IW-PRO 1/2"

PISTON REPLACEMENT KIT

Piston replacement kit for SH-PRO 3 and 1

Ordering information

Product number	Product name
722462	PISTON REPLACEMENT KIT FOR SH-PRO 3
722769	PISTON REPLACEMENT KIT FOR SH-PRO 1

NEEDLES FOR NS-PRO SERIES

Needles for NS-PRO series

Ordering information

Product number	Product name
728758	NEEDLES 2MM FOR NS-PRO SERIES
728766	NEEDLES 3MM FOR NS-PRO SERIES
728774	NEEDLES 4MM FOR NS-PRO SERIES

SCRAPER 100 MM FOR CS-PRO 62 & 120

401 728832

Technical data

Width	100 mm

CHISEL SET FOR CH-PRO 33

401 728790

Chisel set for CH-PRO 33

WORKSHOP EQUIPMENT

Supplying a variety of workshop equipment our portfolio includes wire lubricators, electric and battery tools, along with hydraulic equipment.

UNITOR WIRE ROPE LUBRICATOR UWL77

482 728840

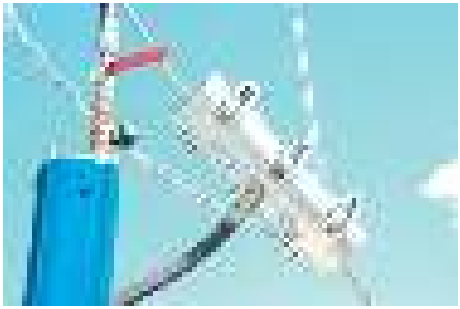
Unitor Wire Rope Lubricator solves the lubrication problem, saving time and expanding rope lifetime.

Features

- Easy to use – saves time and man-hours
- Supplied with pump and hoses

Bene ts

- Prolongs the life of a wire rope by up to 100%
- Increases safety during wire lifetime



High pressure pump with ow control valve, drum cover, ow control value, follower plate, 3 m of exible grease hose, Unitor Lubricating chamber, 2 lengths of anchor chain. Model UWL 77 - seals set for this model come in 15 diameters at 3 mm intervals.

Seals must be ordered separately.

Technical data

Connection size/type	1/4''
Air consumption	0.38
Ratio	5:1
Inlet air pressure	7 - 8 bar

Accessories

Product number	Product name
729086	SEAL KIT FOR UWL77 - 34MM.
729087	SEAL KIT FOR UWL77 - 35MM.
729088	SEAL.KIT FOR UWL77 - 38MM
729089	SEAL KIT FOR UWL77 - 41MM
729091	SEAL .KIT FOR UWL77 - 47MM
729092	SEAL .KIT FOR UWL77 - 50MM
729093	SEAL .KIT FOR UWL77 - 53MM
729094	SEAL .KIT FOR UWL77 - 56MM
729095	SEAL .KIT FOR UWL77 - 59MM
729096	SEAL .KIT FOR UWL77 - 62MM
729097	SEAL .KIT FOR UWL77 - 65MM
729098	SEAL .KIT FOR UWL77 - 68MM
729099	SEAL .KIT FOR UWL77 - 71MM
729100	SEAL .KIT FOR UWL77 - 74MM

UNITOR WIRE ROPE LUBRICATOR UWL35

482 728980

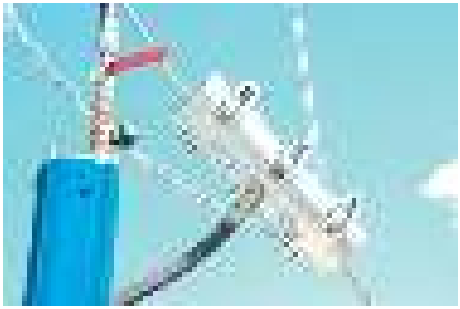
Unitor wire rope Lubricator solves the lubrication problem, saving time and expanding ropes lifetime

Features

- Easy to use – saves time and man-hours
- Supplied with pump and hoses

Bene ts

- Prolongs the life of a wire rope by up to 100%
- Increases safety during wire lifetime



High pressure pump with ow control valve, drum cover, ow control value, follower plate, 3 m of exible grease hose, Unitor Lubricating chamber, 2 lengths of anchor chain. Model UWL 35 - seals set for this model come in 17 diameters at 2 mm intervals.

Seals must be ordered seperatly.

Technical data

Hose length	3 m
Connection size/type	1/4''
Air consumption	0.38
Ratio	5:1
Inlet air pressure	7 - 8 bar

Accessories

Product number	Product name
722587	SEAL KIT FOR UWL35 - 4MM
728998	SEAL KIT FOR UWL35 - 6MM
729004	SEAL KIT FOR UWL35 - 8MM
729020	SEAL KIT FOR UWL35 - 12MM
729038	SEAL.KIT FOR UWL35 - 14MM
729046	SEAL KIT FOR UWL35 - 16MM.
729053	SEAL KIT FOR UWL35 - 18MM
729061	SEAL KIT FOR UWL35 - 20MM.
729079	SEAL KIT FOR UWL35 - 22MM
729080	SEAL .KIT FOR UWL35 - 24MM
729081	SEAL KIT FOR UWL35 - 26MM
729082	SEAL .KIT FOR UWL35 - 28MM.
729083	SEAL KIT FOR UWL35 - 30MM
729084	SEAL KIT FOR UWL35 - 32MM.
Spare parts available for purchase:	
728881	LUBRICATOR.CHAMBER FOR UMWL35

SEAL KIT FOR UWL35

Seal for UWL 35
A set of seals can lubricate approximately 9000 - 12000 ft. (3000 - 4000 m) of wire rope

Ordering information

Product number	Product name
722587	SEAL KIT FOR UWL35 - 4MM
728998	SEAL KIT FOR UWL35 - 6MM
729004	SEAL KIT FOR UWL35 - 8MM
729020	SEAL KIT FOR UWL35 - 12MM
729038	SEAL.KIT FOR UWL35 - 14MM
729046	SEAL KIT FOR UWL35 - 16MM.
729053	SEAL KIT FOR UWL35 - 18MM
729061	SEAL KIT FOR UWL35 - 20MM.
729079	SEAL KIT FOR UWL35 - 22MM
729080	SEAL .KIT FOR UWL35 - 24MM
729081	SEAL KIT FOR UWL35 - 26MM
729082	SEAL .KIT FOR UWL35 - 28MM.
729083	SEAL KIT FOR UWL35 - 30MM
729084	SEAL KIT FOR UWL35 - 32MM.

SEAL KIT FOR UWL77

Seal for UWL 77
A set of seals can lubricate approximately 9000 - 12000 ft. (3000 - 4000 m) of wire rope

Ordering information

Product number	Product name
729088	SEAL.KIT FOR UWL77 - 38MM
729089	SEAL KIT FOR UWL77 - 41MM
729091	SEAL .KIT FOR UWL77 - 47MM
729092	SEAL .KIT FOR UWL77 - 50MM
729093	SEAL .KIT FOR UWL77 - 53MM
729094	SEAL .KIT FOR UWL77 - 56MM
729095	SEAL .KIT FOR UWL77 - 59MM
729096	SEAL .KIT FOR UWL77 - 62MM
729097	SEAL .KIT FOR UWL77 - 65MM
729098	SEAL .KIT FOR UWL77 - 68MM
729099	SEAL .KIT FOR UWL77 - 71MM
729100	SEAL .KIT FOR UWL77 - 74MM

JIG SAW

440 721878

A compact jig saw with ergonomic handle design. Light and handy, ideal for any application.

Powerful 600 watt motor with large power reserves. Patented FIXTEC system for fast saw blade changing without any tools. Exact saw blade guidance with blade support roller on needle bearings tted in a very low position. Full-wave electronics with variable preselection of stroke rate from 450 to 3000 RPM for work suited to materials. Four-stage adjustment of the pendulum action for increased cutting performance and longer saw blade service life. Very comfortable, handy ergonomic design. Also suitable for left-handed use. Base plate variable on both sides for precise mitre cuts to 45°, can be locked in positions 0°, 15°, 30° and 45°. Longitudal displacement of the base plate for sawing close to the edge. Clean cutting edge with anti-splintering devise. Sawdust blower and integrated dust extraction adaptor for clean work and clear view of the cutting area.

Technical data

Power, rated	0.6 kW
Voltage	230 (50/60 Hz) V

Ordering information

Supplied with:
Combined parallel guide
Circular guide
Saw blade
Plastic guide shoe
Anti-splintering device
Spanner

BENCH CUTTER

440 615218

Suitable for all angle grinders with M 14 spindle thread and disc.

Diameters of at least 150 mm, without conversion. Solid smooth surfaced die-cast base. Automatic swing back cutting disc hood. Spark protection. Mitre cuts possible to 45°. Maximum disc use through favourable swivel point and fully adjustable vice. Robust die-cut clamping device (with hard rubber) for angle grinders. Stable die-cast aluminium casing. Suitable for all two hand angle grinders.

Technical data

Spindle size	M 14
Vice span	120 mm
Base plate	325 x 290 mm

Ordering information

Supplied with:
Clamping device supplied as standard vice handle
2 clamping screws
M 14 transport safety device
Spanner
SW 17/21

BATTERY DRILL 12 V

440 721803

Keyless chuck POWER PLUS high-torque motor: 30% more torque, 20% more ef ciency variable speed trigger switch and softstart reversible action. QUICKSTOP motorbrake: spindle comes to an instant standstill two-speed synchromesh gears direct bit reception in drill spindle. Less weight and improved visibility. 19-stage torque adjustment: uniform results and optimised precision when screwdriving in series. 2way- ex battery pack insertion: improved balance and exibility High capacity 12 V / 2.0 Ah battery. Ergonomic softgrip handle design for more comfortable use. Pistol design for extra comfort in drilling applications. Includes 2 batteries.

Technical data

Weight	1.6 kg
Voltage	12 V
Chuck size	1.5-13
Drill diameter max	13 mm

Ordering information

Supplied with:
13mm keyless chuck
12V / 2.0 Ah battery pack
RC charger (1hour)
Carrying case

DRILL, CHUCK SIZE 1-10 MM

440 721894

Powerful, solid and ergonomic powerful drill built to last.

Features

- 600W. 230 Volt. 50/60 Hz
- Optimal speed range for up to 10 mm drilling diameters in metal
- Excellent handling from a compact ergonomic design, with user comfort from soft-grip and broad switch
- Keyless chuck
- QUIK-LOK system for a fast cable change for replacement or extensions
- Electronic: variable preselection of speed via switch

Technical data

Power, rated	0.6 kW
Voltage	230 V
Chuck size	1-10
Drill diameter max	10 mm

Ordering information

Supplied with:

Keyless chuck with retaining screw
QUIK-LOK cable, 4.1 m

DRILL, CHUCK SIZE 3-16 MM

440 721902

Powerful, solid and ergonomic powerful drill built to last.

Features

- Heavy duty with spade handle
- Two-speed synchromesh gears can be shifted when stationary and at no load speed
- Spade handle for reliable control
- Spindle with M18 x 2.5 thread
- Three-jaw chuck 3-16 mm
- Hammer action can be switched of for drilling in wood, ceramics or metal

Bene ts

- Metal gearbox for long service life
- Power and torque for hole diameter up to 50 mm in steel/wood

Technical data

Power, rated	1.01 kW
Voltage	230 V
Electric Cycles	50/60 Hz
Chuck size	3-16
Drill diameter max	16 mm

Ordering information

Supplied with:
Three-jaw chuck
Additional handle
Depth gauge

PERCUSSION DRILL PD2E 22 R

440 778001

Powerful, solid and ergonomic powerful drill built to last.

Features

- Fully insulated metal gearbox for long service life and protection from electric shock
- AVS - Anti-Vibration System dramatically lowers the level of vibration feedback to the user, and makes for more comfortable operation
- Hammer action stop for drilling in wood and metal
- High-quality keyless chuck
- Two-speed synchromesh gears
- Reversible action

Bene ts

- Softgrip on rear handle for more comfortable operation
- Safety clutch protects both the operator and the machine if the tool should block
- Lightweight, ergonomic front handle is fully adjustable and can be securely xed in the best position to suit the required drilling angle

Technical data

Power, Rated	850 W
Weight	2,8 kg

ANGLE GRINDER 5", 10000 RPM

440 721928

This lightweight, slim and ergonomic powerful angle grinder is built to last. Grinding disc diameter is 125 mm.

Features

- Flat compact gearhead allows for optimised cutting depth and longer grinding disk life
- New patented ERGO-switch allows for instinctive user control
- Safety spindle lock and patented FIXTEC ange nut with safety clutch save valuable time when changing grinding discs; no tools required
- Quick release safety guard
- Motor casing with 90° adjustment for four switch positions
- Dust protected bearings and switch Effective cooling fan keeps the motor cool even under heavy duty conditions Automatic cut-out carbon brushes

Bene ts

- Ideal for awkward, dif cult-to-reach places
- Die-cast magnesium alloy gear casing for low-vibration operation and long service life
- Ideal for left hand use
- Dust protection through labyrinth air ow

Technical data

Power, rated	0.75 kW
Voltage	230V 50/60Hz V
Spindle size	M 14
Max cutting depth	33.4 mm
Disc size	125 mm

Use Unitor 5" Grinding, Cutting and Mop discs. When used with Unitor Cutting or Mop discs the fastening nut must be turned.

Ordering information

Supplied with:
Grinding disc
Safety guard
Additional handle
Flange
FIXTEC flange nut

Accessories

Product Number	**Product name**
Consumables	
633555	GRINDING WHEELS, 5INCH, 10PCS

ANGLE GRINDER 7", 8500 RPM

440 721852

Powerful, solid and ergonomic powerful angle grinder built to last. Grinding disc diameter 180 mm with powerful 1900 watt motor

Features

- Patented spindle safety lock saves valuable time when changing discs, with only one key
- Quick release clamp on safety guard; no tools required
- Large-surface safety switch with lock function prevents the machine from being started unintentionally
- Motor casing with 90° adjustment for four switch positions- Ideal for left hand use
- Additional handle can be xed in 3 different positions
- Automatic cut-out carbon brushes

Bene ts

- Very favourable performance/weight ratio 1900 watt / 4.4 kg
- Extremely at metal gearhead for working in awkward, dif cult-to-reach places
- Die-cast magnesium alloy gear casing for low-vibration operation and long service life
- Effective cooling fan keeps the motor cool even under heavy duty operation

Technical data

Power, rated	1.9 kW
Voltage	230V 50/60Hz V
Spindle size	M 14
Max cutting depth	43 mm
Disc size	180 mm
Electric Ampere	A

Use Unitor 7" Grinding, Cutting and Mop discs. When used with Unitor Cutting or Mop discs the fastening nut must be turned.

Ordering information

Supplied with:
Safety guard
Additional handle
Flange
Flange nut
Spanner

GRINDING DISCS 125X3X22

401 633555

Cutting and grinding consumables: Unitor high quality cutting and grinding wheels ensure the highest possible degree of ef ciency without compromising on operator safety.

Standard depressed wheels with medium bonding for general use on a variety of metals.

DRILL BIT SET IMPERIAL - HIGH SPEED STEEL

440 614005

Rollforged twist drill with best toughness combined with good cutting ef ciency for drilling alloyed carbon and plain steel.

Features

- 29 pieces - 1/16" to 1/2"
- DIN 338 RN rollforged
- Point angle 118

Technical data

Quantity	29 -
Size	INCHES

inches: 1/16 5/64 3/32 7/64 1/8 9/64 5/32 11/64 3/16 13/64 7/32 15/64 1/4 17/64 9/32 19/64 5/16 21/64 11/32 23/64 3/8 25/64 13/32 27/64 7/16 29/65 15/32 31/64 and 1/2

BATTERY CHARGER 7.2-24 V/50-60HZ

440 721845

Automatic battery charger. Stops when battery is charged.

Wilhelmsen Ships Service

CLEANING & DOSING EQUIPMENT

We provide a selection of mobile high-pressure cleaners and stationary systems alongside vacuum cleaners, cargo hold cleaning kits and mucking pumps.

UNITOR HAND CARE DISPENSER 2

422 778841

The Unitor Hand soap dispenser is ideal for Unitor Easyclean hand soap and hand sanitizer.
The dispenser is designed to t the Easy Clean Hand Soap D and Easyclean Hand Sanitizer 2 ltr bags.
The dispenser is supplied with wall bracket.

Technical data

Dispenser capacity	2 l

UNITOR CLEANING STATION 2

422 778822

The Unitor Cleaning station allows mixing of up to two different chemicals into ready to use dilution.

The Unitor Cleaning station is ideal for xed installation in galley, engine room, spa, pool or shower areas or other areas that require frequent cleaning with accurate mixing. When the station is installed, time is saved during every cleaning as preparation time is effectively reduced.

The color coded Tips that are included let you choose the correct mixing of water and chemicals. The tips is easy to put in place.

You can also apply only water for cleaning / rinsing. Supplied with a 15 meter food graded hose and a solid spray gun.

The operator can choose from only water (no chemicals) or chemical 1 or chemical 2.

Features

- Two - way chemical dosing or only ushing with water
- Easy to understand selector wheel
- Hose with solid gun
- Easy installation - guide included.

Bene ts

- Accurate dosing - consumes less chemicals
- Safe handling of chemicals
- Easy and convenient way of cleaning and applying ready to use dilution

Technical data

Feed water pressure	Min 1,5 bar inlet pressure
Max inlet pressure	5 bar
Working temp	5 - 55 C
Suction heigth	2 m
Inlet / outlet connections	3/4" G M
Mixing ratio	0,5 % - 16 %
Selctor	PVDF
Gaskets	Dutral
Spring	Hastelloy

Cleaning station complete for one or two products. Flow rate 13 LPM @ 3 bar.

Accessories

Product Number	Product name
778825	TIPS FOR UNITOR DILUTION

UNITOR MIXING STATION 4 - 4

422 778844

One push operating mixing station. Can mix up to 4 different chemicals - easy to choose by using the selector wheel.

Suction from up to 4 canisters of chemicals with up to 4 different mixing ratios.

Unitor Mixing Station 4 - 4 is ideal for lling smaller sprayers when low foaming is required.

For lling of larger volume, the the 4 - 14 is recommended.

Features

- Flow rates: 4 LPM
- Automatically and accurately dilutes chemical concentrates.
- Matches Unitor Easyclean series

Bene ts

- Controls your chemical consumption
- Improved health and safety handling - reduced risk of spilling
- Standardized and correct dosing
- Easy to install, supplied with installation manual
- Low maintenance - no pump or electrical connection

Technical data

Flow Capacity, max	4 l/min
Working pressure	1.8 - 6 bar
Inlet Temperature	45 C (max)
Standard mixing ration	3:1 - 125:1 (low ow) / 3:1 - 350:1 (high ow)

UNITOR MIXING STATION 4 - 14

422 778833

One push operating mixing station. Can mix up to 4 different chemicals - easy to choose by using the selector wheel.

Suction from up to 4 canisters of chemicals with up to 4 different mixing ratios.

Unitor Mixing Station 4 - 14 is ideal for lling buckets, sprayers or oor cleaning equipment.

For lling of smaller bottles the 4 -4 is recommended.

Features

- Flow rates: 14 LPM
- Automatically and accurately dilutes chemical concentrates.
- Matches Unitor Easyclean series

Bene ts

- Controls your chemical consumption
- Improved health and safety handling - reduced risk of spilling
- Standardized and correct dosing
- Easy to install, supplied with installation manual
- Low maintenance - no pump or electrical connection

Technical data

Flow Capacity, max	14 l/min
Working pressure	1.8 - 6 bar
Max working temp	45 C
Standard mixing ratio	3:1 - 125:1 (low ow) / 3:1 - 350:1 (high ow)

Approvals

Complies with European water regulations EN1717

TIPS FOR UNITOR DILUTION

422 778825

Replacement Tips for Unitor Cleaning Station 2 (778822).

The color coded tips enables you to nd the right tip size that ts you needs.

Features

- 15 Color coded tips
- Multiple nozzle sizes

Bene ts

- Easy to understand coding.

JET SPRAY UNIT 10 L STE

664 572099

The Jet Spray Unit is ideal for applying Unitor Electrosolvents, Degreasers, and cleaning chemicals.

The Jet Spray Unit is supplied complete with Instantaneous Control Lance, Cone Spray Nozzle, Charge Pump, Pressure Gauge and Relief Valve (set to operate at 6 bar).

Features

- 10 L tank with carrying strap
- Spray gun and exible hose

Bene ts

- Ergonomic application of chemicals
- Safe to operate
- Fast to pressurize
- Easy to apply pre-mixed dilution

JET SPRAY UNIT 10 L STAINLESS STEEL

664 572123

The Jet Spray Unit is ideal for applying Unitor Electrosolvents, Degreasers, and cleaning chemicals. Supplied complete with Instantaneous Control Lance, Cone Spray Nozzle, Charge Pump, Pressure Gauge and Relief Valve (set to operate at 6 bar).

Features

- Durable stainless steel design
- 10 L tank with carrying strap
- Spray gun and exible hose

Bene ts

- Ergonomic application of chemicals
- Safe to operate
- Fast to pressurize
- Easy to apply pre-mixed dilution

CHEMICAL CLEANING UNIT

664 737189

The Circulation Cleaning Unit is a portable integral unit comprising mixing tank with lid, airdriven Graco Double Diaphragm 1050 stainless steel pump (product number 777991), hoses, heating element and connections. The Pump is installed inside a protective powder coated frame.

Technical data

Drum size	210 ltr
Hose length	9 m
Hose dim	1"
Inlet connector	1" (m)
Outlet connector	1" (m)

Designed for use with acid and caustic based products for descaling boilers, calori ers, heat exchangers and other types of equipment where rust and scale form. It is also ideally suited for degreasing or decarbonising contaminated systems. The unit is supplied with a 210 litre steel drum with expoxy coated interior.

The Chemical Cleaning Unit can be used in conjunction with the following Unitor chemicals:

- Descalex
- Descaling Liquid
- Disclean
- Metal Brite H.D.
- Seaclean
- Coldwash
- Enviroclean
- Alkleen Liquid
- Aquabreak PX
- Carbonclean
- ACC Plus
- Air Cooler Cleaner
- Carbon Remover
- Electrosolv-E
- Aquatuff
- Seaclean Plus
- Commissioning Cleaner
- Ultra CIP

HIGH PRESSURE CLEANING

What is high pressure cleaning?

High pressure cleaning is an effective and economical method of removing dirt and contaminants. Using high pressure cleaning, it is possible to clean in inaccessible places where cleaning would otherwise be impossible or costly and time consuming.

Choosing the right high pressure cleaner

A high pressure cleaner should be selected on the basis of the jobs it needs to carry out. Depending on the type of dirt, surface, working method etc., users can choose between
cold water cleaners, hot water cleaners, stationary units and detergents and accessories. The two main factors are required cleaning impact and intensity of use. Please see 'WSS's High Pressure cleaner selection guide' for recommended application areas for each unit.

Cleaning impact

Cleaning impact re ects the cleaning ef ciency of the unit. The higher the number given, the more time ef cient the unit is. Unitor products are named using this number system in order to simplify selection of the correct unit. The cleaning impact calculation is a formula developed by the industry to describe the combination of water ow and pressure and their combined effect on the surface.

Intensity of use

Intensity of use is related to the durability of the unit; this does not mean that some of our units are inferior products, but that they are simply designed for different applications. A choice has to be made based on the intended use onboard. If the unit will be used for heavy duty cleaning of cargo holds or tanks, high intensity units should be used. However, if the machine is to be used for spot cleaning on deck, there is no need for a unit that is designed to run for 8 hours every day.

Why Unitor cleaners?

WSS offers a wide range of high pressure cleaners that meet most requirements and the large range of accessories and detergents available makes them easy to use. The cleaners are designed to satisfy user demands and to suit various tasks.

WSS global network service back up

In most cases, WSS's global network offers a complete after-sales service package on high pressure cleaners. This includes service and repair and supply of spare parts and accessories, as well as professional advice on various maritime cleaning operations.

Safety notes

Careless use of a high pressure cleaner may result in serious damage or injury. Users should turn the machine off and lock the gun handle when leaving the cleaner.

Never direct the jet straight at people, animals or electrical installations. Read and follow the directions in the instruction manual carefully before using the machine for the rst time.

Increased maintenance ef ciency

Why clean on board? Because a clean ship is a safer ship, a ship which is more ef cient, and more pleasant to work on and to live in. Keeping a ship clean by conventional methods can be time consuming and inef cient, which is why it is often given low priority. Modern high pressure cleaning equipment solves these problems: cleaning with a water jet of up to 300 bar pressure is fast, ef cient and thorough. Reducing time spent on individual cleaning jobs by 70 – 80% means increased cleaning economy, onboard ef ciency, and ultimately, money saved,

General cleaning

All-purpose cleaning is done with a jet spray with up to 200 bar pressure. This method eases cleaning of hard to reach places, and gets into hidden corners which might normally be ignored, removing dirt and contaminants that could contain moisture which create rust attacks on the metal underneath the thickest paint.

Engine room cleaning

Using pre-heated water (up to 85°) or adding solvents and other chemicals will result in cleaning power that cuts through oil and grease in engine rooms - at pressures high enough to ush out dirt from corners and from behind pipes. Clean machinery is easier to operate and easier to service.

Ef cient paint removal

Add a sand lance and a sand injector to a standard Unitor cleaner and you have converted it to the most superior instrument for removing rust or paint - a watersand blaster. On at or curved surfaces, there is no other method more ef cient.

Thorough disinfection

Another ef cient use for the Unitor cleaner is to incorporate a disinfecting foam which is sprayed onto surfaces and sticks to them for up to 30 minutes. It´s guaranteed to get into corners and behind shelves, leaving food storage rooms spotless.

The importance of detergents in high-pressure cleaning

High pressure cleaning ef ciency can be improved by using the correct detergents in correct dosages. Using a high pressure cleaner alone, without any detergent, will not achieve optimal cleaning results. High-pressure cleaning primarily refers to cleaning of hard surfaces, such as decks, tanks, engine-rooms etc. and in the majority of

cases, cleaning is done according to the two-step method:

Step 1: Spray the detergent over the area to be cleaned

Step 2: Wash down the area using a high-pressure water jet

After the detergent has been sprayed on the surface and before the wash down begins, the detergent penetrates and thoroughly moistens dirt and other grime. During wash down, the proper detergent thoroughly dissolves the particles of dirt, including oil and fat, in the water spray and thus achieves optimal cleaning results. In addition to being more effective, the use of proper detergents substantially reduces the time required for the cleaning operation, as well as preventing dirt from reforming on the surface.

Unitor offers a wide range of cleaning chemicals made especially for marine usage and that comply to IMO.

3 Pieces of good advice

- Apply detergent on dry surfaces where possible. A dry surface will absorb detergent far better than a wet surface.
- When applying detergent on vertical surfaces: start application from the bottom and work upwards. By beginning from the top and going downwards, the detergent may produce ‘channels’ down the surface, and run off it too quickly.
- During high pressure cleaning, it is important that the rinsing water does not run over non-cleaned surfaces. The rinsing water can draw soap from the surface if running over non-cleaned surfaces. High pressure together with optimum concentration of detergent will give the best effect. There are several Unitor Chemicals which are suitable for use together with Unitor high pressure cleaners. Detergent is mixed into the water at a pre-set dosage through the cleaners’ chemical injector (built in or detachable).

HP CLEANER HPC 30, 1X220 V/60 HZ

430 729327

Compact and light high pressure cleaner for marine use. Ideal for small and random spot cleaning onboard. Can be used where electrical power is limited. Ideal for use as an extra machine or in areas where space is limited and larger machines are not appropriate.

Features

- Axial pump
- Stainless steel pistons
- Chemical dosing

Bene ts

- Light and compact - easy to transport
- Fast to connect - saves time
- Ideal for areas with limited space
- Ergonomic design - improves work capabilitites

Technical data

Pressure	150 bar
Water ow	660 l/h
Power, rated	3.5
Voltage	220 V
Electric cycles	60 Hz
Electric Ampere	16 (slow fuse) A
IP protection	IP 5X

Also comes with large wheels, is rubber coated, has good stability and transport possibilities. Has an adjustable transport handle where the handle can be adjusted to ease storage and transport of the machine. Comes with 3 stainless steel piston pump, long life pump for light everyday applications. Has an internal chemical injector, no need for external injector, simplifying the cleaning process. The use of detergents is determined directly from the lance, simplifying the operation. Holder for detergent container that holds 5 L containers makes it easy to move the unit during operations. The handle features storage for cable and hose enhances mobility. The built in lance holder provides ideal storage and protects lance from damage.

The HP Cleaner HPC 30 facilitates storage and transport.

Ordering information

Supplied with:
Tornado lance
Spray handle 3000
Quick couplings
10 m H.P. hose

Accessories

Product number	Product name
662197	DOUBLE LANCE 200CM WITH 05 NOZZLE
621813	DRAIN CLEANER, COMPLETE
545335	FOAM INJECTOR DETACHABLE
545343	FOAM LANCE 120CM LONG

Mobile High Pressure Cleaners
HP Cleaners 150 - 220 bar

Product number	Product name
586776	HEAVY DUTY HOSE 10 MTR
586792	HEAVY DUTY HOSE 15 MTR
586784	HEAVY DUTY HOSE 25 MTR
546036	COUPLING KIT ERGO 3000
621896	HOSE CART, MOBILE
659151	EXTENDABLE LANCE 5.5M W/OUT NOZZLE
621938	LONG REACH LANCE
671800	HEAVY DUTY HOSE, BLUE 10M
671818	HEAVY DUTY HOSE, BLUE 25M
718601	NOZZLE 05/0DGR. F/EXTENDABLE LANCE
718585	NOZZLE 05/25DGR. F/EXTENDABLE LANCE
665158	ERGO 3000 SPRAY GUN
577379	STAINL.ST. CLEAN. TROLLEY
662155	TORNADO LANCE 10CM WITH 05 NOZZLE
662189	UNIVERSAL 3000 LANCE 05 NOZZLE
Recommended cleaning chemicals	
571729	HP WASH 25 LTR

Approvals

Corresponds to the following pertinent regulations:

EC Machine Directive 2006/42/EC

EC Low-voltage Directive 2006/95/EC

EC EMC Directive 2004/108/EC

EC RoHS Directive 2011/65/EC

CE

Applied harmonised standards:

EN 12100, EN 60335-2-79, EN 55014-1, EN 55014-2, EN 61000-3-2

Applied national standards and technical speci cations:

DIN EN 60335-2-79

UNITOR HPC 54/1 3X440/60HZ

430 777886

The ideal partner for cleaning tasks onboard. High performance, excellent ergonomics, low noise levels and easy servicing make this an ef cient pressure washer.

For more ef cient cleaning with reduced chemical consumption the unit can be fed with hot water up to 60 degrees C.

The Unitor HPC 54/1 with it's robust and stable design make it adapted to even the toughest environments.

Ideal for 3-4 hours continuously operations.
The 3 piston pump as a low rpm of 1750. 50% reduction in noise level. All controls in one place for ease of use. Visible oil level. Hose reel, additional hose,
Full ceramic piston sleeves.

Features

- Robust unit
- Low RPM for reduced noise and longer life span
- Practical storage for lance and cable

Bene ts

- Economic all purpose high pressure cleaner
- Effectively removes dirt
- Compact and easy to store
- Solves smaller to medium sized cleaning jobs with ease

Technical data

Working pressure	200 bar
Water ow	1000 l/h
Cleaning impact	5,3 kg
Max water inlet temp	60 ° C
Voltage	3~440/60Hz/11,4 A
Power, Rated	6,1 kW
Dimensions L x W x H (mm)	735 x 570 x 1020
Weight	71 kg
Rotation speed	1750 rpm
IP protection	X5
Water inlet connection	3/4" male
Nozzle	0500
Cable length	5 m
Suction heigth	1 m

Accessories

Product name
HEAVY DUTY HOSE 10 MTR
HEAVY DUTY HOSE 15 MTR
HEAVY DUTY HOSE 25 MTR
HEAVY DUTY HOSE, BLUE 10M
HEAVY DUTY HOSE, BLUE 25M
HEAVY DUTY DECK HOSE 25M
AIR HOSE 1", PVC
AIR HOSE 3/4", PVC (50 MTR)
CHEM. INJECTOR DETACHABLE
DRAIN CLEANER, COMPLETE
FOAM INJECTOR DETACHABLE
COUPLING KIT ERGO 3000
TORNADO LANCE 10CM WITH 05 NOZZLE
HOSE CART, MOBILE
TORNADO LANCE 92CM WITH 05 NOZZLE
POWERSPEED LANCE WITH 05 NOZZLE
EXTENDABLE LANCE 5.5M W/OUT NOZZLE
NOZZLE 05/0DGR. F/EXTENDABLE LANCE
NOZZLE 05/25DGR. F/EXTENDABLE LANCE
STAINL.ST. CLEAN. TROLLEY
ERGO 3000 SPRAY GUN

Approvals

Corresponds to the following pertinent regulations:

EC Machine Directive 2006/42/EC

EC Low-voltage Directive 2006/95/EC

EC EMC Directive 2004/108/EC

EC RoHS Directive 2011/65/ECEC

Machine Directive 2006/42/EC

EC Low-voltage Directive 2006/95/EC

EC EMC Directive 2004/108/EC

EC RoHS Directive 2011/65/EC

Applied harmonised standards:

EN ISO 12100-1, EN ISO 12100-2, EN 60335-2-79, EN 55014-1(2002), EN 55014-2(2001), EN 61000-3-2 (2006)

Applied national standards and technical speci cations:

IEC 60335-2-79

UNITOR HPC 67/1 3X440/60HZ

430 777889

The new Unitor HPC 67/1 is a heavy duty cold water high pressure washer that combine renowned lifetime and quality. Optimal ergonomics and mobility offer an innovative partner for applications onboard all vessel types.

Features

- High mobility and ergonomic design
- 4 full ceramic piston pump – ensures long unit life
- Up to 85° C inlet water
- Two tank chemical dosing

Bene ts

- Effectively removes intense dirt
- Reduces cleaning time - cleanes faster
- Reduces water consumption compared to conventional cleaning
- Designed for intense applications up to 8 hours continuous operation

Technical data

Water pressure	195 bar
Water ow	1280 l/h
Max inlet water temp	85C
Cleaning impact	6,7 kg
Dimensions	775x570x1020mm
Weight	90 kg
Rotation speed	1750 rpm
Voltage	3~440/60Hz/11,4A
Power, Rated	8 kW
IP protection	X5
Water inlet connection	3/4" male
Nozzle	0680
Cable length	8 meter
Suction heigth	1 meter

The Unitor HPC 67/1 is equipped with the 4 ceramic pistons pump, double roller bearings, ow activated unloader system and 1750 rpm motor for high intensity use with maximum performance and comfort. Capable of accepting 85°C inlet water, the Unitor HPC 67/1 can be used as an effective hot water cleaner. At 85°C degreasing can be performed without usage of chemicals. The new chemical system allows two different chemicals. If higher volume is needed the suction hose in the tank can be place in a larger canister.

The unit is equipped with additional motor protection for supurb marine operational safety.

The HPC 67/1 gives you high cleaning ef ciency combined with reduced downtime and increased lifetime. HPC 67/1 comes with a castor wheel with brake for high mobility and safety.

Ordering information

Supplied with:
Tornado lance
Spray handle ERGO 2000
Quick coupling
10 m HP hose
8 m electric cable (without socket)
Conical water inlet coupling with a 3/4" hose socket

Accessories

Product name
COUPLING KIT ERGO 3000
ERGO 3000 SPRAY GUN

Approvals

Corresponds to the following pertinent regulations:

EC Machine Directive 2006/42/EC

EC Low-voltage Directive 2006/95/EC

EC EMC Directive 2004/108/EC

EC RoHS Directive 2011/65/ECEC

Machine Directive 2006/42/EC

EC Low-voltage Directive 2006/95/EC

EC EMC Directive 2004/108/EC

EC RoHS Directive 2011/65/EC

Applied harmonised standards:

EN ISO 12100-1, EN ISO 12100-2, EN 60335-2-79, EN 55014-1(2002), EN 55014-2(2001), EN 61000-3-2 (2006)

Applied national standards and technical speci cations:

IEC 60335-2-79

UNITOR HPC 67/1 3X400/50HZ

430 777888

The new Unitor HPC 67/1 is a heavy duty cold water high pressure washer that combine renowned lifetime and quality. Optimal ergonomics and mobility offer an innovative partner for applications onboard all vessel types.

Features

- High mobility and ergonomic design
- 4 full ceramic piston pump – ensures long unit life
- Up to 85° C inlet water
- Two tank chemical dosing

Bene ts

- Effectively removes intense dirt
- Reduces cleaning time - cleanes faster
- Reduces water consumption compared to conventional cleaning
- Designed for intense applications up to 8 hours continuous operation

Technical data

Water pressure	195 bar
Water ow	1280 l/h
Max inlet water temp	85 C
Cleaning impact	6,7 kg
Dimensions	775x570x1020 mm
Weight	90 kg
Rotation speed	1450 rpm
Voltage	3~400V/50Hz/11,4A
Power, Rated	8 kW
IP protection	x5
Water inlet connection	3/4" connical
Nozzle	0680
Cable length	8 m
Suction heigth	1 m (dry)

The Unitor HPC 67/1 is equipped with the 4 ceramic pistons pump, double roller bearings, ow activated unloader system and 1750 rpm motor for high intensity use with maximum performance and comfort. Capable of accepting 85°C inlet water, the Unitor HPC 67/1 can be used as an effective hot water cleaner. At 85°C degreasing can be performed without usage of chemicals. The new chemical system allows two different chemicals. If higher volume is needed the suction hose in the tank can be place in a larger canister.

The unit is equipped with additional motor protection for supurb marine operational safety.

The HPC 67/1 gives you high cleaning ef ciency combined with reduced downtime and increased lifetime. HPC 67/1 comes with a castor wheel with brake for high mobility and safety.

Ordering information

Supplied with:
Tornado lance
Spray handle ERGO 2000
Quick coupling
10 m HP hose
8 m electric cable (without socket).
Conical water inlet coupling with a 3/4" hose socket

Mobile High Pressure Cleaners
HP Cleaners 150 - 220 bar

Approvals

Corresponds to the following pertinent regulations:

EC Machine Directive 2006/42/EC

EC Low-voltage Directive 2006/95/EC

EC EMC Directive 2004/108/EC

EC RoHS Directive 2011/65/ECEC

Machine Directive 2006/42/EC

EC Low-voltage Directive 2006/95/EC

EC EMC Directive 2004/108/EC

EC RoHS Directive 2011/65/EC

Applied harmonised standards:

EN ISO 12100-1, EN ISO 12100-2, EN 60335-2-79, EN 55014-1(2002), EN 55014-2(2001), EN 61000-3-2 (2006)

Applied national standards and technical speci cations:

IEC 60335-2-79

Directions for use

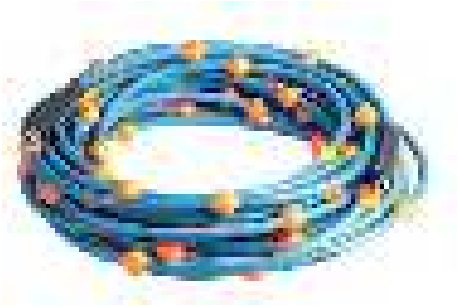
See user manual for details.

Oil: Castrol AlphaSyn 150

DECK HOSE LOW FRICTION 25 M

436 671792

Solid two layer metal hose that is recommended to avoid wear and tear on the hose outer layer if the hose is dragged on the deck frequently.



Features

- The hose is tailor-made to reduce friction on the hose by drag and wear

Bene ts

- With the low friction hose your hoses will last longer due to less drag and wear

Technical data

ID	10 mm
ID in	3/8"
OD	17,4 mm
Work Pressure	400 bar
Burst Pressure	
Bend radius	90 mm
Weight kg/m	0,4 (w/o balls and connections)

Tube: Oil, detergent and hot water resistant synthetic rubber

Reinforcement: Two high tensile steel braids

Cover: Abrasion, ozine and hydrocarbon resistant synthetic rubber. Pin pricked.

Constant operation: -40 C + 155 C

Ambient temperature: -40 C + 80 C

Application: High pressure cleaners, specially designed for hot water applications, not recommended for steam service.

Fits all models from HPC 30, HPC 54, HPC 62, HPC 66 and HPC 67/1 and stationary systems. (Not air driven)

HEAVY DUTY HOSE

Internal hose: Synthetic rubber, extruded whole joints, of uniform thickness

Reinforcement: 1 high tensile steel wire braids

External covering: Anti-abrasive synthetic rubber, resistant to oils, fuels and atmospheric condtions

Operating temperature range: from +5°C to 135°C / 155° intermittently

Fits all models from HPC 30, HPC 54, HPC 62, HPC 66 and HPC 67/1 and stationary systems. (Not air driven)

Bene ts

- The hose is exible and therefore easy for you to use when cleaning

Technical data

ID in	3/8"
ID mm	9,5
OD mm	15,6
Max WP	250 bar
Min BP	625 bar
Weight	0,256 kg/m

Ordering information

Product Number	Product name
586776	HEAVY DUTY HOSE 10 MTR
586792	HEAVY DUTY HOSE 15 MTR
586784	HEAVY DUTY HOSE 25 MTR

Approvals

Exceeds EN 857 1SC - ISO 7751

NON BLACKENING HOSE 10 M

436 671800

The non-blackening hose is suitable for working pressure up to 250 bar. DN 10. 3/8". The hose does not leave any blackening on deck. Ideal for cruise ships, ferries, pool areas or galleys where a spotless surface is essential.

Features

- Max 155°C
- Max working pressure 250 bar
- Burst pressure 650 bar
- Non-blackening

Bene ts

- Ideal for hot (up to 155°C) and cold water
- Ideal for working pressure up to 250 bar
- No blackening of surfaces from hose

Technical data

ID in	3/8
ID mm	9,5
OD mm	15,6
Max WP	250 bar
Min BP	625 bar
Min Bend Radius	90 mm
Weight (approx)	0,256 kg/m

Approvals

Exceeds EN 857 1SC - ISO 7751

Internal hose: Synthetic rubber, extruded whole joints, of uniform thickness

Reinforcement: 1 high tensile steel wire braids

External covering: Anti-abrasive synthetic rubber, resistant to oils, fuels and atmospheric condtions

Operating temperature range: from +5°C to 135°C / 155° intermittently.

Fits all models from HPC 30, HPC 54, HPC 62, HPC 66 and HPC 67/1 and stationary systems. (Not air driven)

NON BLACKENING HOSE 25 M

436 671818

The non-blackening hose is suitable for working pressure up to 250 bar. DN 10. 3/8". The hose does not leave any blackening on deck. Ideal for cruise ships, ferries, pool areas or galleys where a spotless surface is essential.

Features

- Max 155°C
- Max working pressure 250 bar
- Burst pressure 650 bar
- Non-blackening

Bene ts

- No blackening of your surfaces from the hose
- Ideal for hot (up to 155°C) and cold water
- The hose is exible and therefore easy for you to use when cleaning

Technical data

ID in	3/8
ID mm	9,5
OD mm	15,6
Max WP	250 bar
Min Bend Radius	625 bar
Min BR	90 mm
Weight (approx)	0,256 kg/m

Approvals

Exceed EN 857 1SC - ISO 7751

Internal hose: Synthetic rubber, extruded whole joints, of uniform thickness

Reinforcement: 1 high tensile steel wire braids

External covering: Anti-abrasive synthetic rubber, resistant to oils, fuels and atmospheric condtions

Operating temperature range: from +5°C to 135°C / 155° intermittently.

Fits all models from HPC 30, HPC 54, HPC 62, HPC 66 and HPC 67/1 and stationary systems. (Not air driven)

SPRAY HANDLE 3000

436 665158

The Ergo spray gun is very comfortable and ergonomic to work with. The recoil effect is among the lowest in it's class allowing for less stress on operator.

Accessories are tailor-made to suit the individual pumps. Use the model number to identify the correct accessories.

Features

- Two way swivel.

Accessories

Product Number	Product name
718742	REPAIR KIT FOR SPRAY HANDLE

REPAIR KIT FOR SPRAY HANDLE

436 718742

Repair kit for Ergo 3000 spray gun. Consist of replacement O-ring and gasket for Ergo 3000 spray gun.

DOUBLE LANCE 200 CM

436 546150

Double lance - 200 cm.

The accessories are tailor-made to suit the individual pumps. Use the model number to identify the correct accessories.

Technical data

Length:	2000 mm
Width:	100 mm
Height:	100 mm
Weight:	5 kg

DRAIN CLEANER COMPLETE KIT WITH 20 M HOSE

436 621813

For internal cleaning of blocked pipes. Connects directly to spray handle by quick coupling (included).

The accessories are tailor-made to suit the individual pumps. Use the model number to identify the correct accessories.

Note! For use with HPC 54

Technical data

Outer hose diameter	17,5 mm
Nozzle head outer diameter	25mm

FOAM INJECTOR

436 545335

Foam injector in galvanized steel. 30 cm extension hose with ergo coupling. The foam injector is connected to the pressure side of the machine.

The accessories are tailor-made to suit the individual pumps. Use the model number to identify the correct accessories.

Features

- Creates rich foam
- Regulator for chemical dosing

Bene ts

- Allows foam to stick to vertical surfaces more easily
- Allows the operator to idenitfy areas where chemicals have been applied

FOAM LANCE

436 545343

The Foam lance creates rich foam. Equipped with handle for improved ergonomic use.

These accessories are tailor-made to suit the individual pumps. Use the model number to identify the correct accessories.

Features

- Ergonomic
- Creates rich foam

Bene ts

- Enables foam to stick easily to vertical surfaces
- Allows the operator to easily identify where chemicals have been applied

Technical data

Length:	1200 mm
Width:	200 mm
Height:	70 mm
Weight:	3 kg

HOSE QUICK COUPLING SET

436 546036

The hose quick coupling set is to be used when you would like to connect more high pressure cleaning hoses together or extend the high pressure cleaner that is supplied with your Unitor HPC 30, 54, 62, 66 and 67/1.

The accessories are tailor-made to suit the individual pumps. Use the model number to identify the correct accessories.

Technical data

Length:	50 mm
Diameter:	50 mm

STAINLESS STEEL CLEANING TROLLEY

436 577379

The Cleaning trolley protects and stores your hoses in a orderly way.

The unit is supplied with injector and hose reel (no hose, lance or 25 L containers).

LONG REACH LANCE

436 621938

The long reach lance enable cleaning on more remote areas.

Accessories are tailor-made to suit the individual pumps. Use the model number to identify the correct accessories.

Supplied with 0 degree nozzle.

WASHING BRUSH 235 CM

436 546044

The washing brush combines the power from the high pressure cleaner with the mechanical force from a brush.

The accessories are tailor-made to suit the individual pumps. Use the model number to identify the correct accessories.

Features

- Ideal length for most operators.

Bene ts

- Removes even stubborn dirt.

Technical data

Length:	2350 mm
Width:	500 mm
Height:	200 mm
Weight:	6 kg

SUCTION PIPE AND HOSE FOR SANDBLASTING 235 CM

436 545640

Suction pipe including hose for sandblasting equipment.

To enable sandblasting an additional accessories is required:

Sand lance w/05 nozzle (for HPC 54) product number: 662221

Sand lance w/06 nozzle (for HPC 66 & 67/1 and Delta B) product number: 565853

Grit:

The minimum size 0,3 mm

Maximum size 1,2 mm

The recommended grit size is 0,4 -0,8 mm

Note : The Grit shall be at the right quality – dry and be aware of the grit size.

Accessories

Product Number	Product name
565861	RUBBER NOZZLE F/VSB 300

TORNADO SHORT LANCE 10 CM

436 545434

The tornado short lance is speciifcally suited to cleaning in areas where space is limited.

Accessories are tailor-made to suit the individual pumps. Use the model number to identify the correct accessories.

Bene ts

- Enables cleaning in narrow areas with limited space

Technical data

Length:	100 mm
Width:	100 mm
Height:	100 mm
Weight:	1 kg

TORNADO NORMAL LANCE 92 CM

436 636159

For use with Unitor HPC 30.

Accessories are tailor-made tosuit the individual pumps. Use the model number to identify the correct accessories.

Features

- Supplied with nozzle.

TORNADO NORMAL LANCE 104 CM

For use with Unitor HPC 30.

Accessories are tailor-made to suit the individual pumps. Use the model number to identify the correct accessories.

POWERSPEED LANCE

436 659128

The function of the Powerspeed lance is that it combines the force from a single jet nozzle by rotating it fast. In this way a larges area is covered and the effect is 40 % increased.

Accessories are tailor-made to suit the individual pumps. Use the model number to identify the correct accessories.

Technical data

Length:	1000 mm
Width:	100 mm
Height:	100 mm
Weight:	4 kg

TORNADO NORMAL LANCE 104

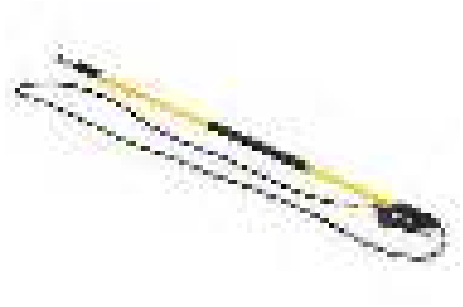
436 662163

For use with Unitor HPC 54. Supplied with nozzle suitable for the HPC 54.

Accessories are tailor-made to suit the individual pumps. Use the model number to identify the correct accessories.

HP EXTENDABLE LANCE 5,5M

436 659151



The Unitor 5,5m lance has been developed in order to enable chemical application above the normal reach of any standard pump. The lance has 3 telescopic tubes which, when extended, slide out to a full length of 5,5m. Inside the sliding tubes the uid is transported using a 3/8" hose which starts at the trigger and exits at the end of the lance in a quick connector. The quick connector enables rapid changing of the nozzle according to the task at hand- 25 for high volume or 0 for spot cleaning. The lance can be used with both the 10:1 and the smaller 2:1 chemical pumps as well as the high pressure cleaners.

Typical set up Pump > Hose quick connector M & F > Heavy duty hose > Hose quick connector F & M > 5,5m lance > 25 nozzle

Features

- 3 telescopic tubes reach up to 5,5m
- Light weight and easy to operate

Bene ts

- Allows cleaning and access to elevated areas

Technical data

Max working pressure	270 bar

Accessories

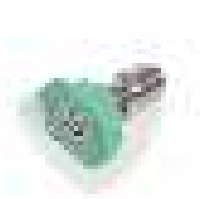
Product number	Product name
Nozzles	
718627	NOZZLE 03/25DGR. F/EXTENDABLE LANCE
718619	NOZZLE 03/0DGR. F/EXTENDABLE LANCE
Hoses	
586776	HEAVY DUTY HOSE 10 MTR
586792	HEAVY DUTY HOSE 15 MTR
586784	HEAVY DUTY HOSE 25 MTR
546036	COUPLING KIT ERGO 3000

NOZZLE 05/25 DEGREE FOR EXTENDABLE LANCE

436 718585

Nozzle for use with Unitor HPC 54.

Accessories are tailor-made to suit the individual pumps. Use the model number to identify the correct accessories.

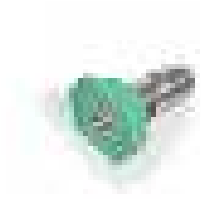


NOZZLE 06/25 FOR EXTENDABLE LANCE

436 718577

Nozzle 06/25 for extendable lance. Nozze for use with Unitor HPC 66, HPC 62, HPCH 53 and stationary systems.

The accessories are tailor-made to suit the individual pumps. Use the model number to identify the correct accessories.

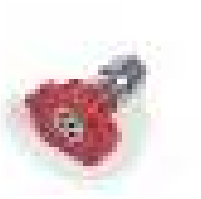


NOZZLE 06/0 DEGREE FOR EXTANDABLE LANCE

436 718593

For use with Unitor HPC 66, HPC 62, HPCH 53 and stationary systems.

The accessories are tailor-made to suit the individual pumps. Use the model number to identify the correct accessories.



NOZZLE 05/0 DEGREE FOR EXTENDABLE LANCE

436 718601

For use with HPC 54.

The accessories are tailor-made to suit the individual pumps. Use the model number to identify the correct accessories.

UNIVERSAL 3000 LANCE

436 662189

For use with Unitor HPC 54. Supplied with nozzle suitable for HPC 54. The accessories are tailor-made to suit the individual pumps. Use the model number to identify the correct accessories.

VSB-NOZZLES

436 565861

The VSB-nozzles is supplied in a package of 10 Rubber nozzles. Each nozzle lasts up to 8 hours blasting or close to consumption of 500 kg grit depending on type of grit.

HP CLEANER HPCE330 310 BAR, 3X440/60 HZ

437 720987

Extreme high pressure – removes dirt and rust quickly and ef ciently. Ideal for the toughest jobs onboard. Low RPM motor and heavy duty unit constructed for the toughest cleaning and surface application. Heavy duty steel frame protects the unit and enables lifting.

The machine is designed for 24 hours operations.

Features

- Low RPM motor
- Heavy duty steel frame – protects the unit and enables lifting with a crane
- Four wheels – the units can be moved with ease and can be stored safely
- Wheel brake – ensures the unit stays in place during operations or storage
- Built-in inlet lter – protects the pump from damage
- Well proven pump – the pump design is based on years of experience and development
- Full ceramic stainless steel pistons

Bene ts

- Removes dirt and rust fast and ef cient
- Long life time and reliable operation
- Versatile – the units can be used for paint and scale removal as well as day to day cleaning task
- Ef cient – with the Powerspeed Attachement (optional) the HPCE 330 can prepare 25 -30m2/h of surface to a quality of SA 0,3 - with sandblasting, even higher.

Technical data

Pressure	310 bar
Water ow	1320 l/h
Max water inlet temperature	60° C
Voltage	440 V
Electric cycles	60 Hz
Minimum feed water pressure	2 - 8 bar
Amperage	23 A (slow)
IP protection	55

Ordering information

Supplied with:
Sand filter
Extra o ring for lter holder
Geka coupling

Supplied with:

10 m HP Hose

Spray handle

Lance (800 mm)

Accessories

Product number	Product name
721365	EXTREME HIGH PRESSURE HOSE 10M
721381	EXTREME HIGH PRESSURE HOSE 25M
721183	POWERSPEED ROTARY NZZL EXTREME 330
721167	SANDBLASTING EXTREME PACK 330 - 405
729229	REP.KIT SEALS FOR HPC EXTREME 330
729228	REP.KIT VALVES FOR HPC EXTREME 330
721936	CONNECT. NIPPLE FOR EXTENSION HOSE.
671735	AIR HOSE 1", PVC
671727	AIR HOSE 3/4", PVC (50 MTR)

Approvals

CE

HPCE 520 INOX, 3 X 440V/60HZ

437 721520

Extreme high pressure – removes paint, rust and dirt fast and ef cient. Ideal for thougest surface preparation tasks onboard. Low RPM motor and heavy duty unit constructed for the thougest cleaning and surface application. Heavy duty steel frame protects the unit and enables lifting.

The unit is designed for 24 hours operations.

Features

- Low RPM motor
- Heavy duty steel frame – protects the unit and enables lifting with a crane
- Four wheels – the units can be moved with ease and can be stored safely
- Wheel brake – ensures the unit stays in place during operations or storage
- Built-in inlet lter – protects the pump from damage
- Well proven pump – the pump design is based on years of experience and development
- Full ceramic stainless steel pistons
- Pump head in INOX
- Stainless steel frame
- Inlet water pressure gauge
- Air bleed valve on feed water side
- Feed water line coated for improved sea water handling (always ush with fresh water after use)

Bene ts

- Removes dirt and rust fast and ef cient
- Long life time and reliable operation
- Versatile – the units can be used for paint and scale removal as well as day to day cleaning task
- Ef cient – with the sandblasting nozzle the unit can prepare up to 10m^2/h of surface for painting Surface quality of SA 2.5
- Grit blasting combined with water removes all dust

Mobile High Pressure Cleaners
HP Cleaners 300 - 500 bar

Technical data

Length	800 mm
Width	600 mm
Height	745 mm
Power Rating	18 kW
Weight	154 kg
Electric Cycles	60 Hz
Voltage	3~440V
Amperage	27 A
Working pressure	500 bar
Flowrate, normal	1020 l/h
Water feed inlet pressure	2 - 8 bar
Inlet Temperature	Max 60C
Pump speed	1720 rpm
Lead length-cross section >20m	Min 4 mm2
Lead length-cross section 20m-50m	Min 6mm2
Water supply hose	Min 3/4"
IP protection	5X

Cold water high pressure cleaner with 3 cyl. inline plunger pump
(Inox pump head, ceramic plungers) - anged to electric motor motor/pump rpm 1720 1/min - slowly, quietly running machine. Pump system pressureless by closing spray pistol (stand by operation). Thermo valve protects pump from overheating and water shortage control protects pump from cavitation. Water micro lter protects pump from soiled water. Motor/pump unit protected by solid, surrounding stainless steel frame. Chassis with 4 wheels on twin axle, locking brake. Hose swivel prevents hp hose from messing up.

Ordering information

Supplied with:
Electrical cable 5 meter
Standard lance 800 mm
Supplied with 1 extra sandfilter
Standard gun
10 m Extreme HP hose
Sand lter
Tool for opening filter cartridge
GEKA 3/4" on water inlet

Accessories

Product Number	Product name
721365	EXTREME HIGH PRESSURE HOSE 10M
721381	EXTREME HIGH PRESSURE HOSE 25M
721209	POWERSPEED ROTARY NZZL EXTREME 520
721175	SANDBLASTING EXTREME PACK 520
729239	REP.KIT SEALS FOR HPC EXTREME 520
728915	REP.KIT FOR POWERSPEED FOR HPCE 520
721936	CONNECT. NIPPLE FOR EXTENSION HOSE.
721142	WATER FILTER INSERT EXTREME 10PCS
671735	AIR HOSE 1", PVC
671727	AIR HOSE 3/4", PVC (50 MTR)

Directions for use

First oil change after 50 operating hours, further oil changes after every 500 operating hours, minimum once per year. In case the oil becomes milky, stop the machine immediately and carry out oil change. If this happens repeatedly, arrange r eplacement of all pump seals by qualified personnel.
Use Use Hypoid Oil SAE 85/90, 78 cSt./10,3 ° E/50 °C with EP high pressure additives, e.g. TEXACO Geartex EP-B-85W/90
Insufficient water supply will cause heavy damage on high pressure pump (cavitation).
Use teflon tape on connection between hose and gun (cone). Too extend hose length with addittional hose product number 721936 nipple for for extension hose is needed. For water supply it is recommended to order the 50 mtr 3/4" hose 671727.

POWERSPEED ATTACHMENT, HPCE330

436 721183

The Powerspeed attachment increases the cleaning power with up to 50 % by combining the single jet nozzle's power by rotating it fast.

The Powerspeed Attachment can not be mounted on the Double Lance. Powerspeed can only mounted on single lance (not standard equipment).

Bene ts

- Cleans larger areas more powerful.
- Removes loose paint easily.

REP.KIT SEALS FOR HPC EXTREME 330

436 729229

Complete kit for seal change of your Unitor HPC Extreme 330. Maintaining your high pressure cleaner reduces down time.

REP.KIT VALVES FOR HPC EXTREME 330

436 729228

Complete kit for valve service on your Unitor HPC Extreme 330. Maintaining your high pressure cleaner reduces down time.

POWERSPEED ATTACHMENT, HPCE405

436 721191

The Powerspeed attachment increases the cleaning power with up to 50 % by combining the single jet nozzle's power by rotating it fast.

Features

- Increases cleaning power with up to 50 %
- Reduce cleaning time

Bene ts

- Removes loose paint, cargo residues and sement easy

REP KIT VALVES FOR HPC EXTREME 405

436 729233

Complete kit for valve service on your Unitor HPC Extreme 405. Maintaining your high pressure cleaner reduces down time.

CONNECT. NIPPLE FOR EXTENSION HOSE.

436 721936

To be used when extending or connecting multiple lengths of the Extreme hose designed for the HPC Extreme machines.

REP.KIT FOR POWERSPEED FOR HPCE 520

436 728915

Consumable for the HPCE 520 Powerspeed Attachment. Complete kit with assembly instructions.

If larger cleaning / surface preparation jobs is planned it is recommended to ensure you have replacement rep kit available. The rep.kit for the powerspeed attachment is a consumable.

REP.KIT SEALS FOR HPC EXTREME 520

436 729239

Complete kit for seal change of your Unitor HPC Extreme 520. Maintaining your high pressure cleaner reduces down time.

SANDBLASTING PACK, HPCE520

436 721175

Sandblasting pack, HPCE520

Allows fast surface preparation of more than 40m2/h to SA 2,5. Kit includes container for grit (Garnet grit is recommended)

Features

- Included helmet with ear and facial protection
- Suction hose
- Container

Technical data

Grit consumption	2-2,5 kg/min
Optimal grit size	0,8-1,2 mm (max 3mm)

Accessories

Product Number	Product name
721340	SAND.SUCT.NIPPLE EXTREME20PCS

SANDBLASTING PACK, HPCE330 AND 405

436 721167

Sandblasting pack, HPCE330 and HPCE 405

Allows fast surface preparation of up to 40m2/h to SA 2,5 depending om high pressure cleaner used. Kit includes container for grit (Garnet grit is recommended)

Features

- Included helmet with ear and facial protection
- Suction hose
- Container

POWERSPEED ATTACHMENT, HPCE520

436 721209

The Powerspeed attachment increases the cleaning power with up to 50 % by combining the single jet nozzle's power by rotating it fast.

Features

- Increases cleaning power with up to 50 %
- Reduce cleaning time

Bene ts

- Removes loose paint, cargo residues and sement easy

Accessories

Product Number	Product name
728915	REP.KIT FOR POWERSPEED FOR HPCE 520

SAND.SUCTION NIPPLE EXTREME 20PCS

436 721340

Consumable for sandblasting kit.

Plan to have a set of extra sand suction nipples onboard to enable continues work.

WATER FILTER INSERT EXTREME 10 PCS

436 721142

Water lter replacement for models HPCE 330, 405 and 520. With micro lter cartridges 50 µ, fabricated in polypropylene, these reliably protect the high-pressure unit against penetration of polluted water. Filter should always be used when operating the machine.

Bag contains 10 lters.

Ensure you change the lter is dirty as a clogged lter will reduce the water supply and might stop the machine.

Features

- 50 µ ensure that pollution will not enter the pump.

Bene ts

- Use of lter protects your high pressure cleaner.

SPRAY HANDLE EXTREME 405-520

436 721084

Replacement Spray handle for HPCE 405 and HPCE 520. It is recommended to have a spare on board to avoid unnecessary stop when critical cleaning operations is ongoing.

Use a Te on tape to ensure that connection between gun and hose is leakage free.

EXTREME HIGH PRESSURE HOSE - 10 M

436 721365

The extreme hose is suitable for the extreme high pressure range.

Features

- From + 5° to + 135° / 155°C intermittently
- Max working pressure 500 bar

Technical data

ID in	3/8
ID mm	9,5
OD mm	17,4
Max WP	500 bar
Min BP	1250 bar
Min BR	90 mm
Weight (approx)	0,418 kg/m

Internal hose: Synthetic rubber, extruded whole without joints, of uniform thickness.

Reinforcement: 2 high tensile steel wire braids

External covering: Anti-abrasive synthetic rubber, resistant to oils, fuels and atmospheric conditions

Can be used with HPCE 330, 405 and 520.

To extend hose length with additional hose product number 721936 nipple for extension hose is needed.

Accessories

Product Number	Product name
721936	CONNECT. NIPPLE FOR EXTENSION HOSE.

Approvals

Exceed EN 857 1SC - ISO 7751

EXTREME HIGH PRESSURE HOSE - 25 M

436 721381

The extreme hose is suitable for the extreme high pressure range. Suitable for working pressure up to 500 bar.

Features

- From + 5° to + 135° / 155°C intermittently
- Max working pressure 500 bar

Technical data

ID in	3/8
ID mm	9,5
OD mm	17,4
Max WP	500 bar
Min BP	1250 bar
Min BR	90 mm
Weight (approx)	0,418 kg/m

Internal hose: Synthetic rubber, extruded whole without joints, of uniform thickness.

Reinforcement: 2 high tensile steel wire braids

External covering: Anti-abrasive synthetic rubber, resistant to oils, fuels and atmospheric conditions

Can be used with HPCE 330, 405 and 520.

To extend hose length with additional hose product number 721936 nipple for extension hose is needed.

Accessories

Product Number	Product name
721936	CONNECT. NIPPLE FOR EXTENSION HOSE.

Approvals

Exceed EN 857 1SC - ISO 7751

HPC AIRCLEAN 25

434 734087

Unitor's series of air-driven high-pressure cleaners includes some of the most advanced air-driven units on the market. The machines are developed in cooperation with shipping and offshore customers. They are reliable and can withstand the rigorous demands on the marine environment.

Since the Unitor HPC Airclean models contain any electric or other ignition items, they are regarded as "cold" and therefore do not need any explosion proof certi cation. They can thus be be used everywhere in hazardous areas.

The units are widely used by major oil and gas companies as well as on vessel with ex areas.

Features

- Supplied ready for use including lubricator, hose, handle and lance
- Lightweight and easy to set up – can be moved with ease
- Can be used with hot water, speeding up the cleaning process
- Simple and robust air motor for easy maintenance and long operating lifeboosters

Bene ts

- Durable and long lasting
- Can be used in explosive area

Technical data

Max pump pressure (at 11 bar air pressure)	220 bar
Max water ow	1140 l/h
Ratio	25:1
Air Consumption	2,3 - 4,5 m/-3-Vmin
Hose length	10 m

Ordering information

Supplied with:
10 m hose
Spray handle
Single lance incl. nozzle
Air lubricator
Exhaust air muffler

Accessories

Product number	Product name
191916	600 UPM PLUG 3/4'' MALE BSP.T
729178	HOSE 15M FOR HPC AIRCLEAN 25 & 32
729194	HOSE 25M FOR HPC AIRCLEAN 25 & 32
721945	LANCE 1.5M FOR HPC AIRCLEAN 25 & 32

Approvals

CE -
Can be used in EX GD

HPC AIRCLEAN 32

434 734095

Unitor's series of air-driven high-pressure cleaners include some of the most advanced air-driven units on the market. The machines are developed in cooperation with shipping and offshore customers. They are reliable and can withstand the rigorous demands on the marine environment.

Since the Unitor HPC Airclean models contain any electric or other ignition items, they are regarded as "cold" and therefore do not need any explosion proof certi cation. They can thus be be used everywhere in hazardous areas.

The units are widely used by major oil and gas companies as well as on vessel with ex areas.

Features

- Supplied ready for use including lubricator, hose, handle and lance
- Lightweight and easy to set up – can be moved with ease
- Can be used with hot water, speeding up the cleaning process
- Simple and robust air motor for easy maintenance and long operating lifeboosters

Bene ts

- Durable and long lasting
- Can be used in explosive areas

Technical data

Max pump pressure (at 11 bar air pressure)	350 bar
Max water ow	1440 l/h
Air consumption	7
Ratio	32:1
Hose length	10 m

Ordering information

Supplied with:
10m hose
Spray handle
Single lance incl. nozzle
Air lubricator
Exhaust air muffler

Accessories

Product number	Product name
191965	600 UPF PLUG 3/4'' FEMALE BSP.T
729178	HOSE 15M FOR HPC AIRCLEAN 25 & 32
729194	HOSE 25M FOR HPC AIRCLEAN 25 & 32
721945	LANCE 1.5M FOR HPC AIRCLEAN 25 & 32

Approvals

CE -
Can be used in EX GD

HPC AIRCLEAN 48

434 734103

Features

- Supplied ready for use including lubricator, hose, handle and lance
- Lightweight and easy to set up – can be moved with ease
- Can be used with hot water, speeding up the cleaning process
- Simple and robust air motor for easy maintenance and long operating lifeboosters

Bene ts

- Durable and long lasting
- Can be used in explosive area

Technical data

Max pump pressure (at 11 bar air pressure)	480 bar
Air ow	540 m3/h
Max water ow	1140 l/h
Air consumption	9
Ratio	48:1

Unitor's series of air-driven high-pressure cleaners includes some of the most advanced air-driven units on the market. The machines are developed in cooperation with shipping and offshore customers. They are reliable and can withstand the rigorous demands on the marine environment.

Since the Unitor HPC Airclean models contain any electric or other ignition items, they are regarded as "cold" and therefore do not need any explosion proof certi cation. They can thus be be used everywhere in hazardous areas.

The units are widely used by major oil and gas companies as well as on vessel with ex areas.

Ordering information

Supplied with:
10m hose
Spray handle
Single lance incl. nozzle
Air lubricator
Exhaust air muffler

Accessories

Product number	Product name
191965	600 UPF PLUG 3/4'' FEMALE BSP.T
729202	HOSE 25M FOR HPC AIRCLEAN 48
722215	LANCE 2,5M FOR HPC AIRCLEAN 48

Approvals

CE -
Can be used in EX GD

SINGLE LANCE HPC AIRCLEAN

The single lances are especially designed for the Unitor air clean offer.

Ordering information

Product Number	Product name
721945	LANCE 1.5M FOR HPC AIRCLEAN 25 & 32
722215	LANCE 2,5M FOR HPC AIRCLEAN 48

HIGH PRESSURE HOSE, HPC AIRCLEAN

Each hose is speci cally designed to t the Airclean unit it is made for.

Ordering information

Product Number	Product name
729178	HOSE 15M FOR HPC AIRCLEAN 25 & 32
729194	HOSE 25M FOR HPC AIRCLEAN 25 & 32
729202	HOSE 25M FOR HPC AIRCLEAN 48

HP CLEANER HPCH53 HW, 200 BAR 60HZ

430 665174

The Unitor HPCH53 is a high-pressure cleaner with electric motor and diesel burner to deliver constant hot water. Cleaning with hot water can reduce both chemical consumption and cleaning time severely. Easy to transport and operate.

Available in 50Hz on request.

Features

- Chassis and frame in steel
- Broad large rubber wheels and brakes on rear wheel
- 4 ceramic piston pump unit runs on 1450 RPM
- Eco power – boiler system designed to be clean and fuel ef cient -compliant with EN303-2 directive
- Built-in detergent tank and an internal injector
- Information and control panel – all functions and service information displayed

Bene ts

- Mobile and robust unit, resistant to shock and vibration
- Easy and quick to service
- Longer lifespan and lower noise emission
- Reduction in cleaning time and use of chemicals
- Reduced emissions
- Easy to transport and operate

Technical data

Pressure	200 bar
Water ow	1080 l/h
Inlet temperature	40º C
Voltage	V
Electric cycles	60 Hz

Ordering information

Supplied with:
Tornado lance
Spray handle 3000
Quick couplings
10 m H.P.hose

Accessories

Product number	Product name
545327	CHEM. INJECTOR DETACHABLE
546150	DOUBLE LANCE 200CM LONG
621821	DRAIN CLEANER, COMPLETE
545335	FOAM INJECTOR DETACHABLE
545343	FOAM LANCE 120CM LONG
586776	HEAVY DUTY HOSE 10 MTR
586792	HEAVY DUTY HOSE 15 MTR

Product number	Product name
586784	HEAVY DUTY HOSE 25 MTR
621896	HOSE CART, MOBILE
659151	EXTENDABLE LANCE 5.5M W/OUT NOZZLE
621938	LONG REACH LANCE
671800	HEAVY DUTY HOSE, BLUE 10M
671818	HEAVY DUTY HOSE, BLUE 25M
718593	NOZZLE 06/0DGR. F/EXTENDABLE LANCE
718577	NOZZLE 06/25DGR. F/EXTENDABLE LANCE
659128	POWERSPEED LANCE WITH 06 NOZZLE
545277	ROTARY BRUSH 170CM LONG
565853	LANCE F/VSB 300 03K
665158	ERGO 3000 SPRAY GUN
577379	STAINL.ST. CLEAN. TROLLEY
545640	SUCTION HOSE&ROD F/VSB300
662163	TORNADO LANCE 92CM WITH 05 NOZZLE
545434	DOUBLE LANCE 10CM LONG
682070	UNIVERSAL.3000 LANCE 06 NOZZLE
565861	RUBBER NOZZLE F/VSB 300
546044	WASHING BRUSH 235CM LONG

ROTARY BRUSH 80 CM

436 545251

Rotary brush - 80 cm

UNITOR UNO BOOSTER 440V/3/60HZ

435 778160

New enhanced UNO Booster. One pump stationary cold water high pressure washers for medium to heavy cleaning.

Features

- Stainless steel cabinet and robust frame – ensure long lifespan
- Up to 70° C inlet water – ideal for use with pre-heated water in order to obtain an increased cleaning effect
- 4 ceramic piston heavy duty pump for long working life
- Lowered pressure output – pump pressure has been reduced to 160 bar in order to lower the service requirements and wear and tear
- 1750 RPM motor – slow running motor gives longer working life in high intensity uses

Bene ts

- Stationary solution reduces time to prepare cleaning
- Small and compact – easily xed to the bulkhead or deck
- Long life pump for intense applications over 8 hours per day
- Built in water tank – ensures trouble free water supply
- High level of serviceability

Technical data

Pressure	160
Water ow	1200
Inlet temperature	70 C
Voltage	440
Electric cycles	60 Hz
Length	370
Width	700
Height	1000
Weight	81
Power, rated	6,7 kW
Electric phase	3
Cable length	4
Nozzle size	0640
Auto standby	Yes
Current	11 A

UNITOR DUO BOOSTER 440V/3/60HZ

435 778161

Twin pump stationary cold water pressure washers for use by up to two users simultaneously.

Features

- Small and compact – easily to x to the bulkhead or deck
- Inlet water temp 70° C – ideal for use with pre-heated water in order to obtain an increased cleaning effect
- 4 ceramic piston pump – long life pumps for intense applications over 8 hours per day
- Lowered pressure output – the pump pressure has been reduced to 160 bar in order to lower the service requirements and wear and tear
- With the right equipment, one single user can obtain the output of both pumps for heavy ushing and rinsing applications

Bene ts

- 2 pump system (Duo booster) with electronic control – enables selection of one or two users simultaneously
- Stainless steel design for added hygiene and protection against corrosion
- High level of serviceability
- Built in water tank – ensures trouble free water supply

Technical data

Pressure	160
Water ow	2400
Inlet temperature	70C
Voltage	440
Electric cycles	60 Hz
Automatic standby	yes

Twin pump stationary cold water unit for medium and heavy cleaning applications in maritime use.

The Unitor duo booster is a 2-pump model for heavy cleaning applications with 1 or 2 users at same time. The stainless steel design ensures that hygiene is optimal, with reduced risk of corrosion. The Unitor duo booster can on special request be equipped with a PCB - extended electronics allowing the use of factory mounted options such as remote control, coin boxes, frost protection. The Unitor duo booster can thus be adapted to most customer speci c requirements.

Ordering information

Supplied without water inlet or outlet hose. Electrical connection cable is not included.

DELTA BOOSTER-3 3X440/60

435 613803

Three pump stationary system allowing up to 3 operators to clean simultaneously. Further pumps may be added at any time if the cleaning needs increases. Stainless steel frame and robust cabinet ensure that both pumps and electronics are well protected. Flexible system gives possibility of combining several Delta Boosters – allowing for multiple simultaneous users on a single line.

Features

- 3 pump system, allowing up to three simultaneous uses
- 4 ceramic piston pumps with 1750 RPM motors – long life pumps for intense applications
- Electronic pump control system – control system will detect amount of water required automatically
- Different line pressures available – the Delta booster is con gured standard to 160 bar, but can be supplied with line pressure down to 80 bar which gives the vessel a tailor made system that suits the needs on board
- Inlet water capacity to 80º C – the unit is equipped with a hot and a cold inlet with a temp control system and a brake tank. The double inlet will mix cold and hot water to the set temeorature. The control system will maintain the selected temperature within a given temperature range.
- Compact design with door opening both left and right – the Delta Booster is easy to transport, install and service
- High level of serviceability – the pumps and motors are quickly and easily removed and the unit will continue to function even with one or more pumps removed
- Oil changes are easy – reduces the down time of the system

Bene ts

- Multiple users - reduces cleaning time
- Flexible system - can be extended
- Ergonomic cleaning - only hose must be connected to outlet
- Low service requirements and low wear and tear

Technical data

Pressure	160 bar
Water ow	1040-3120 l/h
Voltage	440 V
Electric cycles	60 Hz
Inlet temperature	85º C

Operating pressure 160 bar. Water ow 1040 - 3120 l/h. The unit revolves between different pumps. The system starts up one pump per user; 1 user - pump, 2 users - 2 pumps and nally 3 pumps for 3 users. If service is required, one pump can be taken out, leaving 2 pumps operational for cleaning. Electronic pump control system – control system will detect the amount of water required by the relevant number of user and start the correct number of pumps automatically. As water requirement drops, pumps will be stopped. Starting of pumps is done by rotation to avoid excessive wear on any one pump. As water requirement drops, pumps will be stopped. Starting of pumps is done by rotation to avoid excessive wear on any one pump.

Ordering information

Supplied without water inlet or outlet hose. Electrical connection cable is not included.

Accessories

Product number	Product name
545327	CHEM. INJECTOR DETACHABLE
671792	HEAVY DUTY DECK HOSE 25M
546150	DOUBLE LANCE 200CM LONG
621821	DRAIN CLEANER, COMPLETE

Product number	Product name
545335	FOAM INJECTOR DETACHABLE
545343	FOAM LANCE 120CM LONG
586776	HEAVY DUTY HOSE 10 MTR
586792	HEAVY DUTY HOSE 15 MTR
586784	HEAVY DUTY HOSE 25 MTR
546036	COUPLING KIT ERGO 3000
621896	HOSE CART, MOBILE
659151	EXTENDABLE LANCE 5.5M W/OUT NOZZLE
565960	INLET FILTER F/1-3 PUMPS
621938	LONG REACH LANCE
671800	HEAVY DUTY HOSE, BLUE 10M
671818	HEAVY DUTY HOSE, BLUE 25M
718593	NOZZLE 06/0DGR. F/EXTENDABLE LANCE
718577	NOZZLE 06/25DGR. F/EXTENDABLE LANCE
659128	POWERSPEED LANCE WITH 06 NOZZLE
545277	ROTARY BRUSH 170CM LONG
565853	LANCE F/VSB 300 03K
665158	ERGO 3000 SPRAY GUN
577379	STAINL.ST. CLEAN. TROLLEY
545640	SUCTION HOSE&ROD F/VSB300
623595	TAKE OFF VALVE S.S.
623603	TAKE OFF VALVE
662163	TORNADO LANCE 92CM WITH 05 NOZZLE
545434	DOUBLE LANCE 10CM LONG
682070	UNIVERSAL.3000 LANCE 06 NOZZLE
565861	RUBBER NOZZLE F/VSB 300
546044	WASHING BRUSH 235CM LONG

DELTA BOOSTER-4 3X440/60

435 613804

Delta booster 4 pump high-pressure cleaner

Features

- Stainless steel frame and robust cabinet ensuring that pumps and electronics are well protected
- 4 pump system, allowing up to 6 simultaneous uses - piston pump with 1750 RPM motor – long life pump for intense applications over 8 hours per day
- Electronic pump control system – control system will detect the amount of water required by the relevant number of user and start the correct number of pumps automatically
- As water requirement drops, pumps will stop. Pumps starts on rotation to avoid excessive wear on any one pump
- Different line pressures available - the Delta Booster is con gured standard to 120 or 160 bar, but can be supplied with line pressure down to 80 bar
- Inlet water capacity to 80º C – the unit is equipped with a hot and a cold water inlet and temp control system and a brake tank. The double inlet allow mixing of both cold and to a set temperature. The control system will maintain the selected temperature within a given temperature range.
- Compact design with door opening both left and right
- High level of serviceability – pumps and motors are quickly and easily removed and the unit will continue to function even with one or more pumps removed
- Oil changes are easy – reduces the down time of the system

Bene ts

- Ef cient operation- reduced time for oil changes
- Compact and easy to store
- Ability to combine several delta boosters – allowing for multiple users on single line
- Low service requirements and low wear and tear
- Easy to transport, install and service

Technical data

Pressure	160 bar
Water ow	1040 - 4160 l/h l/h
Voltage	440 V
Electric phase	3
Electric cycles	60 Hz

Ordering information

Supplied without water inlet or outlet hose. Electrical connection cable is not included.

Accessories

Product number	Product name
545327	CHEM. INJECTOR DETACHABLE
671792	HEAVY DUTY DECK HOSE 25M
546150	DOUBLE LANCE 200CM LONG
621821	DRAIN CLEANER, COMPLETE
545335	FOAM INJECTOR DETACHABLE
545343	FOAM LANCE 120CM LONG
586776	HEAVY DUTY HOSE 10 MTR

Product number	Product name
586792	HEAVY DUTY HOSE 15 MTR
586784	HEAVY DUTY HOSE 25 MTR
546036	COUPLING KIT ERGO 3000
621896	HOSE CART, MOBILE
659151	EXTENDABLE LANCE 5.5M W/OUT NOZZLE
621938	LONG REACH LANCE
671800	HEAVY DUTY HOSE, BLUE 10M
671818	HEAVY DUTY HOSE, BLUE 25M
718593	NOZZLE 06/0DGR. F/EXTENDABLE LANCE
718577	NOZZLE 06/25DGR. F/EXTENDABLE LANCE
659128	POWERSPEED LANCE WITH 06 NOZZLE
545277	ROTARY BRUSH 170CM LONG
565853	LANCE F/VSB 300 03K
665158	ERGO 3000 SPRAY GUN
577379	STAINL.ST. CLEAN. TROLLEY
545640	SUCTION HOSE&ROD F/VSB300
623595	TAKE OFF VALVE S.S.
623603	TAKE OFF VALVE
662163	TORNADO LANCE 92CM WITH 05 NOZZLE
545434	DOUBLE LANCE 10CM LONG
682070	UNIVERSAL.3000 LANCE 06 NOZZLE
565861	RUBBER NOZZLE F/VSB 300
546044	WASHING BRUSH 235CM LONG

DELTA BOOSTER-5 3X440/60

435 613805

A 5 pump stationary system where up to ve operators may clean simultaneously. Further pumps may be added at any time.

Features

- Stainless steel frame and robust cabinet ensuring that pumps and electronics are well protected
- 5 pump system, allowing up to 5 simultaneous uses - piston pump with 1750 RPM motor – long life pump for intense applications over 8 hours per day
- Electronic pump control system – control system will detect the amount of water required by the relevant number of users and start the correct number of pumps automatically
- As water requirement drops, pumps will stop. Pumps starts on rotation to avoid excessive wear on any one pump
- Different line pressures available - the Delta Booster is con gured standard to 120 or 160 bar, but can be supplied with line pressure down to 80 bar
- Inlet water capacity to 80º C – the unit is equipped with a hot and a cold water inlet with a temp control system and a brake tank. The double inlet allow mixing of both cold and pre-heated water to a set temperature. The control system will maintain the selected temperature within a given temperature range.
- Compact design with door opening both left and right
- High level of serviceability – pumps and motors are quickly and easily removed and the unit will continue to function even with one or more pumps removed
- Oil changes are easy – reduces the down time of the system

Bene ts

- Ef cient operation- reduced time for oil changes
- Compact and easy to store
- Ability to combine several delta boosters – allowing for multiple users on single line
- Low service requirements and low wear and tear
- Easy to transport, install and service

Technical data

Pressure	160
Water ow	1040 - 5200 l/h l/h
Voltage	440 V
Electric phase	3
Electric cycles	60 Hz

Ordering information

Supplied without water inlet or outlet hose. Electrical connection cable is not included.

Accessories

Product number	Product name
545327	CHEM. INJECTOR DETACHABLE
671792	HEAVY DUTY DECK HOSE 25M
546150	DOUBLE LANCE 200CM LONG
621821	DRAIN CLEANER, COMPLETE
545335	FOAM INJECTOR DETACHABLE
545343	FOAM LANCE 120CM LONG

Product number	Product name
586776	HEAVY DUTY HOSE 10 MTR
586792	HEAVY DUTY HOSE 15 MTR
586784	HEAVY DUTY HOSE 25 MTR
546036	COUPLING KIT ERGO 3000
621896	HOSE CART, MOBILE
659151	EXTENDABLE LANCE 5.5M W/OUT NOZZLE
621938	LONG REACH LANCE
671800	HEAVY DUTY HOSE, BLUE 10M
671818	HEAVY DUTY HOSE, BLUE 25M
718593	NOZZLE 06/0DGR. F/EXTENDABLE LANCE
718577	NOZZLE 06/25DGR. F/EXTENDABLE LANCE
659128	POWERSPEED LANCE WITH 06 NOZZLE
545277	ROTARY BRUSH 170CM LONG
565853	LANCE F/VSB 300 03K
665158	ERGO 3000 SPRAY GUN
577379	STAINL.ST. CLEAN. TROLLEY
545640	SUCTION HOSE&ROD F/VSB300
623595	TAKE OFF VALVE S.S.
623603	TAKE OFF VALVE
662163	TORNADO LANCE 92CM WITH 05 NOZZLE
545434	DOUBLE LANCE 10CM LONG
682070	UNIVERSAL.3000 LANCE 06 NOZZLE
565861	RUBBER NOZZLE F/VSB 300
546044	WASHING BRUSH 235CM LONG

DELTA BOOSTER-6 3X440/60

435 613806

A 6 pump stationary system facilitating up to six operators cleaning simultaneously.

Features

- Stainless steel frame and robust cabinet ensuring that pumps and electronics are well protected
- 2-6 pump system, allowing up to 6 simultaneous uses - piston pump with 1750 RPM motor – long life pump for intense applications over 8 hours per day
- Electronic pump control system – control system will detect the amount of water required by the relevant number of users and start the correct number of pumps automatically
- As water requirement drops, pumps will stop. Pumps started on rotation to avoid excessive wear on any one pump
- Different line pressures available - the Delta Booster is con gured standard to 120 or 160 bar, but can be supplied with line pressure down to 80 bar
- Inlet water capacity to 80º C – the unit is equipped with a hot and a cold water inlet with a temp control system and a brake tank. The double inlet allow mixing of both cold and pre-heated water to a set temperature. The control system will maintain the selected temperature witin a given temperature range.
- Compact design with door opening both left and right
- High level of serviceability – pumps and motors are quickly and easily removed and the unit will continue to function even with one or more pumps removed
- Oil changes are easy – reduces the down time of the system

Bene ts

- Ef cient operation: reduced time for oil changes
- Compact and easy to store
- Ability to combine several Delta boosters – allowing for multiple users on single line
- Low service requirements and low wear and tear
- Easy to transport, install and service

Technical data

Length	715 mm
Width	790 mm
Height	1800 mm
Weight	450 kg
Power, rated	40.5 kW
Electric cycles	60 Hz
Electric phase	3
Voltage	440 V
Inlet temperature	85º C
Water ow	1040 - 6240 l/h

Ordering information

Supplied without water inlet or outlet hose. Electrical connection cable is not included.

Accessories

Product number	Product name
545327	CHEM. INJECTOR DETACHABLE
671792	HEAVY DUTY DECK HOSE 25M

Product number	Product name
545335	FOAM INJECTOR DETACHABLE
545343	FOAM LANCE 120CM LONG
586776	HEAVY DUTY HOSE 10 MTR
586792	HEAVY DUTY HOSE 15 MTR
586784	HEAVY DUTY HOSE 25 MTR
546036	COUPLING KIT ERGO 3000
621896	HOSE CART, MOBILE
659151	EXTENDABLE LANCE 5.5M W/OUT NOZZLE
621938	LONG REACH LANCE
671800	HEAVY DUTY HOSE, BLUE 10M
671818	HEAVY DUTY HOSE, BLUE 25M
718593	NOZZLE 06/0DGR. F/EXTENDABLE LANCE
718577	NOZZLE 06/25DGR. F/EXTENDABLE LANCE
659128	POWERSPEED LANCE WITH 06 NOZZLE
545277	ROTARY BRUSH 170CM LONG
565853	LANCE F/VSB 300 03K
665158	ERGO 3000 SPRAY GUN
577379	STAINL.ST. CLEAN. TROLLEY
545640	SUCTION HOSE&ROD F/VSB300
623595	TAKE OFF VALVE S.S.
623603	TAKE OFF VALVE
662163	TORNADO LANCE 92CM WITH 05 NOZZLE
545434	DOUBLE LANCE 10CM LONG
682070	UNIVERSAL.3000 LANCE 06 NOZZLE
565861	RUBBER NOZZLE F/VSB 300

INLET FILTER FOR STATIONARY

436 565960

Inlet lter for stationary the stationary high pressure cleaners.

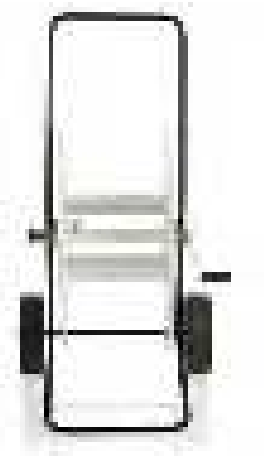
Reusable wire mesh. Filter element: 50 microns. For use by stationary units due to varying water quality.

Never operate the machine without a lter.

HOSE REEL

436 621896

The Hose reel stores and protects you high pressure hose. Ideal to locate near xed outlets, like in engine room, spa areas or deck areas that are frequently cleaned.



HOSE, HP OUTLET.

436 621904

Connection hose for outlet between machine outlet and pipeline. The hose is designed for the pressure, ow and temperature.

HP OUTLET HOSE FOR STATIONARY 1M.

436 711127

1 meter hose for connection to xed pipeline. NOTE that a longer hose is recommended (for example the two meter)

HP OUTLET HOSE FOR STATIONARY 2M.

436 711119

2 meter hose for connection to xed pipeline.

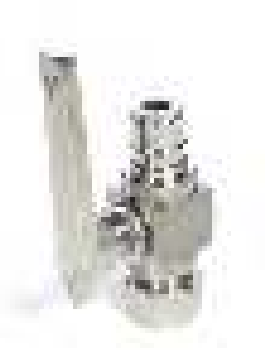
TAKE OFF VALVE A FOR SATIONARY ACID PROOF 316

436 623595

Take off valve for pipeline connected to Unitor Stationary High Pressure Systems.

Designed to be used with Unitor stationary systems and Unitor chemicals.

Take-off valva A together with the detachable chemical injector facilitates use of chemicals.



TAKE OFF VALVE A FOR STATIONARY CHROMIUM PLATED BRASS

436 623603

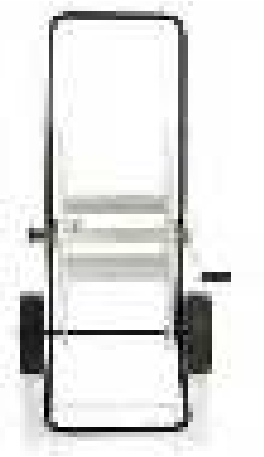
Take off valve A for stationary chromium plated brass. Suitable for Unitor high pressure cleaning systems.

Take-off valve A together with detachable chemical injector facilitates use of chemicals.

HOSE CART, MOBILE

436 621896

Mobile hose cart capacity up to 50 m 3/8" hose



Features

- Space for up to 50m 3/8"hose
- Fast set up time - quick connector
- Excellent mobility - large wheels and handle

Bene ts

- Stores your hose tidy and orderly
- Protects the hose during storage

SOLAR BOOSTER WITH 18 KW HEATER, 3X440 V/60 HZ

435 665190

Unitor Solar booster

Features

- Small and compact – easy xed to the deck
- Stainless steel frame and robust cabinet – ensures long life span and protects the pump from damage
- Inlet water temp 85° C – ideal for use with pre-heated water in order to reduce the power needed to heat the water to the required temperature
- 4 ceramic piston pump – unit designed using long life pumps for intense applications over 8 hours per day
- Lowered pressure output – units run on 160 bar only, although the pump is capable of delivering 190 bar, in order to lower the service requirements and wear and tear
- 1400 RPM motor – slow running motor gives longer working life in high intensity uses
- Built in water tank with heaters – ensures constant and trouble free heating and constant water supply to the pump
- Electric water heating – unit is pollution free and can be set up almost anywhere
- 1x18 kW heating coils in standard model – can be extended up to 54 kW with 3x18 kW if required

Bene ts

- Environmentally friendly, pollution free
- Highly portable unit can be set up almost anywhere
- Long lifespan

Technical data

Length	690 mm
Width	860 mm
Height	950 mm
Weight	175 kg
Power, rated	7.7 + 18 kW
Electric cycles	60 Hz
Electric phase	3
Pressure	160 bar
Voltage	440 V
Heating capacity	85° C
Water flow	1200 l/h

The Unitor Solar Booster electric version can optionally be delivered with 36 kW or 54 kW heating element on special request.

Ordering information

Supplied without water inlet or outlet hose. Electrical connection cable is not included.

Accessories

Product Number	Product name
545327	CHEM. INJECTOR DETACHABLE
546150	DOUBLE LANCE 200CM LONG
621821	DRAIN CLEANER, COMPLETE
545335	FOAM INJECTOR DETACHABLE
545343	FOAM LANCE 120CM LONG

Product Number	Product name
586776	HEAVY DUTY HOSE 10 MTR
586792	HEAVY DUTY HOSE 15 MTR
586784	HEAVY DUTY HOSE 25 MTR
546036	COUPLING KIT ERGO 3000
621896	HOSE CART, MOBILE
659151	EXTENDABLE LANCE 5.5M W/OUT NOZZLE
565960	INLET FILTER F/1-3 PUMPS
621938	LONG REACH LANCE
671800	HEAVY DUTY HOSE, BLUE 10M
671818	HEAVY DUTY HOSE, BLUE 25M
718593	NOZZLE 06/0DGR. F/EXTENDABLE LANCE
718577	NOZZLE 06/25DGR. F/EXTENDABLE LANCE
659128	POWERSPEED LANCE WITH 06 NOZZLE
545277	ROTARY BRUSH 170CM LONG
565853	LANCE F/VSB 300 03K
665158	ERGO 3000 SPRAY GUN
577379	STAINL.ST. CLEAN. TROLLEY
545640	SUCTION HOSE&ROD F/VSB300
623595	TAKE OFF VALVE S.S.
623603	TAKE OFF VALVE
662163	TORNADO LANCE 92CM WITH 05 NOZZLE
545434	DOUBLE LANCE 10CM LONG
682070	UNIVERSAL.3000 LANCE 06 NOZZLE
565861	RUBBER NOZZLE F/VSB 300
546044	WASHING BRUSH 235CM LONG

VCWD27 WET AND DRY VACUUM CLEANER

432 681924

Flexible vacuum cleaner ideal for all sorts of jobs onboard. Be it wet dirt or blocked pipes or connecting to power tools this Unitor vac will solve many task onboard.

Features

- Rubber enclosed power cord which stays exible even in very low temperatures and is resistant to wear and tear
- Large application area as the unit is resistant to most chemicals and oils and can be used for a variety of cleaning tasks including removal of liquids and solids in the workshop, engine room, deck areas and accommodation areas
- Large on/off switch can be started or stopped without removing gloves
- Large wheels provide stability even on rough surfaces
- Power cord hook ensures the cord stays secured to the unit while in transit or in storage

Bene ts

- Low noise level means the unit can be used for longer periods and in environments where noise must be held at a minimum
- Ergonomic design means the unit can be used for longer periods of time due to lower user fatigue

Technical data

Flowrate l/min	216000
Vacuum	230 MBAR
Power, rated	1500 kW
Voltage	220 V
Container capacity	27 LITRE

VCWD70 WET AND DRY VACUUM CLEANER

432 721944

The VCWD70 heavy duty vacuum cleaner is the most advanced unit in the Unitor vacuum range. The machine is equipped with a stainless steel container and a built-in pump for easier liquid removal from small tanks, double bottoms or engine rooms. With use of accessories it can also remove liquid from the deck areas.

Features

- Built-in submerged pump can operate without removing or lifting the container
- Heavy duty stainless steel container makes the unit capable of removing a wide range of liquids and solid particles without damaging the container
- Two large wheels at the rear ensure stability during transport and storage
- Brakes on the front wheels means the unit remains stable when in use or in storage
- Heavy-duty steel frame protects the unit from damage during transport and use
- Power supply socket for connection of electric tools; when the pump is not in use the socket can be used to power a power tool
- Dirt basket – when vacuuming dirty liquids the basket makes sure that the particles stay inside the unit when the liquid is pumped out

Bene ts

- Cable and accessories holder ensures safe transport and storage
- Large area liquid removal capabilities – with the correct accessories the unit can be used to remove liquids from large areas like decks, pool areas & passenger decks
- Soft start – limits the starting power to reduce the initial power surge on the fuses and reduce wear and tear on the motor

Technical data

Power, rated	1500 + 640 W
Flowrate, normal	216000 l/h
Vacuum	230 MBAR
Container capacity	64
Voltage	220 V
Power supply cycles	50/60 Hz

VCWD70 wet and dry vacuum cleaner is perfect for users who need big capacity and features that focus on ef ciency. Our most silent vacuum ever, with superior suction performance, stainless steel tilt or lift-out container, automatic lter cleaning, anti-static capability and more.

The 70 liter container found on the wet and dry vacuum cleaner allows long periods of use without emptying the container, and Tilt or lift-off container system is convenient and time-saving.
Operating costs are minimized with the washable PET Fleece lter elements, and the low working noise level allows work when others are nearby, without disturbing them. Automatic On/Off models are suitable for use with electric hand tools as starting or stopping the tool also starts and stops the vacuum. An accessory airbox is available which performs the same function when using pneumatic tools.

- XtremeClean. Fully automatic lter cleaning system (on many models) takes care of lter cleaning tasks in just a few seconds.
- Washable PET eece lter for high ef ciency and low maintenance costs.
- SilentPower provides high performance that is seen, but not heard.
- 70 L stainless steel container and a lter bag for the ultimate in effective ltration and working ef ciency.

Accessories

Product number	Product name
681940	LARGE,DECK CLEANING KIT FOR VCWD 70

VCAD200 WET AND DRY VACUUM CLEANER

432 682054

VCAD200 air driven vacuum cleaner. Handles particles and liquids that would damage a normal electric vacuum cleaner.

Features

- Attaches on top of any 200 L drum – no need to store a big container when not in use
- Air driven
- No moving parts
- Oil resistant – the unit can be used for small oil spills on board, as an oil transfer pump or to remove wastewater from tanks or double bottoms

Bene ts

- Universal - the unit will use any obsolete drum
- No danger of sparks
- Virtually maintenance free
- Versatile – unit can be used as a transfer pump, if needed

Technical data

Air consumption	0.2-1.0
Vacuum	390 MBAR
Connection size/type	1/4"

The unit has no moving parts and is designed to be tted on a standard 200 L drum. The unit can be used for a variety of tasks including removing water and oil spillage, emptying drums or moving chemicals. Able to handle particles and liquids that many electric vacuums would not be able to handle.

Ordering information

Supplied with:
Suction hose
Crevice nozzle
Coarse dirt deck nozzle
Tubes
Drum is NOT included

Accessories

Product number	Product name
191692	40 USH SOCKET 1/2'' HOSE
191726	20 USM SOCKET 1/4'' MALE BSP.T
191841	40 UPH PLUG 1/2'' HOSE
671719	AIR HOSE 1/2", PVC (50 MTR)

SUCTION HOSE 1.8 M FOR VCWD18

431 665448

Flexible suction hose. Fits to your VCWD 18.

SUCTION.HOSE 4M FOR VCWD 70

431 681965

This extendable hose increase operating radius and speed up cleaning process.

Allows operation without relocating the Vac all the time.

Features

- Connector ts direct to the VCWD 70.

LARGE DECK CLEANING KIT FOR VCWD 70

431 681940

Well equipped kit allows for cleaning within most areas on board.

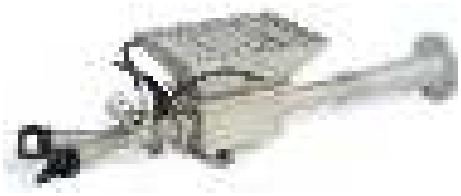
LIQUID.REMOVAL KIT FOR VCWD 70

431 681957

For easy and fast removal of liquids. Connects easily to your VCWD70.

MUCKING PUMP - MARINE GM2

482 593996



The Unitor Mucking pump is designed to undertake heavy duty liquid and semi-liquid removal from tanks, cargo holds, double bottoms and ballast tanks. Submursed pump capacity in excess of 40 tons per hour or 4-6 tons per hour when materials are shovelled directly into the pump.

Features

- Supply liquid can include most pressurised uids including water, crude oil, re ned oil and certain chemicals
- Operates on normal pressure of a vessel's re, tank cleaning or cargo lines and does not require any additional equipment
- Passes through a standard butterworth opening enabling access to all parts of the vessel
- Built in pressure gauge enables easy ability control and monitor ow

Bene ts

- Versatile pump with unlimited applications
- Handles solids up to 1" in diameter – great for removing scale and rust from cargo holds
- Corrosion resistant stainless steel parts are virtually maintenance free
- Simple to operate with no moving parts and is lightweight
- Fastest way of removing liquids

Technical data

Weight	30 kg
Capacity submerged	40 TONS/HOUR
Capacity manual load	6 TONS/HOUR

The solution is based on the Venturi principle, the pressurized supply uid is converted by the nozzle into velocity energy. The material can be shovel fed into the unit if it is solidi ed. The emerging supply uid is collected in the mixing chamber, mixed with the surrounding liquid or particles and than ejected as a fully mixed solution through the diffuser.

The pump is fully portable and has no moving parts, hence it is highly reliable and virtually maintainance free, making it an economical solution for liquid removal. The supply water is fed to the pump through two 2" hoses and a Y connection, the discharge liquid is pumped out via a 4" heavy-duty hose. The sturdy construction and the Venturi systems allows the pump to function in all positions and fully submerged. The pump can be placed up side down in the tank in order to reach even the smallest amounts of uid in the bottom of the tank. The pump can also be used to move solid particles by the means of shovelling them into the pump, in addition there is an extension "vacuum pack" available. With the vacuum hose and nozzle connected the pump can move slurry, sludge and liquids from areas normally concidered inaccessible.

Accessories

Product number	Product name
708156	BUTTERWORTH CONNECTORS
708131	2 PCS TPI CONNECTOR

Product number	Product name
708099	VACUUM KIT
635326	MUD & SILT REMOVER 25 LTR
778866	HANDYMAX CARGO HOLD CLEANING KIT
778855	PANAMAX CARGO HOLD CLEANING KIT

VACUUM KIT FOR MUCKING PUMP

482 708099

Complete Vacuum kit for mucking pump. Allows fast removal of residue water from for example cargo hold cleaning.

TPI CONNECTORS FOR MUCKING PUMP

482 708131

TPI connectors for mucking pump

BUTTERWORTH CONNECTORS FOR MUCKING PUMP

482 708156

Butterworth connector between pump and supply hose.

CARGO HOLD CLEANING KIT - HANDYMAX

482 757777

The Unitor Handymax kit has been developed in order to facilitate cargo changeover on board small to medium bulk carriers.

Features

- Simple to use - the 2.4 m lance applies foaming chemicals from the tank top
- Supplied with 1.5" double diaphragm pump
- Ready for use - all hoses and equipment are tted with quick connectors and couplings
- Designed for Panamax sized vessels

Bene ts

- Fast and ef cient cleaning solution reduces turnaround time in port
- Simple to assemble with clear instructions
- Safe in use and no need for cranes

The kit consists of all necessary equipment needed for a cleaning operation. The kit is supplied ready to use in a shock proof plastic container which can be easily transported between vessels. The equipment has been designed for application of both cleaning chemicals and temporary coatings as well as rinsing and wash down.

The equipment has, depending on the air on board, a reach of up to 18 m using the Foam Nozzle which enables the crew to work from the tank top without the use of cranes or scaffolding even on a Panamax size vessel.

When using the Slip Coat nozzle a height of 6 - 10 meter can be reached.

Ordering information

Supplied with:

- Double diaphragm pump 1050
- Long reach lance 2.4 m with 3 nozzles
- Medusa air distributor
- 5 m, 1" suction hose
- 40 m, 3/8” air hose with quick connectors
- 10 m, 3/8” air hose with quick connectors
- 50 m, 3/4” chemical hose with quick connectors
- 600 L plastic container of 100 % recycled plastic (Nordic Ecolabel)

Accessories

Product number	Product name
737007	AQUATUFF HIGH FOAM 210 LTR
571653	DESCALING LIQUID 25 LTR
655506	METAL BRITE HD 210 LTR
Related products:	
593996	MUCKING PUMP - MARINE GM2
682054	VCAD200 WET AND DRY VACUUM CLEANER
658229	TORNADO 3 CARGO HOLD CLEANING JET
576843	CHEMICAL RESIST CLOTHING
571018	SAFETY BOOT YELLOW SIZE42
571026	SAFETY BOOT YELLOW SIZE43
571034	SAFETY BOOT YELLOW SIZE44
571042	SAFETY BOOT YELLOW SIZE45

Directions for use

Always wear safety protection during operations.

Note! All Cargo Hold Cleaning Equipment must be rinsed with fresh water immediately after use and before storage. If equipment is not rinsed with fresh after use, aggressive chemicals can cause damage to equipment.

Note that removal of stubborn cargo residues can in some cases only be removed by manual brushing in addition to cleaning equipment and chemicals.

Minimum recommended pressure on air supply is 6 bar.

HANDYMAX CARGO HOLD CLEANING KIT

482 778866

The new Unitor Handymax kit has been developed in order to facilitate cargo changeover on board small to medium bulk carriers fast and ef cient.

Features

- Simple to use - the 3.6 m lance applies foaming chemicals from the tank top
- Supplied with 1" Stainless Steel double diaphragm pump
- Ready for use - all hoses and equipment are tted with quick connectors and couplings
- Designed for Handysized bulk carriers
- Supplied with Personal Safety Equipment for one user.

Bene ts

- Fast and ef cient cleaning solution reduces turnaround time in port
- Simplicity through simple to assembly and clear instructions
- Safe in use and no need for cranes
- Complete ready to use package

The kit consists of all necessary equipment needed for a complete cleaning operation. The kit is supplied ready to use in a shock proof plastic container which can be easily transported between vessels. The equipment has been designed for application of both cleaning chemicals and temporary coatings as well as rinsing and wash down.

The Handymax kit is not equiped with a Tornado 3 gun for clean down and we do recommend a high pressure cleaner in addition.

*** Note! The new Handymax kit may only be available in limited ports and the replaced Handymax kit may only be available***

*** Note! The Handymax kit is supplied with one bottle of eyewash. This bottle has a expiry date. The Handymax kit is therefore a expiry date as well. Note that this expiry date is only valid for the eyewash, not the kit. ***

Ordering information

Supplied with:
Double diaphragm pump 1050
Handymax Lance 3.6 m with 3 nozzles
Medusa air distributor
5 m, 1" suction hose
40 m, 3/8" air hose with quick connectors
10 m, 3/8" air hose with quick connectors
50 m, 3/4" chemical hose with quick connectors
600 L plastic container of 100 % recycled plastic (Nordic Ecolabel)

Accessories

Product number	Product name	Comment
736991	AQUATUFF HIGH FOAM 25 LTR	
575613	AQUABREAK PX 25 LTR	
571653	DESCALING LIQUID 25 LTR	
571679	METAL BRITE HD 25 LTR	
737015	SLIP-COAT 25 LTR	
778865	SLIP COAT PLUS 25 LTR	
757395	SLIP-COAT WR (25 LTR)	
Related products:		
593996	MUCKING PUMP - MARINE GM2	For removal of, mud, sludge, wet and dry cargo residues
604926	DOUBLE DIAPHRAGM PUMP 2150 ALU	Pump for sloap removal
682054	VCAD200 WET AND DRY VACUUM CLEANER	
658229	TORNADO 3 CARGO HOLD CLEANING JET	
576843	CHEMICAL RESIST CLOTHING	
571018	SAFETY BOOT YELLOW SIZE42	
571026	SAFETY BOOT YELLOW SIZE43	
571034	SAFETY BOOT YELLOW SIZE44	
571042	SAFETY BOOT YELLOW SIZE45	
721175	SANDBLASTING EXTREME PACK 520	
777889	UNITOR HPC 67/1 3x440/60Hz	

Directions for use

Always wear safety protection during operations. Refer to full user manual and SDS for each chemical and product used.

Note! All Cargo Hold Cleaning Equipment must be rinsed with fresh water immediately after use and before storage.

If equipment is not rinsed with fresh water after use, aggressive chemicals can cause damage to equipment.

Note! The Handymax kit is supplied with one bottle of eyewash. This bottle has a expiry date. The Handymax kit is therefore a expiry date as well. Note that this expiry date is only valid for the eyewash, not the kit.

UNITOR PANAMAX KIT

482 778855

The new Unitor Panamax kit is designed for use onboard all bulk carriers equipped with a working air compressor that delivers minimum 2 m^3/min.

The equipment is also suitable for cleaning of superstructure or offshore rigs.

Features

- Simple to use - 6 m lance applies foaming chemicals from the tank top
- Fast - covers up to 150 m^2/min of bulkheads with foaming chemicals
- Supplied with Tornado 3 jet
- Designed for panamax sized or cape sized vessels

Bene ts

- Fast and ef cient cleaning solution reduces turnaround time in port
- Simplicity through simple assembly and clear instructions
- Safe in use and no need for cranes
- Easy to maneuver on tank top due to mobile design.

The equipment has, depending on the air on board, a reach of up to 25 m using the foam nozzle which enables the crew to work from the tank top without the use of cranes or scaffolding even on a Panamax size vessel. By using the guide wire kit (included) this reach may be further extended for use on board cape size vessels.

*** Note! The new Panamax kit may only be available in limited ports and the replaced Panamax kit may only be available. ***

*** Note! The Panamax kit is supplied with one bottle of eyewash. This bottle has a expiry date. The Panamax kit is therefore a expiry date as well. Note that this expiry date is only valid for the eyewash, not the kit. Eye wash not included in kits delivered from Japan ***

Ordering information

Supplied with:
Chemical Pressure tank 155
Long reach lance - 6 m with 3 nozzles
Dual T bar nozzle for Slip Coat
Tornado 3 Cleaning Jet w/wheels
Medusa Air Distributor
2" Water supply hose - 45 m with Storz C couplings
1/2" Air supply hose - 50 m with Unitor quick couplings
1/2" Air supply hose - 50 m with Unitor quick couplings
1/2" Chemical hose - 50 m with Unitor quick couplings
Guide wire kit
600 L plastic container of 100 % recycled plastic (Nordic Ecolabel) (2 pieces)

Accessories

Product number	Product name
736991	AQUATUFF HIGH FOAM 25 LTR
575613	AQUABREAK PX 25 LTR
571653	DESCALING LIQUID 25 LTR
571679	METAL BRITE HD 25 LTR
737015	SLIP-COAT 25 LTR
757395	SLIP-COAT WR (25 LTR)
778865	SLIP COAT PLUS 25 LTR
Related products:	
593996	MUCKING PUMP - MARINE GM2
682054	VCAD200 WET AND DRY VACUUM CLEANER
576843	CHEMICAL RESIST CLOTHING
571018	SAFETY BOOT YELLOW SIZE42
571026	SAFETY BOOT YELLOW SIZE43
571034	SAFETY BOOT YELLOW SIZE44
571042	SAFETY BOOT YELLOW SIZE45
725077	COMBI-MATE 3 PACK O2+CH4+H2S+CO
721520	HPCE 520 INOX, 3 x 440V/60HZ
721175	SANDBLASTING EXTREME PACK 520
777889	UNITOR HPC 67/1 3x440/60Hz

Directions for use

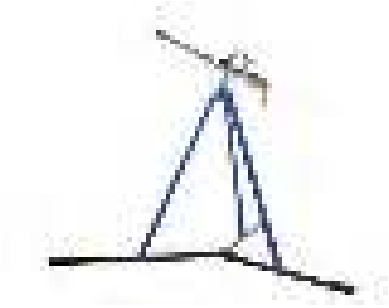
Always wear safety protection during operations. Refer to full user manual and SDS for each chemical and product used.

Note! All Cargo Hold Cleaning Equipment must be rinsed with fresh water immediately after use and before storage. If equipment is not rinsed with fresh water after use, aggressive chemicals can cause damage to equipment.

Note! The Panamax kit is supplied with one bottle of eyewash. This bottle has a expiry date. The Panamax kit is therefore a expiry date as well. Note that this expiry date is only valid for the eyewash, not the kit.
Note! Eyewash is not included on products delivered in Japan.

TORNADO 3 CARGO HOLD CLEANING JET

482 658229



The Tornado 3 has been designed for use on board medium to large bulk carriers. Shut off ball valve for both air and water supply is mounted on the Tornado for increased safety and simpler operations.

Features

- Stainless steel design
- Swivel connection between gun and tripod
- Works on normal re line and working air line on board
- High water volume

Bene ts

- Long operating life with minimum maintenance
- Easy to set-up and connect without any additional equipment
- Enables crew to clean cargo holds quickly
- Easy to use, aim and transport and does not require any special training

Technical data

Recommended water pressure	6 bar
Recommended air pressure	7 bar
Air consumption	2 M3/MIN

The intended use is cleaning and descaling of cargo holds. It uses the suppression pump as a water source. This enables the jet to reach the top of the hold and at the same time giving the capacity needed to remove even the most stubborn dirt or scale.

Accessories

Product number	Product name
574947	GUARDMAN FIREHOSE 2" PER MTR
191965	600 UPF PLUG 3/4'' FEMALE BSP.T
191866	600 UPH PLUG 3/4'' HOSE
191817	600 USF SOCKET 3/4'' FEMALE BSP.T
191718	600 USH SOCKET 3/4'' HOSE
671776	AIR HOSE 3/4", RUBBER LTH=50MTR
233833	NOR-1 CPL W/2'' HOSE SOCKET
523431	STORZ 65 CPL W/2'' HOSE SOCKET

UNITOR ULTRASONIC CLEANER S-700/HM, 110 V

664 766899

Unitor ultrasonic cleaning machines are specially designed for use in the engine room on board to remove even the most stubborn dirt, cleaning inside areas that are out of reach for conventional cleaning methods.

Features

- Sweep function - Using the sweep function means that a more homogenous sounding of the bath is achieved which results in improved cleaning performance through out the bath
- Low water level sensor prevent dry run
- Front mounted panel for electronics, enabling ef cient servicing of electronics in the machine
- Ef cient and fast heating

Bene ts

- Reduced chemical consumption
- Cleans inside lters and fuel nozzles
- Logical operation panel
- Pulse function for increased cleaning power during operation

Technical data:

Tank working volume	55 L
Average overall power	2750 W
Ultrasonic peak perf. max	1000 W
Heating	2200 W

Compared with traditional cleaning methods, use of ultrasonic cleaning units results in reduced manual work, reduced consumption of hazardous chemicals and improved cleaning performance without damaging the items to be cleaned.

Use of an ultrasonic machine combined with suitable detergent makes it particularly effective for cleaning complex machine parts like injection nozzles, fuel and pump parts, inlet and exhaust valves, etc. The unit is well suited for cleaning of ne mesh fuel and lube oil lters which can be cleaned without damaging the ne lter elements.

Ultrasonic cleans all surfaces which are covered with water. As a consequence it cleans in areas where no other cleaning technology can reach.

Ordering information

Supplied with:
Drain
Lid
Basket
Stainless steel frame for secure fastening to the oor

Accessories

Product number	**Product name**
Recommended chemicals	
607819	UNITOR USC 12 X 1 LTR

Product number	Product name
575613	AQUABREAK PX 25 LTR
575696	CARBONCLEAN LT 25 LTR
571380	ENVIROCLEAN 25 LTR
571661	METAL BRITE 25 LTR
698704	ACC PLUS 25 LTR

UNITOR ULTRASONIC CLEANER S-700/HM, 230 V

664 766881

Unitor Ultrasonic cleaning machines are specially designed for use in the engine room on board to remove even the most stubborn dirt, cleaning inside areas that are out of reach for conventional cleaning methods.

Features

- Sweep function - Using the sweep function means that a more homogenous sounding of the bath is achieved which results in improved cleaning performance through out the bath
- Low water level sensor prevent dry run
- Front mounted panel for electronics, enabling ef cient servicing of electronics in the machine
- Ef cient and fast heating

Bene ts

- Reduced chemical consumption
- Cleans inside lters and fuel nozzles
- Logical operation panel
- Pulse function for increased cleaning power during operation

Technical data

Tank working volume	51 L
Average overall power	2750 W
Ultrasonic peak perf Max	2000 W
Heating	2200 W, temperature adjustable 30-80º C

Compared with traditional cleaning methods, use of Ultrasonic cleaning units results in reduced manual work, reduced consumption of hazardous chemicals and improved cleaning performance without damaging the items to be cleaned.

Use of an Ultrasonic machine combined with suitable detergent makes it particularly effective for cleaning complex machine parts like injection nozzles, fuel and pump parts, inlet and exhaust valves, etc. The unit is well suited for cleaning of ne mesh fuel and lube oil lters which can be cleaned without damaging the ne lter elements.

Ultrasonic cleans all surfaces which are covered with water. As a consequence it cleans in areas where no other cleaning technology can reach.

Ordering information

Supplied with:
Bottom drain
Lid
Basket
Stainless steel frame for secure fastening to the oor

Accessories

Product number	**Product name**
Recommended chemicals	
607819	UNITOR USC 12 X 1 LTR

Product number	Product name
575613	AQUABREAK PX 25 LTR
575696	CARBONCLEAN LT 25 LTR
571380	ENVIROCLEAN 25 LTR
571661	METAL BRITE 25 LTR
698704	ACC PLUS 25 LTR

UNITOR ULTRASONIC CLEANER S-1600/HM, 230 V

664 766907

Unitor Ultrasonic cleaning machines are specially designed for use in the engine room on board to remove even the most stubborn dirt, cleaning inside areas that are out of reach for conventional cleaning methods.

Features

- Sweep function - Using the sweep function means that a more homogenous sounding of the bath is achieved which results in improved cleaning performance through out the bath
- Low water level sensor prevent dry run
- Front mounted panel for electronics, enabling ef cient servicing of electronics in the machine
- Ef cient and fast heating

Bene ts

- Reduced chemical consumption
- Cleans inside lters and fuel nozzles
- Logical operation panel
- Pulse function for increased cleaning power during operation

Technical data

Tank working volume	100 L
Average overall power	3050 W
Ultrasonic peak perf Max	1600 W
Heating	2200 W, temperature adjustable 30-80º C

Compared with traditional cleaning methods, use of Ultrasonic cleaning units results in reduced manual work, reduced consumption of hazardous chemicals and improved cleaning performance without damaging the items to be cleaned.

Use of an Ultrasonic machine combined with suitable detergent makes it particularly effective for cleaning complex machine parts like injection nozzles, fuel and pump parts, inlet and exhaust valves, etc. The unit is well suited for cleaning of ne mesh fuel and lube oil lters which can be cleaned without damaging the ne lter elements.

Ultrasonic cleans all surfaces which are covered with water. As a consequence it cleans in areas where no other cleaning technology can reach

Ordering information

Supplied with:
Bottom drain
Lid
Basket
Stainless steel frame for secure fastening to the oor

Accessories

Product number	Product name
607819	UNITOR USC 12 X 1 LTR
575613	AQUABREAK PX 25 LTR

Product number	Product name
575696	CARBONCLEAN LT 25 LTR
571380	ENVIROCLEAN 25 LTR
571661	METAL BRITE 25 LTR
698704	ACC PLUS 25 LTR
Recommended chemicals	

UNITOR ULTRASONIC CLEANER S-2000/HM, 230 V

664 766923

Unitor Ultrasonic cleaning machines are specially designed for use in the engine room on board to remove even the most stubborn dirt, cleaning inside areas that are out of reach for conventional cleaning methods.

Features

- Sweep function - Using the sweep function means that a more homogenous sounding of the bath is achieved which results in improved cleaning performance through out the bath.
- Low water level sensor prevent dry run
- Front mounted panel for electronics, enabling ef cient servicing of electronics in the machine
- Ef cient and fast heating

Bene ts

- Reduced chemical consumption
- Cleans inside lters and fuel nozzles
- Logical operation panel
- Pulse function for increased cleaning power during operation

Technical data

Tank working volume	126 L
Average overall power	3250 W
Ultrasonic peak perf max	2000 W
Heating	2200 W, temperature adjustable 30-80º C

Compared with traditional cleaning methods, use of Ultrasonic cleaning units results in reduced manual work, reduced consumption of hazardous chemicals and improved cleaning performance without damaging the items to be cleaned.

Use of an Ultrasonic machine combined with suitable detergent makes it particularly effective for cleaning complex machine parts like injection nozzles, fuel and pump parts, inlet and exhaust valves, etc. The unit is well suited for cleaning of ne mesh fuel and lube oil lters which can be cleaned without damaging the ne lter elements.

Ultrasonic cleans all surfaces which are covered with water. As a consequence it cleans in areas where no other cleaning technology can reach.

Ordering information

Supplied with:
Bottom drain
Lid
Basket
Stainless steel frame for secure fastening to the oor

Accessories

Product number	**Product name**
Recommended chemicals	
607819	UNITOR USC 12 X 1 LTR

Product number	Product name
575613	AQUABREAK PX 25 LTR
575696	CARBONCLEAN LT 25 LTR
571380	ENVIROCLEAN 25 LTR
571661	METAL BRITE 25 LTR
698704	ACC PLUS 25 LTR

UNITOR ULTRASONIC CLEANER S-3300/HM, 440 V

664 766956

Unitor Ultrasonic cleaning machines are specially designed for use in the engine room on board to remove even the most stubborn dirt, cleaning inside areas that are out of reach for conventional cleaning methods. The S-3300/HM offers cleaning capacity with a length of up to 107 cm.

Features

- Sweep function - Using the sweep function means that a more homogenous sounding of the bath is achieved which results in improved cleaning performance through out the bath
- Low water level sensor prevent dry run
- Front mounted panel for electronics, enabling ef cient servicing of electronics in the machine
- Ef cient and fast heating

Bene ts

- Reduced chemical consumption
- Cleans inside lters and fuel nozzles
- Logical operation panel
- Pulse function for increased cleaning power during operation

Technical data

Tank working volume	257 L
Average overall power	8050 W
Ultrasonic peak perf Max	4000 W
Heating	6000 W, temperature adjustable 30-80° C

Reduced manual work, reduced consumption of hazardous chemicals and improved cleaning performance without damage, compared to traditional methods.

Use of an Ultrasonic machine combined with suitable detergent makes it particularly effective for cleaning complex machine parts like injection nozzles, fuel and pump parts, inlet and exhaust valves, etc. The unit is well suited for cleaning of ne mesh fuel and lube oil lters which can be cleaned without damaging the ne lter elements.

Ultrasonic cleans all surfaces which are covered with water. As a consequence it cleans in areas where no other cleaning technology can reach.

This machine is only available on request. Expect longer lead times for delivery.

Ordering information

Supplied with:
Bottom drain
Lid
Basket
Stainless steel frame for secure fastening to the oor

Accessories

Product number	**Product name**
Recommended chemicals	
607819	UNITOR USC 12 X 1 LTR
575613	AQUABREAK PX 25 LTR
575696	CARBONCLEAN LT 25 LTR
571380	ENVIROCLEAN 25 LTR
571661	METAL BRITE 25 LTR
698704	ACC PLUS 25 LTR

Wilhelmsen Ships Service

GASES, REFRIGERANTS AND CYLINDERS

Including gases, span gases, refrigerants, regulators and gas distribution systems our products are supported by WSS's specially trained technicians and 24/7 service support.

ACETYLENE FILLING

In combination with Oxygen (O_2) Acetylene (C_2H_2) is used for gas cutting and welding.

Features

- Acetylene (C_2H_2) is colourless and slightly lighter than air.
- It is non-toxic, but has an anesthetic effect if inhaled.
- Acetylene is highly ammable.
- When mixed with oxygen for welding, the ame temperature will reach 3100º C.

Bene ts

- For your safety, the product is delivered in a Unitor cylinder complete with barcode and unique cylinder serial number.
- We trace and track all cylinders using the UniTrak system to give you peace of mind.

Technical data

Colour	Maroon
Purity	> 98%
Valve side connection	G 3/4" RH Internal

Acetylene mixed with air is explosive within 2.2% to 85% by volume. Avoid releasing acetylene into the air and ensure good ventilation where acetylene cylinders are stored or used.

When acetylene cylinders are transported horizontally and placed vertically again after transport, a period of at least 24 hours before using the cylinders for gas extraction must be obeyed. This to ensure that the acetone inside the cylinder redistributes in a correct way. When cylinders are used too quickly after placing them vertical again the following can happen:

- When opening the top valve, large amounts of acetone can come out. The customer might interpret this as water/oil because acetone feels slippery on the skin. Opening the top valve without a tted regulator should not be standard practice as this can create a re hazard.
- When a regulator is tted with twinhose and torch, the lighted ame will be very unstable due to the presence of acetone droplets in the gas. This is often referred to as “spitting”.

Solution is to let the cylinder rest for at least 24 hours (depending on temperature; colder environment might require longer time).

Tare "A" weight of acetylene cylinders includes cylinder shell, neckring, valve, porous mass and acetone. For acetylene the following is valid:

- 1 nm^3 = 1.095 kg
- 1 kg = 0.91 nm^3
- 1 bar = 14.5 psi
- 1 nm^3 = 35.3 ft^3
- 1 kg = 2.2 lbs

Ordering information

Product number	Product name	Cylinder size	Height	Diameter	Gross weight	Tare weight	Gas capacity (kg)	Gas capacity (nm3)	Acetone contents	Saturation gas
905067	ACETYLENE A-5 FILLING	5l	620	140	15	14	0.8	0.7	1.6	0.1
905026	ACETYLENE A-40 FILLING	40l	1360	230	73	67	6.2	5.6	12.4	0.8

Accessories

Product Number	Product name
510001	REGULATOR 510 AC PRESSURE 0-2.5 BAR
550152	WASHER NYL 10 PCS FOR AC REGULATOR

OXYGEN FILLING

In combination with Acetylene (C_2H_2), Oxygen (O_2) is used for gas cutting and welding.

Features

- Colourless, odourless and tasteless.
- It is approximately 1.1 times heavier than air.
- Oxygen itself is non- ammable, but it supports combustion.
- It can cause re or explosion in combustible materials.

Bene ts

- For your safety, the product is delivered in a Unitor cylinder complete with barcode and unique cylinder serial number.
- We trace and track all cylinders using the UniTrak system to give you peace of mind.

Technical Data

Colour	BLUE
Purity	2.5 > 99.5%
Valve side connection	W21.8mm x 1/142 RH Ext

Oxygen O_2 supports combustion. Oxygen itself is non- ammable but it supports combustion. It can cause re or explosion in combustable materials. Avoid that oxygen comes in contact grease, fat and oil. Never use oxygen as substitute for compressed air.

For oxygen the following is valid:

- 1 nm^3 = 1.311 kg
- 1 kg = 0.763 nm^3
- 1 bar = 14.5 psi
- 1 nm^3 = 35.3 ft^3
- 1 kg = 2.2 lbs

Ordering information

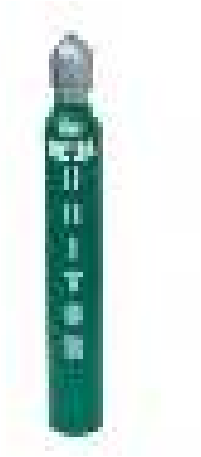
Product number	Product name	Cylinder size	Filling pressure	Height	Diameter	Gross weight	Tare weight	Gas capacity (kg)	Gas capacity (nm3)
905075	OXYGEN 0-5 FILLING	5l	200bar	620	140	13	12 kg	1.3	1
905034	OXYGEN 0-40 FILLING	40l	150bar	1360	230	60 kg	52 kg	7.8	6.4

Accessories

Product Number	Product name
510000	REGULATOR 510 OX PRESSURE 0-16 BAR
550160	WASHER ALU 10 PCS FOR OX REGULATOR

NITROGEN FILLING

Low purity nitrogen is mainly used for purging and simple padding while the high purity is mainly used for padding very speci c products and for calibration purposes.



Features

- Nitrogen is a colourless, odourless and tasteless
- Non-combustible and non-toxic
- Slightly lighter than air and it is an inert gas
- Nitrogen is well suited for purging cargo tanks and pipelines of residual gases and vapours prior to loading cargo
- It is also used as a 'blanket' on top of several types of cargoes to prevent reactions with oxygen from atmospheric air.
- The lling pressure is lower in some locations than the normal 200 bar due to local rules and regulations that limit lling pressure.

Bene ts

- For your safety, the product is delivered in a Unitor cylinder complete with barcode and unique cylinder serial number
- We trace and track all cylinders using the UniTrak system to give you peace of mind

Technical data

Colour	10l - green & 50l - green/orange
Purity	3.0 (>99.9%) or 5.0 (>99.999%)
Valve side connection	W24.32mm x 1/14" RH Ext
Filling pressure	200 bar

For the purity 5.0 (>99.999%) the speci cation is:

- Oxygen < 5vpm
- Moisture (H2O) < 5vpm
- A certi cate of analysis is supplied with the cylinder.

For nitrogen the following is valid:

- 1 nm^3 = 1.147 kg
- 1 kg = 0.872 nm^3
- 1 bar = 14.5 psi
- 1 nm^3 = 35.3 ft^3
- 1 kg = 2.2 lbs

Ordering information

Product no.	Product name	Volume	Height	Diameter	Gross weight	Tare weight	Gas capacity	Gas capacity
905232	NITROGEN N-1030 FILLING	10l	1000 mm	140 mm	20 kg	18 kg	2.3 kg	2 nm3
905208	NITROGEN N-5030 FILLING	50l	1690 mm	230 mm	92 kg	81 kg	11.5 kg	10.2 nm3
905602	NITROGEN N-1050 FILLING	10l	1000 mm	140 mm	20 kg	18 kg	2.3 kg	2 nm3
905601	NITROGEN N-5050 FILLING	50l	1690 mm	230 mm	92 kg	81 kg	11.5 kg	10.2 nm3

Accessories

Product Number	Product name
791713	NITROGEN REGULATOR 0-200 BAR
510011	REGULATOR 510 N2 FLOW 0-1.3 L/MIN

Gases
Nitrogen

Product Number	Product name
510003	REGULATOR 510 N2 PRESSURE 0 -1 BAR
510002	REGULATOR 510 N2 PRESSURE 0-10 BAR
640839	REGULATOR R21 40 BAR F/N2 RELEASE.
550160	WASHER ALU 10 PCS FOR OX REGULATOR

CRUISE GASES

Propane is used on cruise ships as fuel gas for barbeques and related equipment.

The food grade Nitrogen is mainly used for speci c beer types in combination with CO_2.

Features

- Propane is a colourless gas found in natural gas and petroleum, and is highly ammable
- Propane has a purity of 99% and is lled in an off white cylinder
- Propane cylinders are tted with American valves; adaptors are available- Adaptor with product no. 625483 enables lling or use when the European W21.8 LH is needed.
- For draught beers which need nitrogen (N_2) in combination with carbon dioxide (CO_2)
- It results in a more smooth taste and a ner dispersed head on top of the beverage
- Food grade nitrogen has a purity of 99.995% (4.5 purity) and is lled in a green and black cylinder
- Food grade nitrogen conforms to E961 (food additive) or similar standard (BS4105)
- Regulator 510 Nitrogen is used for N-10FG cylinder, available under product number 510002

Bene ts

- For your safety, the product is delivered in a Unitor cylinder complete with barcode and unique cylinder serial number
- We trace and track all cylinders using the UniTrak system to give you peace of mind

Ordering information

Product number	Product name	Cylinder size	Filling pressure	Height	Diameter	Gross weight	Tare weight	Gas capacity (kg)	Gas capacity (nm3)	Valve side connection
905679	NITROGEN FOOD GR N-10FG FILLING	10l	200bar	1000 mm	140	20	18	2,3	2	W24.32mm x 1/ 14" RH Ext
905615	PROPANE P-5 FILLING	6l	-	330 mm	203	7	4.5	2.26	1.13	CGA510

Accessories

Product Number	Product name	For use with
510002	REGULATOR 510 N2 PRESSURE 0-10 BAR	Nitrogen
781222	HIGH CAPACITY REGULATOR F PROPANE	Propane

BREATHING OXYGEN FILLING

Breathing oxygen (O_2) is used for medical emergency situations where a person requires assistance with breathing.

Features

- Breathing Oxygen cylinders are tted with Yoke-type/PISS valves, which are familiar to the majority of users.
- IMO requirements are for 1 cylinder 40 litre in combination with 2 pcs cylinder 2 litre which are both offered.
- The lling pressure is lower in some locations than the normal 200 bar due to local rules and regulations that limit lling pressure.
- Products meets the requirements of the USA and European Pharmacopea.

Bene ts

- For your safety, the product is delivered in a Unitor cylinder complete with barcode and unique cylinder serial number
- We trace and track all cylinders using the UniTrak system to give you peace of mind

Technical Data

Colour	GREEN/WHITE
Purity	> 99.5%
Valve side connection	CGA870 / PISS ISO407
Filling pressure	200bar

The quality of the gas is:

- Oxygen (O2) ≥ 99.5%
  and impurities:
- carbon dioxide (CO2) ≤ 300 ppm
- carbon monoxide (CO) ≤ 5 ppm
- water (H2O) ≤ 60 ppm

Ordering information

Product number	Product name	Cylinder size	Height	Diameter	Gross weight	Tare weight	Gas capacity (kg)	Gas capacity (nm3)
905638	BREATHING OXYGEN MOX-2 FILLING	2l	415 mm	102	3.4	2.9	0.52	0.43
905616	BREATHING OXYGEN MOX-5 FILLING	5l	690 mm	106	7.9	6.6	1.3	1
905617	BREATHING OXYGEN MOX-40 FILLING	40l	1210 mm	229	66	55	10.4	8.6

Accessories

Product Number	Product name
763967	OXYGEN REGULATOR + YOKE FOR (PISS)
608414	REGULATOR W/QUICK COUPLING
691808	SPARE SEAL F/PISS VALVE 10 PCS

ARGON FILLING

Argon is used as shielding/backing gas for electrical welding.

Features

- Argon is a colourless and odourless gas
- Argon is slightly heavier than air and is an inert gas
- It is non-toxic and non-combustible
- It is used as a shielding gas for welding, primarily to protect the molten pool against contaminants in the atmosphere

Bene ts

- For your safety, the product is delivered in a Unitor cylinder complete with barcode and unique cylinder serial number
- We trace and track all cylinders using the UniTrak system to give you peace of mind

Technical Data

Colour	grey
Purity	4.0 > 99.99%
Valve side connection	W24.32mm x 1/14" RH Ext
Filling pressure	200bar

For the purity 4.0 (>99.99%) the speci cation is: Oxygen < 10vpm and Moisture (H2) < 10vpm

For argon the following is valid:

- 1 nm^3 = 1.637 kg
- 1 kg = 0.611 nm^3
- 1 bar = 14.5 psi
- 1 nm^3 = 35.3 ft^3
- 1 kg = 2.2 lbs

Ordering information

Product number	Product name	Cylinder size Height	Diameter	Gross weight	Tare weight	Gas capacity (kg)	Gas capacity (nm3)
905174	ARGON E-50 FILLING 50l	1690	230	99	81	18	11
905565	ARGON E-10 FILLING 10l	1000	140	22	18	3.6	2.2

Accessories

Product Number	Product name
510010	REGULATOR 510 AR/CO2 FLOW 0-35L/MIN
510002	REGULATOR 510 N2 PRESSURE 0-10 BAR

UNIMIX FILLING

Argon-CO_2 mixes are used as shielding gas in MIG / MAG wire welding processes

Features

- Argon-CO_2 mix is a colourless and odourless gas
- Argon-CO_2 mix is slightly heavier than air and is an inert gas
- Argon-CO_2 mix is non-combustible
- It's used as a shielding gas for welding, primarily to protect the molten pool against contaminants from the atmosphere.
- 80% Argon/20% CO_2 mix is suitable for welding all un/low alloyed carbon steels.
- Unimix gives a very stable molten pool together with optimum energy-transmission.

Bene ts

- For your safety, the product is delivered in a Unitor cylinder complete with barcode and unique cylinder serial number
- We trace and track all cylinders using the UniTrak system to give you peace of mind

Technical Data

Colour	grey with yellow shoulder
Purity	20 +/- 2% C02
Valve side connection	W24.32mm x 1/14" RH Ext
Filling pressure	200bar

For the purity the speci cation is: CO2 20 +/- 2%, Oxygen < 10vpm and Moisture (H2) < 10vpm

For argon/CO2 mix (Unimix) the following is valid:

- 1 nm^3 = 1.571 kg
- 1 kg = 0.598 nm^3
- 1 bar = 14.5 psi
- 1 nm^3 = 35.3 ft^3
- 1 kg = 2.2 lbs

Ordering information

Product number	Product name	Cylinder size	Height	Diameter	Gross weight	Tare weight	Gas capacity (kg)	Gas capacity (nm3)
905573	UNIMIX 20 M-10 FILLING10l	1000	140	21	18	3.4	2.2	
905581	UNIMIX 20 M-50 FILLING50l	1690	230	98	81	17.1	10.9	

Accessories

Product Number	Product name
510010	REGULATOR 510 AR/CO2 FLOW 0-35L/MIN

CARBON DIOXIDE FILLING

Carbon dioxide (CO_2) is used to carbonate beverages as well as used in potable water plants to control accidity (pH). When welding (MAG) low carbon steel CO_2 is used as shielding gas.

Features

- Carbon dioxide is a colourless, odorless and an incombustible gas
- CO_2 cylinders are tted with handwheel operated valves and an American type side connection
- A regulator for this type of cylinder is available under product no. 698 510004

Bene ts

- For your safety, the product is delivered in a Unitor cylinder complete with barcode and unique cylinder serial number
- We trace and track all cylinders using the UniTrak system to give you peace of mind

Technical Data

Colour	grey with yellow shoulder kg
Purity	> 99.5 %
Valve side connection	CGA320
Filling pressure	--

For the purity the speci cation is:

- Carbon dioxide (CO_2) > 99.5 %

and impurities:

- Carbon monoxide (CO) < 5 ppm
- Nitrogen monoxide (NO) < 2 ppm
- Nitrogen dioxide (NO_2) < 2 ppm
- Sulfur compounds (S) < 1 ppm
- Water (H_2O) < 60 ppm

For carbon dioxide (CO_2) the following is valid:

- 1 nm^3 = 1.81 kg
- 1 kg = 0.55 nm^3
- 1 bar = 14.5 psi
- 1 nm^3 = 35.3 ft^3
- 1 kg = 2.2 lbs

Ordering information

Product number	Product name	Cylinder size	Height	Diameter	Gross weight	Tare weight	Gas capacity (kg)	Gas capacity (nm3)
905619	CARBON DIOXIDE C-9 FILLING	13.4l	665 mm	203 mm	28 kg	19 kg	9	4.95
905695	CARBON DIOXIDE C-27 FILLING	40l	1350 mm	229 mm	82 kg	55 kg	27	14.9

Accessories

Product Number	Product name
510004	REGULATOR 510 CO2 FOR C-9 CYL
510012	REGULATOR 510 CO2 FLOW CGA320

HELIUM H-40 FILLING

719 905618

Helium is used as a component of arti cial atmospheres. It is mainly used as a balloon-in ating gas. Also used for blow out preventors in the offshore market.

Features

- Helium is colourless, odorless inert gaseous element occurring in natural gas
- A special balloon ll regulator (Product no. 698 624434) is available
- One cylinder Helium H-40 lls on average 375 balloons

Bene ts

- For your safety, the product is delivered in a Unitor cylinder complete with barcode and unique cylinder serial number
- We trace and track all cylinders using the UniTrak system to give you peace of mind

Technical Data

Cylinder type	H-40
Volume	40l
Height	1210mm
Diameter	230mm
Gross weight	57kg
Tare weight	55kg
Gas Capacity	7.5nm/-3-\
Gas Capacity	1.23kg
Filling pressure	200bar
Valve side connection	W24.32mm x 1/14" RH Ext

Ordering information

Product Number	Product name	Purity	Cylinder size	Cylinder type	Colour
905618	HELIUM H-40 FILLING	97%	40l	H-40	Brownish orange

Accessories

Product Number	Product name
624434	BALLOON FILL REGULATOR WITH GAUGE
510002	REGULATOR 510 N2 PRESSURE 0-10 BAR

NITROGEN MIXTURES

Span gases are used for calibration and bump testing of gas detection equipment.

Features

- Re llable SG10 cylinder
- High gas volume compared to disposables and thus interesting for users which needs frequent gas
- All cylinders come with individual certi cate of analysis of the gas

Bene ts

- For your safety, the product is delivered in a Unitor cylinder complete with barcode and unique cylinder serial number
- We trace and track all cylinders using the UniTrak system to give you peace of mind

Length	1000mm
Diameter	140mm
Colour	black with orange shoulder
Connection	W24.32mm x 1/14"
gross weight	21kg
Cylinder type	SG-10
Volume	10l

Ordering information

Product number	Product name	Main component	Cylinder type	Filling pressure Approx. (bar)	Shel ife (months) from production date
620179	O2 0.5% IN NITROGEN	O2 0.5VOL%	SG-10	150	36
589051	O2 1% IN N2 99%	O2 1VOL%	SG-10	150	36
589044	O2 2% IN N2 98%	O2 2VOL%	SG-10	150	36
620146	5 % OXYGEN IN NITROGEN	O2 5VOL%	SG-10	150	36
589135	O2 8% IN N2 92%	O2 8VOL%	SG-10	150	36
905661	CO2 1% IN N2 99%	CO2 1VOL%	SG-10	150	36
589127	CO2 5% IN N2 95% SG10	CO2 5VOL%	SG10	150	36
620104	CO2 2.5% IN AIR	CO2 2.5VOL%	SG-10	150	36
592584	CO2 5% IN N2 95% SG50	CO2 5VOL%	SG-50	150	36

DISPOSABLES

Span gases are used for calibration and bump testing of gas detection equipment.
Currently three types of disposable cylinders are in use depending on the gas mixture:

- Minimix 17 is a steel disposable cylinder with 17 litres of gas
- Minimix 34 is an aluminium disposable cylinder with 34 litres of gas
- Minimix 58 is an aluminium disposable cylinder with 58 litres of gas

Features

- Minimix disposable cylinder
- Size depends on gas mixture
- Easy to carry around
- Guaranteed and repeatable quality

Bene ts

- Safe handling of gas in disposable cylinders
- Easy stock control

Ordering information

Product Number	Product name	Main component	Fillling pressure (bar)	Cylinder type	Shel ife (months) from production date
619973	MINIMIX PURE NITROGEN	N2	17	Minimix 17	Not applicable
620120	MINIMIX17 O2 1% IN 99% N2.	O2	17	Minimix 17	36
625798	MINIMIX O2 2% IN 98% N2	O2	17	Minimix 17	36
635375	MINIMIX O2 5% IN 95% N2	O2	17	Minimix 17	36
630343	MINIMIX O2 19% IN N2	O2	17	Minimix 17	36
620070	MINIMIX 2% METHANE IN AIR	CH4	17	Minimix 17	36
619965	MINIMIX 2.5% METHANE-AIR	CH4	17	Minimix 17	36
711952	MINIMIX METHANE 50% VOL. IN N2	CH4	17	Minimix 17	36
619957	MINIMIX N-BUTANE 0.9% IN AIR	C4H10	17	Minimix 17	36
619932	MINIMIX ISOBUTANE 0.9%AIR	C4H10	17	Minimix 17	36
620062	MINIMIX 8% BUTANE 15% CO2	C4H10	10	Minimix 17	36
619999	MINIMIX CO2 2% IN NITROGEN	CO2	17	Minimix 17	36
620138	HYDROGEN SULPHIDE/N2 25 PPM (S 58)	H2S		Minimix 58	24
734772	4-MIX 250 CO 15 H2S 50LEL CH4 18 OX			Minimix 34	24
741306	4-MIX 50 CO 25 H2S 50LEL CH4 18 OX			Minimix 34	24
758722	4-MIX 100 CO 15 H2S 50LEL CH4 18 OX			Minimix 34	24

Accessories

Product Number	Product name	For type of cylinder
620088	REGULATOR F/MINIMIX SPAN	Minimix 17
620013	REGULATOR F/SCOTTY VI AND 4COMP	Minimix 34 and 58

LEL MIXTURES

Span gases are used for calibration and bump testing of gas detection equipment.

Features

- Re llable SG10 cylinder
- Economical because of the high volume of gas

Bene ts

- This product is delivered in a Unitor cylinder with its barcode and unique cylinder serial number
- All cylinders are traced and tracked using the UniTrak system

The cylinder is a 200 bar cylinder made to the double standaard (ISO/USDOT) and with TPED/UN/USDOT approval.

Ordering information

Product Number	Product name	Main component	Cylinder type	Filling pressure Approx. (bar)	Shel ife (months) from production date
656371	METHANE 30% LEL IN NITROGEN	CH4 1.5VOL%	SG10	150	36
620153	METHANE 30% LEL IN AIR	CH4 1.5VOL%	SG10	150	36
620005	METHANE 40% LEL IN AIR	CH4 2.0VOL%	SG10	103	36
589085	METHANE IN AIR 50% LEL	CH4 2.5VOL%	SG10	85	36
656363	METHANE 60% LEL IN NITROGEN	CH4 3.0VOL%	SG10	150	36
656330	METHANE 60% LEL IN AIR	CH4 3.0VOL%	SG10	36	36
682344	METHANE IN N2 80% LEL	CH4 4.0VOL%	SG10	150	36
656389	METHANE 30 VOL% IN NITROGEN	CH4 30VOL%	SG10	150	36
673715	METHANE IN NITROGEN 50% VOL	CH4 50VOL%	SG10	150	36
682351	METHANE 80 VOL% IN N2	CH4 80VOL%	SG10	150	36
682336	METHANE 99.995 VOL%	CH4 99.995VOL%	SG10	150	36
588996	PROPANE IN N2 35% LEL	C3H8 0.74VOL%	SG10	150	36
588988	PROPANE IN AIR 35% LEL	C3H8 0.74VOL%	SG10	111	36
620047	PROPANE 50% L.E.L. IN AIR	C3H8 1.0VOL%	SG10	85	36

Spangases
LEL mixtures

Product Number	Product name	Main component	Cylinder type	Filling pressure Approx. (bar)	Shel ife (months) from production date
682393	PROPANE PURE 99.5 %	C3H8 99.5VOL%	SG10	--	36
589143	BUTANE IN AIR 30% LEL	C4H10 0.60VOL%	SG10	105	36
588970	BUTANE IN N2 35% LEL	C4H10 0.63VOL%	SG10	150	36
588962	BUTANE IN AIR 35% LEL	C4H10 0.63VOL%	SG10	85	36
620161	BUTANE 8%VOL,15%CO2 IN N2	C4H10 8VOL%	SG10	13	36
589036	BUTYLENE IN AIR 35% LEL	C4H8 0.56VOL%	SG10	73	36
620112	ISOBUTANE IN AIR 50% LEL = 0,95%	C4H10 0.95VOL%	SG10	--	36
682377	PENTANE 49% LEL AIR SG10	C5H12 0.68VOL%	SG10	36	36

Accessories

Product Number	Product name
510011	REGULATOR 510 N2 FLOW 0-1.3 L/MIN
510003	REGULATOR 510 N2 PRESSURE 0 -1 BAR

ALL REGULATORS IN OVERVIEW

An overview of the available cylinder regulators grouped per gas type

Apart from replacing damaged or faulty gauges, repairs should never be attempted on gas regulators. Faulty, old or corroded regulators should be replaced. Internal seals and membranes will deteriorate with time, and as a rule gas regulators should be replaced with maximum 5 years intervals.

Ordering information

Product Number	Product name	Inlet pressure (bar)	Max. outlet pressure (bar)	Outlet pressure gauge (bar)
Regulators for NITROGEN				
510002	REGULATOR 510 N2 PRESSURE 0-10 BAR	200	10	16
510003	REGULATOR 510 N2 PRESSURE 0 -1 BAR	200	1	--
791713	NITROGEN REGULATOR 0-200 BAR	200	200	230
572594	REGULATOR R-21 NITROGEN 0-28 BAR.	200	28	40
640839	REGULATOR R21 40 BAR F/N2 RELEASE.	200	40	50
Regulators for ARGON/CO2 and CO2				
510010	REGULATOR 510 AR/CO2 FLOW 0-35L/MIN	200	10	35 l/min
510012	REGULATOR 510 CO2 FLOW CGA320	150	10	
510004	REGULATOR 510 CO2 FOR C-9 CYL	150	10	16
Regulators for AIR				
619221	REGULATOR R 510 FOR AIR	200	10	16
Regulators for HELIUM				
624434	BALLOON FILL REGULATOR WITH GAUGE	200	1	--
Regulators for PROPANE				
781222	HIGH CAPACITY REGULATOR F PROPANE			--
Regulators for SPANGAS				
510011	REGULATOR 510 N2 FLOW 0-1.3 L/MIN	200	--	1.3 l/min
620088	REGULATOR F/MINIMIX SPAN	20	10	--
620013	REGULATOR F/SCOTTY VI AND 4COMP	69	--	500 ml/min
Regulators for medical grade OXYGEN				
608414	REGULATOR W/QUICK COUPLING	200	4.5	--
763967	OXYGEN REGULATOR + YOKE FOR (PISS)	200	10	--
Regulators for OXYGEN and ACETYLENE				
510000	REGULATOR 510 OX PRESSURE 0-16 BAR	200	10	16
510001	REGULATOR 510 AC PRESSURE 0-2.5 BAR	20	1.5	2.5
510021	REGULATOR 520 OX PRESSURE 0-16 BAR	200	10	16
510020	REGULATOR 520 AC PRESSURE 0-2.5 BAR	20	1.5	2.5
510031	REGULATOR 530 OX PRESSURE 0-16 BAR	10	10	16
510030	REGULATOR 530 AC PRESSURE 0-2.5 BAR	1.5	1.5	2.5

HYCOOL MARINE

Hycoo Marine is developed to provide a cost ef cient and environmentally friendly secondary refrigerant for use in indirect cooling systems. It is based on the organic salt Potassium Formate.

It is environmentally friendly because it is biodegradable and has neither Ozone Depleting Potential nor Global Warming Potential. It is non- ammable and non-toxic and can be used in freezing, cooling and heating applications.

Features

- Wide application range +50 to -45 °C
- Based on the organic salt Potassium Formate.

Bene ts

- Ready to use solution, does not need to be diluted
- Low energy cost due to low viscosity
- Low maintenance cost
- Low installation cost
- Low heat exchanger cost
- High thermal conductivity gives high volumetric cooling/ heating capacity

Ordering information

Product Number	Product name	Volume	Packing, Type
708511	HYCOOL MARINE 45 25L CAN	25 litres	CAN
708503	HYCOOL MARINE 45 200L DRUM	200 litres	DRUM

Accessories

Product Number	Product name
708495	HYCOOL BLUE ADDITIVE 25L CAN

UNICOOL R-134a

A synthetic HFC refrigerant which is harmless to the ozone layer. The gas is used in a variety of maritime refrigeration applications such as air conditioning systems, reefer box cooling, engine control room AC and cargo cooling.

Features

- All re llable cylinders are inspected prior to re lling
- Residue refrigerant recovered to prevent environmental damage
- Content is 100% genuine refrigerant from approved producer

Bene ts

- Worldwide compliance
- Assured quality
- Re llable cylinders

Ordering information

Product number	Product name	Contents	Colour	ODP	GWP
905557	UNICOOL R-134a 57KG REFRIGERANT	56 LITRE	BLUE	0	1300
905620	UNICOOL R-134a 12.5 KG REFRIGERANT	12.3 LITRE	BLUE	0	1300

ODP = Ozone Depletion Potential

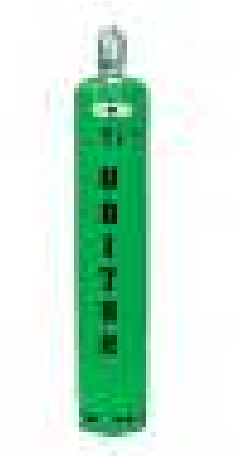
GWP = Global Warming Potential (2nd assessment)

Accessories

Product Number	Product name
597757	CHARGING HOSE SET UCH-72 3X1.8M
544932	REFRIGERANT CYL. VALVE ADAPTOR SET

UNICOOL R-22

A synthetic HCFC refrigerant with an Ozone Depleting Potential. The gas is used in a variety of maritime refrigeration applications for low, medium and high temperatures (-40 to +16° C). NOTE: the use of virgin R-22 is banned within the EU.



Features

- All re llable cylinders are inspected prior to re lling
- Residue refrigerant recovered to prevent environmental damage
- Content is 100% genuine refrigerant from approved producer

Bene ts

- Worldwide compliance
- Assured quality
- Re llable cylinders

Ordering information

Product Number	Product name	Contents	Colour	ODP	GWP
905059	UNICOOL R-22 57 KG REFRIGERANT	56 LITRE	GREEN	0.049	1500
905621	UNICOOL R-22 12.5 KG REFRIGERANT	12.3 LITRE	GREEN	0.049	1500

ODP = Ozone Depletion Potential

GWP = Global Warming Potential (2nd assessment)

Accessories

Product Number	Product name
597757	CHARGING HOSE SET UCH-72 3X1.8M
544932	REFRIGERANT CYL. VALVE ADAPTOR SET

UNICOOL R-404A

A synthetic HFC refrigerant which is harmless to the ozone layer. The gas is used in a variety of maritime refrigeration applications such as low and medium temperature applications (evaporating temperatures of -45 to +8° C).

Features

- All re llable cylinders are inspected prior to re lling
- Residue refrigerant recovered to prevent environmental damage
- Content is 100% genuine virgin refrigerant from approved producer
- A replacement option for R-502 and R-22
- Most suitable for new systems

Bene ts

- Worldwide compliance
- Assured quality
- Re llable cylinders

Ordering information

Product number	Product name	Contents	Colour	ODP	GWP
905606	UNICOOL R-404A 45 KG REFRIGERANT	56 LITRE	ORANGE	0	3260
905623	UNICOOL R-404A 9.5 KG REFRIGERANT	12.3 LITRE	ORANGE	0	3260

ODP = Ozone Depletion Potential

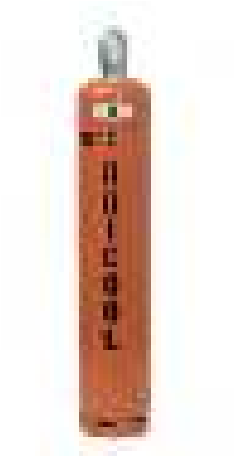
GWP = Global Warming Potential (2nd assessment)

Accessories

Product Number	Product name
597757	CHARGING HOSE SET UCH-72 3X1.8M
544932	REFRIGERANT CYL. VALVE ADAPTOR SET

UNICOOL R-407C

A synthetic HFC refrigerant which is harmless to the ozone layer. The gas is used in a variety of maritime refrigeration applications such as high and medium temperature applications (evaporating temperatures of -25 to +15° C).



Features

- All re llable cylinders are inspected prior to re lling
- Residue refrigerant recovered to prevent environmental damage
- Content is 100% genuine refrigerant from approved producer
- Suitable for new systems and retro ts

Bene ts

- Worldwide compliance
- Assured quality
- Re llable cylinders

Ordering information

Product number	Product name	Contents	Colour	ODP	GWP
905607	UNICOOL R-407C 52 KG REFRIGERANT	56 LITRE	ORANGE-BROWN	0	1525
905624	UNICOOL R-407-C 11 KG REFRIGERANT	12.3 LITRE	ORANGE-BROWN	0	1525

ODP = Ozone Depletion Potential

GWP = Global Warming Potential (2nd assessment)

Accessories

Product Number	Product name
597757	CHARGING HOSE SET UCH-72 3X1.8M
544932	REFRIGERANT CYL. VALVE ADAPTOR SET

UNICOOL R-407F 11KG REFRIGERANT

593 905712

A synthetic HFC refrigerant which is harmless to the ozone layer. The gas is used in a variety of maritime refrigeration applications such as high, medium and low temperature applications (evaporating temperatures of -30 to +15°C)

Features

- All re llable cylinders are inspected prior to re lling
- Residue refrigerant recovered to prevent environmental damage
- Content is 100 % genuine refrigerant from approved producer
- Conforms to ARI-700 purity standard
- Suitable for new systems and retro ts

Bene ts

- Worldwide compliance
- Assured quality
- Re llable cylinders

Technical data

Contents	12.3 litre
Weight	11 kg
Colour	light green
ODP	0
GWP (2nd Assesment)	1555

Accessories

PRODUCT NUMBER	PRODUCT NAME
597757	CHARGING HOSE SET UCH-72 3X1.8M
544932	REFRIGERANT CYL. VALVE ADAPTOR SET

UNICOOL R-410A

A synthetic HFC refrigerant which is harmless to the ozone layer. The gas is used in a variety of maritime refrigeration applications such as low, medium and high temperature applications (evaporating temperatures of -45 to +8° C).

Features

- All re llable cylinders are inspected prior to re lling
- Residue refrigerant recovered to prevent environmental damage
- Content is 100% genuine refrigerant from approved producer
- For new systems only

Bene ts

- Worldwide compliance
- Assured quality
- Re llable cylinders

Ordering information

Product number	Product name	Contents	Colour	ODP	GWP
905608	UNICOOL R-410A 45 KG REFRIGERANT	56 LITRE	ROSE	0	1730
905627	UNICOOL R-410A 9.5 KG REFRIGERANT	12.3 LITRE	ROSE	0	1730

ODP = Ozone Depletion Potential

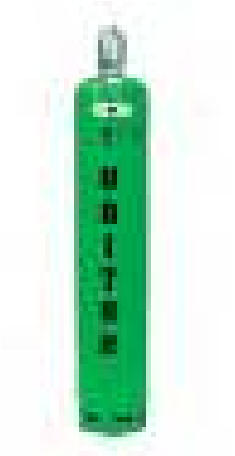
GWP = Global Warming Potential (2nd assessment)

Accessories

Product Number	Product name
597757	CHARGING HOSE SET UCH-72 3X1.8M
544932	REFRIGERANT CYL. VALVE ADAPTOR SET

UNICOOL R-417A

Environmentally acceptable HFC solution for replacing ozone depleting refrigerants in existing refrigeration systems as low, medium and high temperature applications (evaporating temperatures of -35 to +25° C). This is a WSS preferred retro t solution.



Features

- All re llable cylinders are inspected prior to re lling
- Residue refrigerant recovered to prevent environmental damage
- Content is 100% genuine virgin refrigerant from approved producer
- Long term replacement for R-22 and WSS prefered retro t solution

Bene ts

- Worldwide compliance
- Assured quality
- Re llable cylinders

Ordering information

Product Number	Product name	Contents	Colour	ODP	GWP
905637	UNICOOL R-417A 51KG REFRIGERANT	56 LITRE	GREEN	0	1900
905705	UNICOOL R-417A 11KG REFRIGERANT	12.3 LITRE	GREEN	0	1900

ODP = Ozone Depletion Potential

GWP = Global Warming Potential (2nd assessment)

Accessories

Product Number	Product name
597757	CHARGING HOSE SET UCH-72 3X1.8M
544932	REFRIGERANT CYL. VALVE ADAPTOR SET

UNICOOL R-422D 52 KG REFRIGERANT

593 905710

Environmentally acceptable HFC solution for replacing ozone depleting refrigerants in existing refrigeration systems (evaporating temperatures of -35 to +25° C).

Features

- All re llable cylinders are inspected prior to re lling
- Residue refrigerant recovered to prevent environmental damage
- Content is 100% genuine virgin refrigerant from approved producer
- Conforms to ARI-700 purity standard

Bene ts

- Worldwide compliance
- Assured quality
- Re llable cylinders

Technical Data

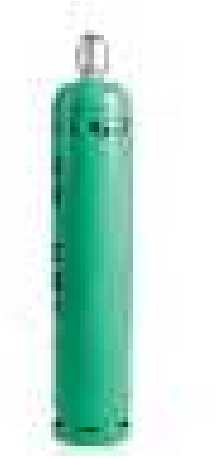
Contents	56 L
Weight	52 kg
Colour	Light Green
ODP	0
GWP	2230

Accessories

Product Number	Product name
597757	CHARGING HOSE SET UCH-72 3X1.8M
544932	REFRIGERANT CYL. VALVE ADAPTOR SET

UNICOOL R-427A 53 KG REFRIGERANT

593 905708



Environmentally acceptable HFC solution for replacing ozone depleting refrigerants in existing refrigeration systems (evaporating temperatures of -35 to +25° C).

Features

- All re llable cylinders are inspected prior to re lling
- Residue refrigerant recovered to prevent environmental damage
- Content is 100% genuine virgin refrigerant from approved producer
- Conforms to ARI-700 purity standard

Bene ts

- Worldwide compliance
- Assured quality
- Re llable cylinders

Technical data

Contents	56 L
Weight	53 kg
Colour	Green
ODP	0
GWP	1830

Accessories

Product Number	Product name
597757	CHARGING HOSE SET UCH-72 3X1.8M
544932	REFRIGERANT CYL. VALVE ADAPTOR SET

UNICOOL R-507

A synthetic HFC refrigerant which is harmless to the ozone layer. The gas is used in a variety of maritime refrigeration applications such as low and medium temperature applications (evaporating temperatures of -45 to +8° C).

Features

- All re llable cylinders are inspected prior to re lling
- Residue refrigerant recovered to prevent environmental damage
- Content is 100% genuine virgin refrigerant from approved producer

Bene ts

- Worldwide compliance
- Assured quality
- Re llable cylinders

Ordering information

Product number	Product name	Contents	Colour	ODP	GWP
905610	UNICOOL R-507 45 KG REFRIGERANT	56 LITRE	TEAL	0	3300
905628	UNICOOL R-507 9.5 KG REFRIGERANT	12.3 LITRE	TEAL	0	3300

ODP = Ozone Depletion Potential

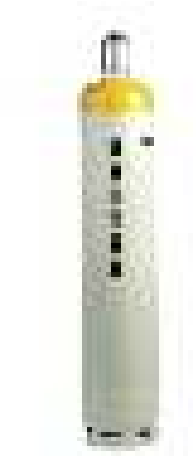
GWP = Global Warming Potential (2nd assessment)

Accessories

Product Number	Product name
597757	CHARGING HOSE SET UCH-72 3X1.8M
544932	REFRIGERANT CYL. VALVE ADAPTOR SET

RECOVERY CYLINDER + DOCUMENTATION

Cylinder for recovery and storing of refrigerants during system servicing or maintenance work onboard. The cylinder is sold to customer and is not part of the cylinder exchange program.



Features

- Two connection ports to enable charging of liquid and extraction of vapour simultaneously
- Cylinder supplied under vacum
- Cylinder is clearly identi ed for 'RECOVERY'
- Comes with a complete documentation kit including transport label following European and American requirements
- Cylinder is grey with yellow shoulder

Bene ts

- Delivered with lling guideline to protect against over charging
- Includes transport labels speci ed by the USA DOT (Dept of Transportation) and EU

Ordering information

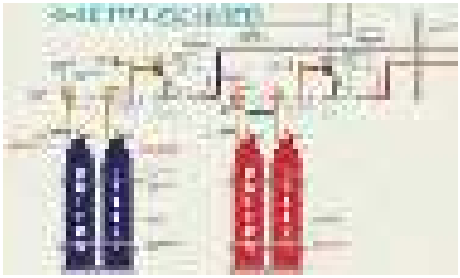
Product Number	Product name	Water capacity	USDOT	Connection Type
632588	RECOVERY CYL EMPTY 56L+DOCUMENTS	55.8 l / 123 lbs	4BW400	CGA 660
596544	RECOVERY CYL EMPTY 21.6L+DOCUMENTS	21.6 l / 50 lbs	4BA400	1/4" are SAE

Accessories

Product Number	Product name
597757	CHARGING HOSE SET UCH-72 3X1.8M
544932	REFRIGERANT CYL. VALVE ADAPTOR SET

CENTRAL INSTALLATION FOR ACETYLENE + OXYGEN

Central distribution installation for single acetylene and oxygen cylinders.



Features

- Includes all items necessary for the gas central room, including signs, racks, equipment and brackets to be screwed or welded to deck and bulkhead
- Included are also pre-welded unions to be welded to the distribution pipes, and brazed to the evacuation pipes from the regulator safety valves
- Gas cylinders, cylinder trolley, clamps, bushings and outlet stations should be ordered separately in necessary quantities.
- If the central is to be placed in two separate rooms, one each for Acetylene and Oxygen respectively, one each of signs product no. 183202, 526566 and 526558 are needed.

Bene ts

- Increases safety
- Cylinders are less subject to physical damage
- Location of cylinders is known to everyone onboard
- Cylinders can easily be removed in case of re onboard
- No cylinder transport to the worksite needed

Ordering information

Product number	Product name
233064	GAS DISTR. SYST. 2CYL. 1AC + 1OX.
234849	GAS DISTR. SYST. 4CYL. 2AC + 2OX.
510578	GAS DISTR. SYST. 6CYL. 2AC + 4OX.
511170	GAS DISTR. SYST. 3CYL. 1AC + 2OX.

RACK FOR CYLINDERS

Cylinder racks for safe storage of one and two cylinders

Features

- Designed for safe and vibration-free storing of 40 L and 50 L gas cylinders on board
- The racks are galvanized for maximum corrosion protection
- Screw and nut in the clamp assembly are of stainless steel to ensure easy and fast removal of the cylinders in case of re

Ordering information

Product name	Product number
RACK FOR 2 CYLINDERS.	**176297**
RACK FOR 1 CYLINDER.	**320358**

GAS CYLINDER CABINET

Gas cylinders should be stored in a room(s) on or above the uppermost continuous deck, with direct access to open deck. As a solution in cases where it is dif cult to reserve separate room(s) for the cylinders, WSS offers specially designed Unitor steel cabinets for mounting on deck.

Features

- The cabinets are available in two sizes: for two or for four cylinders
- The cabinets can be tted with gas accessories to form a complete cylinder central as to drawings
- Cylinder racks are tted in the cabinets for the maximum number of cylinders as standard
- 3 mm steel plate is used for the construction of the cabinets
- Lifting lugs and ears for fastening the cabinet to the bulkhead are included
- The door fastener is prepared for padlocking
- The cabinets are shot blasted and primed with zinc compound
- Final painting should be done when mounted, to match the colour of the surrounding bulkheads

Bene ts

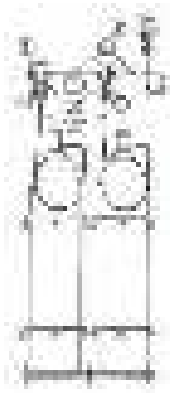
- Safe storage of cylinders
- Increased storage space
- Fits on every type of ship

Ordering information

Product number	Product name
536763	CABINET FOR 2 CYL WITH RACK
536755	CABINET FOR 4 CYL WITH RACK

HIGH PRESSURE COMPONENTS

High pressure components of the Gas Distribution Systems



Ordering information

Product Number	Product name	Position
305292	HIGH PRESSURE HOSE OX 1 MTR.	2
520403	HIGH PRESSURE HOSE AC 1 MTR.	2
303198	T-VALVE N2/OX W/NON.	3
520379	T-VALVE AC W/NON RETURN.	3
302547	BLIND PLUG.	4
302539	CONNECTION NUT OX 1/4 IN	4
517078	CONNECTION NUT AC 1/4 IN	4
302505	OX HIGH PRESSURE CONNECTOR	5
517086	AC HIGH PRESSURE CONNECTOR	5
302992	CLOSING VALVE OX W BRACKET.	6
520395	CLOSING VALVE AC.	6
511089	NON RETURN VALVE OX.	7
520387	NON RETURN VALVE AC.	7

LOW PRESSURE COMPNENTS

The spare parts of the low pressure components for the Gas Distribution System

Ordering information

Product Number	Product name	Position
510021	REGULATOR 520 OX PRESSURE 0-16 BAR	7
510020	REGULATOR 520 AC PRESSURE 0-2.5 BAR	7
621573	OX LOW PRESS.CONNECTOR W/PREW.UNION	9
621565	AC LOW PRESS.CONNECTOR W/PREW.UNION	9
682427	FLASHBACK ARRESTOR OX 8510.	10
585372	FLASHBACK ARRESTOR AC 8510.	10
624684	BUSHING FOR STEEL PIPES	13

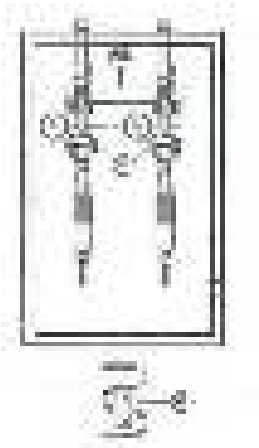
LEAK DETECTION SPRAY 300 ML

610 576389

It is important that all equipment that is part of a gas system is checked for leaks after assembly and corrective action taken before use.
Always use leak detector solutions when looking for gas leakage. Our leak detection spray TL-4 is perfect for industrial systems. Don't use soapy water or washing up liquid. Ensure the leak detect solution is compatible with the materials used in the equipment construction.

OUTLET STATION

The spare parts and optional parts on the outlet side of the Gas Distribution System



Ordering information

Product Number	Product name	Position
550277	OUTLET STATION-700 COMPL..	-
550301	OUTLET STATION-700 W/O.	-
510030	REGULATOR 530 AC PRESSURE 0-2.5 BAR	14
510031	REGULATOR 530 OX PRESSURE 0-16 BAR	14
708537	FLASHBACK ARRESTOR S55 AC	15
708545	FLASHBACK ARRESTOR S55 OX	15
550335	CABINET F/OUTLET STATION.	-
536805	CABINET F/OUTLET STATION.	-
550319	TWIN VALVE UNIT F/OUTLET.	13
235010	STRETCH RELIEF BRACKET.	16

SHIELDING GAS INSTALLATION FOR CYLINDERS

The Gas Distribution System for shielding gases is designed to give our customers the highest ef ciency and economy, and at the same time increasing the safety on board. The System is delivered complete with manifold system with non-return valves, high pressure exible hoses, fastening racks for cylinders, shut off valve, regulator, low pressure expansion pipe and a "Gas under pressure" sign. The system is designed for a working pressure of 200 bar.

SHIELDING GAS INSTALLATION FOR 2 CYLINDERS.

611 593608

The Gas Distribution System for shielding gases is designed to give our customers the highest ef ciency and economy, and at the same time increasing the safety on board. The System is delivered complete with manifold system with non-return valves, high pressure exible hoses, fastening racks for cylinders, shut off valve, regulator, low pressure expansion pipe and a "Gas under pressure" sign. The system is designed for a working pressure of 200 bar.

SHIELDING GAS INSTALLATION FOR 4 CYLINDERS

611 593616

The Gas Distribution System for shielding gases is designed to give our customers the highest ef ciency and economy, and at the same time increasing the safety on board. The System is delivered complete with manifold system with non-return valves, high pressure exible hoses, fastening racks for cylinders, shut off valve, regulator, low pressure expansion pipe and a "Gas under pressure" sign. The system is designed for a working pressure of 200 bar.

OUTLET STATION FOR SHIELDING GAS

610 593673

Unitor Outlet station for shielding gases is supplied with closing ball valve, regulator xed to a working pressure of 2.5 bar, and with one owmeter (capacity 0 - 30 l/m). An additional owmeter may be installed. A protective cabinet is optional.

Wilhelmsen Ships Service

REFRIGERATION EQUIPMENT

Our range of secondary refrigerants and lubricants, package equipment, system equipment and tools are designed to work together with WSS's gases, refrigerants and cylinders.

CYLINDER STAND

601 513564

A stand for UNICOOL cylinders to secure the cylinders during voyage against movement.

Features

- Cylinders are secured free from the deck by two clamps. Clamps are of quick release type to ensure timely removal of cylinders in case of emergency
- Hot dip galvanized steel
- Fits all WSS UNICOOL 56 L refrigerant cylinders

Technical data

Product code	UCA-001

CHARGING HOSES

1/4" hose to connect between Unicool refrigerant cylinder adaptor and refrigeration system

Hose set used together with the refrigerant service manifold

3/8" hose to connect between Unicool refrigerant cylinder (use adaptor set 544932) and refrigeration system or used for larger vacuum jobs

Features

- High quality hose material
- Te on seals
- Both ends have 3/8" or 1/4" SAE are female connection
- One end tted with a valve core depressor
- Embedded O-ring seals for positive seal

Bene ts

- Flexible even in low teperatures without colapsing
- Approved for high pressure blends

Ordering information

Product Number	Product name	Product code	Colour
320234	CHARGING HOSE - 1.8M, 1/4" FLARE	UCH-72-Y	Yellow
597757	CHARGING HOSE SET UCH-72 3X1.8M	UCH-72	Yellow, red & blue
535070	CHARG/VACUUM.HOSE-1.8M, 3/8" FLARE	UCH-72-Y	Yellow
320093	CHARGING HOSE SET UCH-36 3 x 0.9 m	UCH-36	Yellow, red & blue

Accessories

Product Number	Product name
544932	REFRIGERANT CYL. VALVE ADAPTOR SET

TOP VALVE ADAPTOR SET FOR UNICOOL REFRIGERANT CYLINDERS UVA-001

601 544932

Used when connecting a charging hose to the Unicool refrigerant cylinder valve.

Features

- Package with 4 adaptors: two 1/4" SAE are and two 3/8" SAE are
- O-ring included

Technical data

Product code	UVA-001
Cylinder connection	CGA 660
Outlet	Male flare SAE 1/4"
Outlet	Male are SAE 3/8"

COLLECTION OF FITTINGS, 1/4 - 3/8"

601 636431

An assorted collection of the most common types of brass ttings that are used in various refrigeration piping and connection applications. Items are not sold individually.

For 3/8 - 5/8", please use part number 636449

Features

- Comprehensive selection

Bene ts

- Handy for repairs or system maintenance

Ordering information

Supplied with:

Plug P2 4, 1/4" flare (3 pcs)
Union TEE T2-4, 1/4" are (3 pcs)
Reducing Union TEE TR2-64, 3/8" + 3/8" x 1/4" (1 pc)
Reducing Union TEE TR2-84, 1/2" + 1/2" x 1/4" (1 pc)
Connector U3-4A female, 1/4" fl x 1/8" pipe thread (1 pc)
Connector U3-4B female, 1/4" x 1/4" pipe thread (1 pc)
Connector U3-6B female, 3/8" fl x 1/4" pipe thread (2 pc)
TEE T 6-4, 2 x 1/4" male, 1 x 1/4" female (1 pc)
Connector U1-4A male, 1/4" fl x 1/8" pipe thread (3 pcs)
Connector U1-4B male, 1/4" x 1/4" pipe thread (3 pcs)
Connector U1-6B male, 3/8" fl x 1/4" pipe thread (3 pcs)
Union U2 -4, 1/4" are (5 pcs)
Reducing Union UR2-64, 3/8" x 1/4" flare (3 pcs)
Reducing Union UR2-84, 1/2" x 1/4" are (2 pcs)
Manifold Union coupling US-4-4, 1/4" x 1/4" flare (2 pcs)
Reducing UR3-46, 1/4" female x 3/8" male (2 pcs)
Reducing UR3-48, 1/4" female x 1/2" male (1 pc)
Reducing UR3-64, 3/8" female x 1/4" male (2 pcs)
Flare Cap NFT5-4, 1/4" Flare (10 pcs)
Short Nut NS4-4, 1/4" Flare (10 pcs)

COLLECTION OF FITTINGS, 3/8 - 5/8"

601 636449

An assorted collection of the most common types of brass ttings that are used in various refrigeration piping and connection applications. Items are not sold individually.

For 1/4 - 3/8", please use part number 636431

Features

- Comprehensive selection

Bene ts

- Handy for repairs or system maintenance

Ordering information

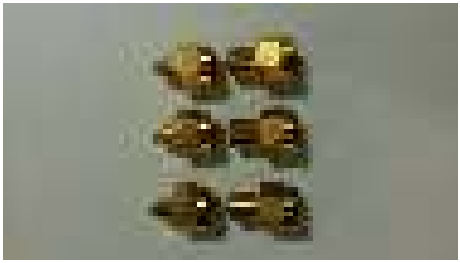
Supplied with:

Plug P2-6, 3/8" flare (2 pcs)
Plug P2-8, 1/2" Flare (1 pc)
Union TEE T2-6, 3/8" flare (2 pcs)
Union TEE T2-8, 1/2" are (1 pc)
Union TEE T2-10, 5/8" are (1 pc)
Reducing Union TEE TR2-86, 1/2" + 1/2" x 3/8" (1 pc)
Connector U1-6C male, 3/8" fl x 3/8" pipe thread (1 pc)
Connector U1-8C male, 1/2" x 3/8" pipe thread(3 pcs)
Union U2-6, 3/8" flare (3 pcs)
Union U2-8, 1/2" are (2 pcs)
Union U2-10, 5/8" flare (1 pc)
Reducing Union UR2-86, 1/2" x 3/8" are (1 pc)
Reducing Union UR2-108, 5/8" x 1/2" flare (1 pc)
Manifold Union coupling US-4-6, 3/8" x 3/8" are (1 pc)
Manifold Union coupling US-4-8, 1/2" x 1/2" flare (1 pc)
Reducing UR3-68, 3/8" female x 1/2" male (1 pc)
Reducing UR3-86, 1/2" female x 3/8" male (2 pcs)
Reducing UR3-810, 1/2" female x 5/8" male (1 pc)
Flare Cap NFT5-6, 3/8" Flare (10 pcs)
Short Nut NS4-6, 3/8" Flare (10 pcs)

GAUGE ADAPTORS 3/8"BSP & 1/4" BSP

601 636712

Gauge adaptors suitable for both 80mm and 100mm gauges



Features

- From 1/4" BSP female to 3/8" BSP male (3 pieces)
- From 1/4" BSP female to 1/4" are female (3 pieces)

LIQUID LINE DRIER CORE 48 DC

604 548255

Compact lter drier insert for liquid line lters. Suitable for R-22, R-404A, R-417A, R134a and more refrigerants. Should be replaced annually.

Features

- Supplied in sealed can
- Includes necessary gaskets for multi core driers

Bene ts

- Removes moisture and acid

Technical data

Length	138 mm
Diameter	95 mm
Inside Diameter	44 mm
TEV type	DCR 48DC

DUCT AIR TREATMENT

Duct Air Treatment is a natural, biodegradable, non-toxic gel block consisting of complex polysaccharides, surfactants, puri ed water and 10% tee tree oil. It will help prevent the build up of bacteria, mould and fungi which are found in marine HVAC systems.

Duct Airtreatment is suitable for use in all air conditioning systems, including ducted systems, package units and non ducted wall mounted split systems and room air conditioners.

Duct Air Treatment facilitates easy disinfaction to prevent or control the spread of disease as required by MLC2006.

Features

- Is a natural, biodegradable, non-toxic gel block
- Consists of complex polysaccharides, surfactants, puri ed water and 10% tee tree oil
- Releases 10-45 micrograms of tea tree oil per cubic metre of air
- Is formulated into a thermo-reversible solid water gel
- Melts at < 50 °C with decomposition
- Complies with Marine Labout Convention 2006 (MLC2006)

Bene ts

- Continued use of Duct Airtreatment will help prevent the build up of bacteria, mould, Legionella bacteria and fungi which are found in marine HVAC systems
- The powerful active ingredient in Duct Airtreatment will also eliminate and oxidize the source of odours associated with bacteria and moulds, leaving the air fresh and clean

Ordering information

Product Number	Product name
743466	DUCT AIR TREATMENT 2KG
764417	DUCT AIR TREATMENT 4KG

REFRIGERANT LEAK MONITOR KIT 4 CH IP66

607 767079

To detect leakages of refrigerants onboard your vessel's refrigeration systems, the leak kit enables you to monitor up to 4 locations for the presence of CFC, HCFC and HFC's. The semi conductor sensors are easy to install and with their chemical stable design give you an inexpensive solution to comply to LRS/DNV requirements. IP Class is 66

Features

- Inexpensive, robust and long-lasting semi-conductor technology
- Can detect multiple refrigerants simultaneously
- 2 level alarm system:
    - Low level alarm resets automatically once the atmosphere is clear as found in intermittent leaks
    - High level alarm needs to be manually reset after the leak has been recti ed. Use Unitor's electronic hand held leak detector UNIRX-1A Part No 716142 for identifying leaks
- Relatively easy to install, requires no special preparations and low maintenance requirements
- Economical solution
- Can be connected to existing engine room alarm systems
- Comes in 220 V with an option for 110 V
- IP66

Bene ts

- **Crew safety:** safeguards crew members from long-term exposure to high levels of leaked refrigerant gas in enclosed spaces.
- **Cost saving:** helps reduce costs due to accidental loss of refrigerants from unmonitored leaks
- **Environmentally sound solution:** reduces the risks of global warming and damaging the ozone layer by instantaneous warning of leaks
- **Class compliant:** the leak detection system is compliant with LRS requirements for their EP notation and the DNV Clean notation

Semi-conductors for halocarbons may be used to detect more than one gas or a mixture of gases simultaneously. This is particularly useful in monitoring a plant room with a number of different refrigerants. The kit contains 4-channel monitor, 2 sensors, 1 roll of cable, cable glands. In order to fully utilise all 4 channels, 2 additional sensors and 1 roll of cable must be ordered separately

Accessories

Product Number	Product name	IP protection
708073	REFRIGERANT SENSOR CABLE	
708024	REFRIGERANT SENSOR IP44	IP44
767046	REFRIGERANT SENSOR IP66	IP66
767061	REFRIGERANT SENSOR AHU&DUCT IP66	IP66
767053	REFRIGERANT SENSOR VENT PIPE IP66	IP66

Approvals

CE

REFRIGERANT LEAK MONITOR KIT 6 CH IP66

607 767087

To detect leakages of refrigerants onboard your vessel's refrigeration systems, the leak kit enables you to monitor up to 6 locations for the presence of CFC, HCFC and HFC's. The semi conductor sensors are easy to install and with their chemical stable design give you an inexpensive solution to comply to LRS/DNV requirements. IP Class is 66

Features

- Inexpensive, robust and long-lasting semi-conductor technology
- Can detect multiple refrigerants simultaneously
- 2 level alarm system:
    - Low level alarm resets automatically once the atmosphere is clear as found in intermittent leaks
    - High level alarm needs to be manually reset after the leak has been recti ed. Use Unitor's electronic hand held leak detector UNIRX-1A Part No 716142 for identifying leaks
- Relatively easy to install, requires no special preparations and low maintenance requirements
- Economical solution
- Can be connected to existing engine room alarm systems
- Comes in 220 V with an option for 110 V
- IP66

Bene ts

- **Crew safety:** safeguards crew members from long-term exposure to high levels of leaked refrigerant gas in enclosed spaces.
- **Cost saving:** helps reduce costs due to accidental loss of refrigerants from unmonitored leaks
- **Environmentally sound solution:** reduces the risks of global warming and damaging the ozone layer by instantaneous warning of leaks
- **Class compliant:** the leak detection system is compliant with LRS requirements for their EP notation and the DNV Clean notation

Semi-conductors for halocarbons may be used to detect more than one gas or a mixture of gases simultaneously. This is particularly useful in monitoring a plant room with a number of different refrigerants. The kit contains 6-channel monitor, 4 sensors, 2 rolls of cable and cable glands. To fully utilise all 6 channels 2 additional sensors and 1 roll of cable must be ordered separately.

Accessories

Product Number	Product name	IP PROTECTION
767061	REFRIGERANT SENSOR AHU&DUCT IP66	IP66
767053	REFRIGERANT SENSOR VENT PIPE IP66	IP66
767046	REFRIGERANTS SENSOR IP66	IP66
708073	REFRIGERANT SENSOR CABLE	
708024	REFRIGERANT SENSOR IP44	IP44

Approvals

CE

REFRIGERANT SENSOR VENT PIPE IP66

607 767053

Refrigerant gas sensor for use in outlet pipes from safety valves. To monitor blow off or weeping from pressure relief valves. Normally teed off Vent pipes line to the exterior.

Features

- Working temperature range -40° C to +50° C (-40° F to +122° F)
- IP 66 rated
- Improved sensor housing
- Improved sensor with lter to minimise false alarms from background gases
- Improved sensor PCB design with incorporated test points
- Simpli ed annual maintenance / testing procedures
- Field adjustments to the sensor sensitivity can be carried out very easily. Sensitivity can be set as low as 100 ppm
- Factory supply setting is 500 ppm for low level and 1,000 ppm for high level

Bene ts

- **Crew safety:** safeguards crew members from long-term exposure to high levels of leaked refrigerant gas in enclosed spaces
- **Cost saving:** helps reduce costs due to accidental loss of refrigerants from unmonitored leaks
- **Environmentally sound solution:** reduces the risks of global warming and damaging the ozone layer by instantaneous warning of leaks
- **Class compliant:** the leak detection system is compliant with LRS requirements for their EP notation and the DNV Clean notation

REFRIGERANT SENSOR CABLE

607 708073

Refrigerant gas Sensor Cable on 100 meter reel. 4 core screened LSF (Low Smoke & Fumes) cable 7 / 0.2 mm. Screened cable for connection between sensors and monitor to avoid false signals from other power sources. Maximum length from sensor to monitor is 50 metres.

The cable is classed as halogen free.

Features

- 100 m coil
- Screened cable

Directions for use

Maximum Sensor Wiring Length: 230V Systems
100 Meters 7/0.2mm Alarm Cable (Max. 8.8 Ohms / Core)

Maximum Sensor Wiring Length: 120V Systems
152.25 Meters (500 feet) 22 gauge, stranded 4 wire Alarm Cable (Max 8.8 Ohms/Wire)

REFRIGERANT SENSOR IP44

607 708024

This is the new and improved refrigerant leak detection sensor for general application.

Can be used for detecting all the CFC, HCFC, HFC refrigerants and hydrocarbons.

NB: Special sensors for Ammonia available on request

Features

- Working temperature range -20° C to +50° C (-4° F to +122° F)
- IP 44 rated
- Improved sensor housing
- Improved sensor with lter to minimise false alarms from background gases
- Improved sensor PCB design with incorporated test points
- Simpli ed annual maintenance / testing procedures
- Field adjustments to the sensor sensitivity can be carried out very easily. Sensitivity can be set as low as 100 ppm
- Factory supply setting is 500 ppm for low level and 1,000 ppm for high level

Bene ts

- **Crew safety:** safeguards crew members from long-term exposure to high levels of leaked refrigerant gas in enclosed spaces
- **Cost saving:** helps reduce costs due to accidental loss of refrigerants from unmonitored leaks
- **Environmentally sound solution:** reduces the risks of global warming and damaging the ozone layer by instantaneous warning of leaks
- **Class compliant:** the leak detection system is compliant with LRS requirements for their EP notation and the DNV Clean notation

Directions for use

Mount approximately 1 meter above oor level (most refrigerants are heavier than air)

In areas with lot of air movement, locate the sensor downstream of the system to be detected

Connect to a spare channel in the Monitor using the cable provided (please read the instruction manual carefully)

REFRIGERANT SENSOR EEXD IIB T5

607 708065

Refrigerant Gas Sensor EExd IIB T5 (incl. Gland) for use in explosion rated areas.

Features

- Working temperature range -40° C to +50° C (-40° F to +122° F)
- Improved sensor housing
- Improved sensor with lter to minimise false alarms from background gases
- Improved sensor PCB design with incorporated test points
- Simpli ed annual maintenance / testing procedures
- Field adjustments to the sensor sensitivity can be carried out very easily. Sensitivity can be set as low as 100 ppm
- Factory supply setting is 500 ppm for low level and 1,000 ppm for high level

Bene ts

- **Crew safety:** safeguards crew members from long-term exposure to high levels of leaked refrigerant gas in enclosed spaces
- **Cost saving:** helps reduce costs due to accidental loss of refrigerants from unmonitored leaks
- **Environmentally sound solution:** reduces the risks of global warming and damaging the ozone layer by instantaneous warning of leaks
- **Class compliant:** the leak detection system is compliant with LRS requirements for their EP notation and the DNV Clean notation

REFRIGERANT SENSOR IP66

607 767046

Refrigerant gas sensor with IP 66 enclosure.
Robust sensor for exposed areas

Features

- Working temperature range -20° C to +50° C (-4° F to +122° F)
- IP 66 rated
- Improved sensor housing
- Improved sensor with lter to minimise false alarms from background gases
- Improved sensor PCB design with incorporated test points
- Simpli ed annual maintenance / testing procedures
- Field adjustments to the sensor sensitivity can be carried out very easily. Sensitivity can be set as low as 100 ppm
- Factory supply setting is 500 ppm for low level and 1,000 ppm for high level

Bene ts

- **Crew safety:** safeguards crew members from long-term exposure to high levels of leaked refrigerant gas in enclosed spaces
- **Cost saving:** helps reduce costs due to accidental loss of refrigerants from unmonitored leaks
- **Environmentally sound solution:** reduces the risks of global warming and damaging the ozone layer by instantaneous warning of leaks
- **Class compliant:** the leak detection system is compliant with LRS requirements for their EP notation and the DNV Clean notation

REFRIGERANT SENSOR AHU OR DUCT IP66

607 767061

Sensor for Air Handling Unit (AHU) or Duct. It is mounted on the outside of the AHU / Duct, and a pitot type sample tube extends into the AHU /Duct. A very popular product which analyses the air in the AHU for leaks from the evaporator before the air is distributed to the accommodation.

Features

- Working temperature range -40° C to +50° C (-40° F to +122° F)
- IP 66 rated
- Improved sensor housing
- Improved sensor with lter to minimise false alarms from background gases
- Improved sensor PCB design with incorporated test points
- Simpli ed annual maintenance / testing procedures
- Field adjustments to the sensor sensitivity can be carried out very easily. Sensitivity can be set as low as 100 ppm
- Factory supply setting is 500 ppm for low level and 1,000 ppm for high level

Bene ts

- **Crew safety:** safeguards crew members from long-term exposure to high levels of leaked refrigerant gas in enclosed spaces
- **Cost saving:** helps reduce costs due to accidental loss of refrigerants from unmonitored leaks
- **Environmentally sound solution:** reduces the risks of global warming and damaging the ozone layer by instantaneous warning of leaks
- **Class compliant:** the leak detection system is compliant with LRS requirements for their EP notation and the DNV Clean notation

UNITOR MARINE HIGH QUALITY RFN GAUGES - R-22/R-134a/R-404A

80 mm liquid lled gauges complete with removalble back ange and 1/4" are bottom connection as standard

Features

- Suitable for suction (compound) - 741157
- Suitable for both discharge (pressure) and oil pressure - 741165

Bene ts

- High quality

Ordering information

Product Number	Product name	Model	Type	Range	Refrigerant Type
741157	SUCTION GAUGE -1-+12 BAR 80MM	A10	Suction (compound)	-1 / +12	R-22, 2-134a, R-404A
741165	DISCHARG /OP GAUGE -1-+25 BAR 80MM	A10	Discharge (pressure)	-1 / +25	R-22, 2-134a, R-404A

PRESSURE CONTROL - KP1

604 547406

Low pressure switch - Safety device for refrigeration systems

Features

- Starts or stops compressors according to set point
- 1/4" are connection

Bene ts

- Reliable contruction
- High quality

Technical data

Connection Type	1/4 FLARE
Function	AUTO
Range	-0.2 TO +7.5 BAR
Product code	060-1101

PRESSURE CONTROL - KP5

604 547448

High Pressure Switch - Safety device for refrigeration systems.

Features

- Stops compressors according to set point
- 1/4" are connection

Bene ts

- Reliable contruction
- High quality

Technical data

Connection Type	1/4 FLARE
Function	MANUAL
Range	8 TO 28 BAR
Product code	060-1173

DUAL PRESS.CTRL-KP15-1243

604 547463

Safety device for refrigeration systems. Low / High pressure switch.

Features

- Starts/stops compressors according to set point
- LP auto / HP manual

Bene ts

- Reliable consuction
- High quality

Technical data

Connection Type	1/4 FLARE
Function	LP/AUTO
Range	HP/MANUAL
Product code	060-1243

DIFF.PRESS.CTRL-MP55-170

604 547588

Oil pressure switch for for refrigeration compressors.

Features

- Protects compressor
- Time delay 45 seconds
- 1/4" are connection

Bene ts

- Reliable contruction
- High quality

Technical data

Connection Type	1/4 FLARE
Function	TIME DELAY 45 SEC
Product code	060B0170

COIL 220V 50/60HZ EVR

604 602581

Solenoid valve coils are specially designed to operate in the aggressive environment with high humidity and temperature uctuations found in most refrigeration systems

Technical data

Connection Type	WITH TERMINAL BOX
Product code	018Z6732

REFRIGERATION HANDY TOOLS CASE

606 752154

The kit contains both specialised refrigeration tools and general tools that are necessary for day to day ship-board operation and maintenance of refrigeration systems and their control circuits.

Some of the included products can be reordered.

Features

- Products selected for de ned purposes
- Quality tool selection
- Handy light weight suitcase
- Service slide ruler is included
- Vacuum and charging hoses suitable for every day operations
- Refrigeration Fault Diagnostic Slide to assist in fault nding
- Unitor Refrigeration Handling Guide to give practical tips

Bene ts

- Convenient
- Every tool needed is collected in one place together with a useful refrigerant handling guide and more

Ordering information

Product number	Product name
The tool case is supplied with:	
SPECIALISED REFRIGERATION TOOLS	
Tube cutter "Mini"	
Solenoid valve operating magnet	
Evaporator n straightener (Comb)	
Hose 1.8 m with ball valve & sight glass, 1/4" SEA, 800 psi	
Hose with ball valve, 1/4" SEA, 800 psi	
Hose 0.9 m, 1/4" SEA, 800 psi	
UT-04 1/4" SEA male T-Piece	
GENERAL HAND TOOLS	
Screw driver (-)	
Screw driver (+)	
Small screw driver (-)	
Small screw driver (+)	
Long nose oliers	
Split joint pliers	
Combination pliers	
Angle nose pliers	

Product number	Product name
Adjustable wrench	
PRODUCTS AVAILABLE FOR ITEMISED RE-ORDER:	
544932	REFRIGERANT CYL. VALVE ADAPTOR SET
743476	MAGNET & VOLT STICKS PACK
737668	IR THERMOMETER W/BELT HOLSTER
522557	TUBE CUTTER UPT-274-FC
743203	RATCHET WRENCH BIG 1/2-1/4-5&9/16
743195	RATCHET WRENCH SMALL 1/4-3/8-3&5/16

Please note that the products listed in the above table are available for itemised re-order.

MAGNET & VOLT STICKS PACK

606 743476

Simple and quick tool to test solenoid valve activation and if there is power supplied to the system components.

Features

- Pocket clip
- Test function
- CE approved
- Batteries and user information included

Bene ts

- Easy and practical to use

INFRARED THERMOMETER

606 737668

The infra-red thermometer is a sturdy IR-thermometer designed for easy temperature measurement of refrigeration systems or other engine room equipment and machinery to quickly obtain surface temperature readings when assessing system performance.

Frequent use of this thermometer will prove useful when planning maintenance, but also during trouble-shooting, insulation check, system adjustment and balancing.

Features

- Sturdy construction
- Wide temperature range
- Memory function

Bene ts

- Hip holster makes it easy to carry around
- Easy to use
- Batteries are included

Technical data

Temperature Range	-50 to +400° C (-58° F to +752° F).
Accuracy	+/- 2 % of reading
Resolution	0.1° C / °F
Response Time	1 sec
Ambient Operating Temp.	0 to 50° C (32 to 122° F)
Relative Humidity	10 to 90 % RH non-condensing, at < 30° C (86° F) ambient
Battery life	14 to 18 hours of continuous use
Dimensions	175 x 39 x 72 mm
Weight	179 g including batteries
Emissivity	0.95 xed

TUBE CUTTER UPT-274-FC

606 522557

A basic tube cutter for cutting copper tubing.

Technical data

Product code	UPT-274-FC

RATCHET WRENCH BIG 1/2" - 1/4" - 5 & 9/16"

606 743203

A wrench nessesary when opening and closing system or compressor valves during refrigerant charging, system oil change etc.

Features

- Fits a variety of different valve spindles
- Plastic covered grip for comfort
- Hexagonal 1/2" and 9/16"
- Square 1/4" and 3/16"

Bene ts

- 4-in-1 wrench that is easy to carry around

RATCHET WRENCH SMALL 1/4" - 3/8" - 3 & 5/16"

606 743195

A wrench nessesary when opening and closing system or compressor valves during refrigerant charging, system oil change etc.

Features

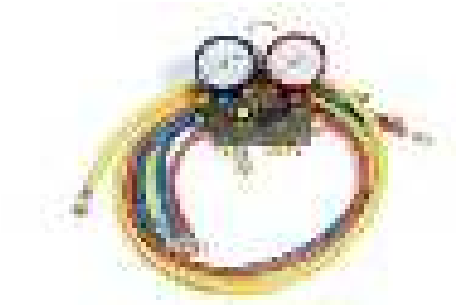
- Fits a variety of different valve spindles
- Plastic covered grip for comfort
- Square 3/16", 1/4", 5/16" and 3/8"

Bene ts

- 4-in-1 wrench that is easy to carry around

DELUXE SERVICE MANIFOLD SET 4-WAY, VARIOUS REFRIGERANTS

606 711473



Deluxe service manifold is equipped with high and low pressure gauges and an optical sight glass to observe the refrigerant as it ows through the manifold. This bene ts the operator by assisting in assessing the operating performance for a refrigeration system and assisting during recovery or charging processes.

Features

- 80 mm glycerine- lled gauges
- Scale for refrigerants R22(R417), R134a, R404A(R507), R407C
- 3 hoses 1/4" (yellow, red , blue) with length of 120 cm; connection 1/4" SAE are
- 1 vacuum hose 3/8" (yellow) hose with length 90 cm with 3/8" SAE are connections on both sides
- Core depressor (Schrader) connections where applicable
- Hoses classi ed with working pressure of 40 bar
- Non-rotating piston valves for durability

Bene ts

- Liquid lled gauges gives accurate reading
- Easy to use with colour-coded valves and hoses

Accessories

Product Number	Product name
775001	DIGITAL LOW PRESSURE GAUGE 1/8 INCH
775002	DIGITAL HIGH PRESSURE GAUGE 1/8INCH
597633	MANIFOLD COMPOUND GAUGE
597641	MANIFOLD PRESSURE GAUGE

DELUXE SERVICE MANIFOLD SET 2-WAY, R-410A

606 711499

A service manifold with high and low pressure gauges and optical sight glass to observe the refrigerant as it ows through the manifold, assisting in assessing the operating performance for a refrigeration systems and assist during recovery or charging processes. Also suitable for refrigerants with higher operating pressures like R-410A.

Features

- 60 mm glycerine- lled gauges
- Gauge scale for refrigerants like R-410A (higher pressure
- 3 hoses 1/4" (yellow, red , blue) with length of 150 cm; connection 5/16" SAE are (1/2"-20 UNF) on one side and on the other side 1/4" SAE are
- 1 vacuum hose 3/8" (yellow) hose with length 90 cm with 3/8" SAE are connections on both sides
- Core depressor (Schrader) connections where applicable
- Hoses classi ed with working pressure of 60 bar
- Non-rotating piston valves for durability

Bene ts

- Liquid lled gauges gives accurate reading
- Easy to use with colour-coded valves and hoses

DIGITAL PRESSURE GAUGE

Alternative suction and discharge gauges for the service manifold (product number 711473).

The digital high and low pressure gauges are compact and lightweight. The gauges display both pressure and vacuum (in 4 user selectable scales; Bar, PSI, kg/cm2 and MPa), as well as the corresponding temperature charts for 20 common refrigerants. The data is displayed on a large easy to read, back-lit LCD screen. The gauges are protected by a colour coded rubber boot.

Features

- Displays pressure and temperature charts for 20 refrigerants, e.g. R22, R134a, R404A, R407C, R410A, R417A, R422D, R427A, R507 and HFO1234yf
- Overpressure protected to 150% of range; pressure overload indication
- Multi panel displays; 4 digit LCD for pressure, 3 digits for temperature
- Temperature can be displayed in both degrees Celsius or Fahrenheit
- Low Side gauge measures and displays vacuum
- Units supplied with standard 1/8" NPT tting for mounting to any manifold or panel application
- Tare function to zero the gauge at any pressure
- Not suitable for areas with risk for explosion due to battery power

Bene ts

- Backlit LCD, for easy reading in all conditions
- Simple two button operation
- High Accuracy
- Self powered with a battery life of approximately 140 hours by "AAA" batteries. The gauges have a Low Battery Indication and Auto Shut Off Feature
- High Impact ABS housing and protective rubber boot

Ordering information

Product Number	Product name
775001	DIGITAL LOW PRESSURE GAUGE 1/8 INCH
775002	DIGITAL HIGH PRESSURE GAUGE 1/8INCH

Accessories

Related product

Product Number	Product name
711473	DELUXE MANIFOLD SET 4-WAY

HAND OIL PUMP 5 L & 25 L DRUMS

606 597534

High pressure hand oil pump designed to allow technicians to pump refrigeration oil into the system or compressor crankcase while the unit is in operation, no need for system shutdown during oil charge.

Features

- Pump outlet 1/4" SAE are
- Pump pressure upto 17 bar
- Universal tapered adapter that ts all oil container necks

Bene ts

- Delivered with acessory kit for removal of oil from crankcase, suction accumulator or simmilar
- Fits all standard cans (5 and 25 L)

Technical data

Model	UOP-H
Type	RFN Oil Pump
Application	Fits all standard cans (5&25 litre drums)

ACID TEST KIT MINERAL+AB+POE OILS

606 778514

Test kit for determining acid contamination in mineral, alkylbenzene and polyolester oils.

Acid test kit is the easiest way of checking for acid in the refrigeration compressor oil. The kit contains one bottle lled with an reactive solution. Simply add a sample of oil from the compressor crankcase, shake and wait for 15 seconds. Compare the colour of the mix with the enclosed colour guide to determine the acid content in the system. Acid in the system can eventually cause the system to fail prematurely.

The product replaces previous test kits (540088 and 607828).

Features

- Simple sampling and testing
- Quick result

Bene ts

- High quality
- Reliable

HAND HELD REFRIGERANT LEAK DETECTOR UNIRX-1A

606 716142

A hand held detector able to detect all halogen refrigerants (CFC, HCFC and HFC) enabling you to nd leaks in your refrigeration system. One of the most sensitive refrigerant leak detectors in the industry

Features

- Six-segment visual leak size indicator
- Audible alarm
- High and Low sensitivity level
- Cordless
- 5 ppm sensitivity (less than 0.2502 per year)
- Supplied in carrying case and spare sensing tip
- Batteries 2 pcs C-cell alkaline

Bene ts

- Delivered in sturdy carry case
- Includes batteries and spare sensing tip

Technical data

Alt. name	UNIRIX-1A
respons time	Instantaneous
Reset time	1 second
Probe length	35.5 cm - 14"
Weight	560 g

For optimum performance, WSS recommends to replace the sensing tip (kit with product number 548700 contains three tips) and batteries on regular basis.

- Sensing tip life is approximately 20 hours
- Battery life is approximately 30 hours

Accessories

Product Number	Product name
548700	MAINTENANCE KIT LEAK DETECTOR-XP2

Approvals

- UL classi ed
- CE approved

MAINTENANCE KIT LEAK DETECTOR-XP2

606 548700

XP-2 Maintenance Kit ('Orange tips') for UNIRX-1A hand held leak detector, part no. 716142.

Kit contains 3 tips. Tips need to be changed after 30 hours of usage as they get worn out and stop detecting refrigerant leaks.

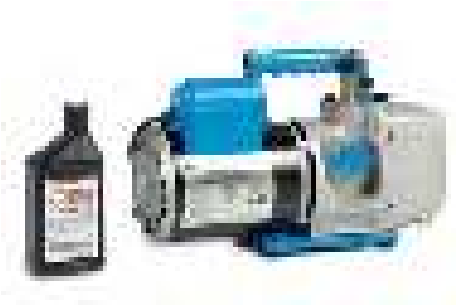
Accessories

Product Number	Product name
716142	REFRIGERANT LEAK DETECTOR UNIRX-1A

VACUUM PUMPS

The vacuum pumps are used for removing moisture and non-condensable gases from refrigeration systems after maintenance or repair.

The pumps are supplied with a Vacuum pump oil (0.95 l). The oil is made from a paraf nic mineral oil base, to be used in deep vacuum applications.



Features

- Two stage pump for deep vacuum
- Dual voltage (115/230 V) and frequency model (50/60 Hz)
- Achievable rating as low as 20 microns

Bene ts

- Built in isolating valve isolates the pump from the system with only a 1/4 turn, making it simple to measure rate of rise
- Can be used on systems using CFC, HCFC and HFC in combination with mineral oil, polyester oil, alkyl benzeen oil and PAG oil
- Referred to as “the long term trouble avoider” among refrigeration specialists
- Gas ballast valve to reduce condensation of moisture

Ordering information

Product Number	Product name	Product code	Displacement	Weight	Connection	Vacuum oil capacity
587568	VACUUM PUMP 110/220V UVP-15401	UVP-15401	113 l/min - 4CFM	12 kg	1/4" and 1/2"	445 ml
597658	VACUUM PUMP 110/220V	UVP-15121A	282 l/min - 10CFM	18 kg	1/4" and 1/2"	488 ml

Accessories

Product Number	Product name	Product code
320424	VACUUM PUMP OIL 0.95 LITRE	UVO-001
597674	VACUUM PUMP OIL .38 LTRS	UVO-005

DIGITAL VACUUM GAUGE UVG-65

606 711507

Gauge to determine that the proper system vacuum has been obtained. Supplied with 9 V battery.

Features

- User friendly digital LCD display
- Range from atmospheric pressure down to 0 microns
- Resolution at low end of the scale is 1 micron
- Option to show time graph to see change in vacuum pressure
- Over pressure protection (35 bar)
- Convenient hanger at the back
- Supplied in a soft case including battery

Technical data

Product code	UVG-65

REFRIGERANT LEAK DETECTION KIT, UV TRACER KIT

Effective tool for locating refrigerant leaks in refrigeration systems in inaccsessible areas by circulating the tracer uid and using UV-light.

Features

- Oil based uorescent liquid fully miscible with refrigerants and compressor oil
- Circulates in system and leaves uorescent trace if leak

Bene ts

- Ready to use kit

Ordering information

Supplied with:

- UV Inspection lamp 220/240 V (1 pc) / UV Inspection lamp 12 V (1 pc)
- Spare bulb (1 pc)
- 250 ml tracer uid (GL 1483A Mineral oil) (4 bottles)
- Protective goggles (1 pc)
- Instructions (1 set)
- Carrying case (1 pc)

For 711523 only: * 220 V Battery charger * 110 V battery charger * Battery 12 V - 7 Ah

Product Number	Product name	Product code	Voltage
587170	U.V. TRACER KIT 220V/240V	UV1160F	220/240 V
711523	U.V. TRACER KIT 12V	UV2100U+	12 V battery

Accessories

Product Number	Product name
606268	UV TRACER FLUID-ALLOIL TYPES 250ML

REFRIGERANT LEAK DETECTION KIT, UV, UNIVERSAL TRACER FLUID FOR ALL OIL TYPES

606 606268

A universal tracer uid for all types of oil comes in a 250 ml plastic bottle. It is used in combination with the UV Fluorescent leak detection system for nding leaks in refrigeration systems.

Evidence of the tracer uid will be found at the source of the leak and glow under the light of a UV detection lamp.

Features

- Applicable for PAG, POE, PAO and mineral oil

Bene ts

- One type ts all

Directions for use

Dosing method

1. Add the correct amount of Glo-Leak tracer uid to the system (dosage rates as below). Glo-Leak may be added in one of the following ways:
    - Directly into the compressor oil reservoir
    - Via a standard oil charge pump
    - Through the charging port on the compressor suction valve
2. Operate the system for enough time to allow Glo-Leak to permeate all suspected leak areas. Some leaks may show up within minutes. Others may take hours or even days to reveal themselves.
3. Scan the system to locate any leaks by shining the UV lamp supplied over all areas of possible leaks. The precise source of a leak is revealed by a uorescent yellow or yellow-green glow.
4. Once identi ed, repair the leaks.
5. Clean off any excess Glo-Leak with Glo-Klenz (or with another suitable cleaner/degreaser).

Glo-Leak can now remain in the system so that regular leak checks during maintenance may be performed with ease. This should be done at regular intervals to ensure optimum performance.

Dosage and control 1. When the ratio of oil to gas is 1:3, add the uid at the rate of 0.75% of the total oil charge. 2. When the ratio of oil to gas is more than 1:3, use the formula below. (Amount of oil x 0.01) + (gas charge in kg x 0.0015) = Amount of tracer uid in ltrs.

Example: A refrigeration system contains 100 ltrs of oil and 500 kgs of refrigerant.

(100 x 0.01) + 500 x 0.0015) = 1 + 0.75 = 1.75 ltrs of tracer uid

NB: The above dosage rates are conservative estimates. Different system capacities and designs, and the various lubricants available can vary the amount of Glo-Leak required, especially in large systems. Check for uorescent brightness by shining a UV lamp at the sight glasses. Add more Glo-Leak if the glow is weak. In some large systems, it may be necessary to add extra Glo-Leak after a week. This is because there may be much more oil in the system than is speci ed by the compressor manufacturer

REFRIGERANT RECOVERY PACKAGE

The Refrigerant Recovery Package consists of carefully selected quality equipment designed to handle recovery from a vessel's refrigeration systems in a controlled manner.
Electrical equipment is set for 115 V / 230V and 50/60 Hz.

Features

- Comprehensive package that supports a variety of operations
- Maintenance friendly
- Lightweight and portable
- Recovers vapour and liquid refrigerants
- Suitable for all standard (CFC, HCFC and HFC) refrigerants
- Total package weight is 47 kg

Bene ts

- Helps the ship operator to re-use the refrigerants during system maintenance and service
- Reduces refrigerant consumption
- Cost saving
- Full range of accessories and spare parts
- High value package

Ordering information

Product Number	Product name
652522	REFRIGERANT RECOVERY PACKAGE F/220V
652511	REFRIGERANT RECOVERY PACKAGE F/110V
The recovery packages consist of:	
613747	REFRIGERANT RECOVERY UNIT URU-5000B
or	
613748	REFRIGERANT RECOVERY UNIT URU-5000A
Practical user manual	
716142	REFRIGERANT LEAK DETECTOR UNIRX-1A
548700	MAINTENANCE KIT LEAK DETECTOR-XP2
636738	INLET FILTER DRIER 3PCS, 1/4" FLARE
596544	RECOVERY CYL EMPTY 21.6L+DOCUMENTS
613927	DIGITAL WEIGHING PLATFORM ADS-100
711473	DELUXE MANIFOLD SET 4-WAY
587568	VACUUM PUMP 110/220V UVP-15401
597666	ELECTRONIC VACUUM GAUGE UVG-150
544932	REFRIGERANT CYL. VALVE ADAPTOR SET

Accessories

Product Number	Product name
734681	UNITOR RECOVERY EQUIPMENT BOX
613935	RECOVERY UNIT CONNECTION KIT
636738	INLET FILTER DRIER 3PCS, 1/4" FLARE
632588	RECOVERY CYL EMPTY 56L+DOCUMENTS

Approvals

- Package complies with all US EPA and EC regulations
- CE - TUV and ARI - UL

ONBOARD STORAGE BOX FOR REFRIGERANT RECOVERY PACKAGE

607 734681

A sturdy 200 litre box used for storing recovery equipment onboard a vessel; handy for safekeeping and easy to locate during port state inspections.

Features

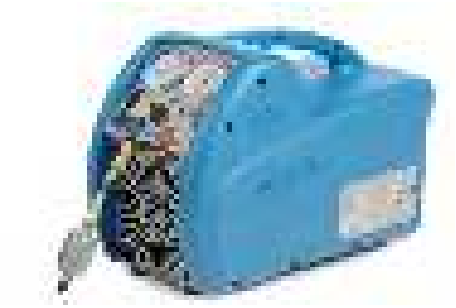
- Completely weather proof and extremely rugged
- Colour coded: grey box with yellow lid

Bene ts

- Colour coded according to international recovery standards
- High quality

REFRIGERANT RECOVERY UNIT, URU-5000A, 230 V, 50/60 HZ

606 613748



Refrigerant recovery machine designed to handle recovery tasks of a vessels refrigeration systems.

The Unitor marine refrigerant recovery unit is supplied ready to operate with a practical user manual.

Features

- Includes inlet lter and a short utility connection hose
- Instruction manual adapted to maritime usage
- Maintenance friendly
- Lightweight and portable
- Recovers vapour and liquid refrigerants
- Suitable for all standard (CFC, HCFC and HFC) refrigerants

Bene ts

- Helps the ship operator to re-use the refrigerants during system maintenance and service
- Reduces refrigerant consumption
- Cost saving
- Full range of accessories and spare parts available
- Complies with rules & regulation

Technical data

Operating Voltage	230 V 50/60 Hz
Power	380 W
Vacuum	100 mbar
Recovery rate Vapour	33 kg/h
Recovery rate Liquid	80 kg/h
Recovery rate Push - Pull	380 kg/h
Connections	1/4" SAE flare Male
Length	483 mm
Width	229 mm
Height	343 mm
Weight	14 kg

Accessories

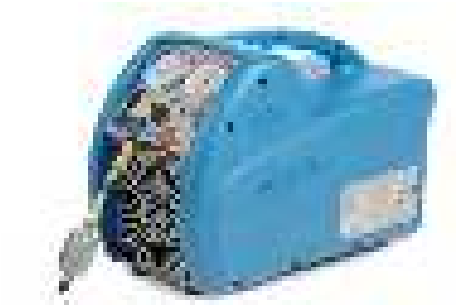
Product number	Product name
613885	COMPRESSOR REPAIR KIT
613935	RECOVERY UNIT CONNECTION KIT
636738	INLET FILTER DRIER 3PCS, 1/4" FLARE

Approvals

- CE - TUV and ARI - UL

REFRIGERANT RECOVERY UNIT, URU-5000B, 115 V, 50/60 HZ

606 613747



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Operating voltage	115 V 50/60 Hz
Power	380 W
Vacuum	100 mbar
Recovery rate Vapour	33 kg/h
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Connections	1/4" SAE flare Male
Length	483 mm
Width	229 mm
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Weight	14 kg

Accessories

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613885	COMPRESSOR REPAIR KIT
613935	RECOVERY UNIT CONNECTION KIT
636738	INLET FILTER DRIER 3PCS, 1/4" FLARE

Approvals

- CE - TUV and ARI - UL

RECOVERY UNIT URU-5000A/B, COMPRESSOR REPAIR KIT

606 613885

Complete compressor repair kit for both URU-5000A and URU-5000B. Includes all moving parts and seals

RECOVERY UNIT URU-5000A/B, CONNECTION KIT

606 613935

A connection kit suitable for both URU5000A and URU5000B to speed up recovery by Push - Pull method.

Features

- Complete kit
- Packed in sturdy case

Supplied with:

* Hoses with 1/4" SAE are connections
* Ball valves (2 pcs)
* Ball valve with optical sight for ow indication
* T-piece

RECOVERY UNIT URU-5000A/B, INLET FILTER DRIER 3PCS, 1/4" FLARE

604 636738

A set of 3 inlet lter driers with 1/4" SAE are connections

Features

- Inline lter dryer element

DIGITAL WEIGHING PLATFORM ADS-100

606 613927

The weighing platform is needed to log the exact amount of refrigerant charged to a system, the amount of refrigerant recovered and to protect the recovery cylinder from over lling (80%) during refrigerant recovery process.

Features

- Capable of handling cylinders up to 100 kg weight
- Control unit connected to platform by means of a spiral cord
- Digital display
- A "zero" function is included to measure added refrigerant
- Supplied in a sturdy carrying case
- Includes batteries and instructions

Bene ts

- Easy to use
- Accurate measurement

Technical data

Range	0-100kg
Accuracy	+/- 0.5% of reading or +/- 1 digit
Battery life	30 hours
Weight	2.8 kg
Dimensions	387 x 267 x 635 mm

UNITOR DRINKING WATER COOLER

The Unitor Drinking Water Cooler is made to operate in the most demanding climatic conditions. It is constructed of stainless steel, making it resistant to corrosion and easy to keep clean. Fittings are in brass for long service life. The unit is silent in operation and runs on R-134a refrigerant that functions in the medium pressure range, reducing wear and tear on the system

Features

- Designed to operate under demanding climatic conditions
- Stainless steel construction makes it corrosion resistant
- Fittings in brass for longer service life
- Includes instruction and spare part manual

Bene ts

- Silent operation
- Uses environmentally acceptable R-134a refrigerant
- Supplied with high quality brass adjustable bubbler and bottle ller

Ordering information

Product Number	Product name	Voltage	Hertz
708552	DRINKING WATER COOLER UNITOR INOX	220 V	50/60 Hz
711333	DRINKING WATER COOLER UNITOR INOX	110 V	50/60 Hz

Approvals

- CE approved

DAIKIN MARINE AC-UNIT

Sea water cooled stand alone Daikin marine ECR A/C unit (engine control room) with a cooling capacity of 10, 17 or 25 kW

Features

- Data given approximate based on 60 Hz supply and standard conditions
- Units ready to operate after connection of electric supply, cooling water & drain
- Sea water cooled condenser
- Heating available as an optional extra
- Refrigerant in unit type H = R-407C
- Instruction manual. Technical drawings available on request
- For free ow (not ducted) a plenum chamber is required
- Power supply Voltage: 380/440V-3PH-50/60HZ

Bene ts

- The unit is built to last with its marine shell and tube condenser
- Liquid lled High and Low pressure gauges make the unit easy to monitor
- Electronic control thermostat ensures trouble free operation
- The unit has no hidden cost because power cable glands and all counter anges are included

D x W x H (mm) & weight

711598: 410 x 800 x 1450 & 165 kg

711606: 550 x 1050 x 1640 & 230 kg

711614: 600 x 1350 x 1650 & 345 kg

Ordering information

Product Number	Product name	Air Flow	Water consumption	Total Cooling capacity	Power Consumption
711598	MARINE AC-UNIT 3 TON, USP3H	1620 m3/hr	50 litre/min	10 kW	3,4 kW
711606	MARINE AC-UNIT 5 TON, USP5H	3000 m3/hr	80 litre/min	17 kW	4,9 kW
711614	MARINE AC-UNIT 8 TON, USP8H	3600 m3/hr	115 litre/min	25 kW	8,1 kW

Accessories

Product Number	Product name	Unit height with plenum	Unit weight with plenum
603803	PLENUM CHAMBER FOR US3	1650 mm	173 kg
602409	PLENUM CHAMBER FOR US5FC	1850 mm	250 kg
603811	PLENUM CHAMBER FOR US8FC	1870 mm	365 kg

Approvals

- CE modi ed units are available on request

CARRIER MARINE AC-UNIT

Sea water cooled stand alone Carrier 90MA404 marine air conditioning unit (engine control room) with a cooling capacity of 10, 17 or 26 kw

Features

- Data given approximate based on 60 Hz supply and standard conditions
- Units ready to operate after connection of electric supply, cooling water & drain
- Sea water cooled condenser
- Heating available as an optional extra
- Refrigerant R-407C
- Power supply Voltage 440V - 3PH - 60 HZ
- Instruction manual. Technical drawings on request
- For free ow (not ducted) a plenum chamber is required. Please see accessories section.

Bene ts

- Sea water resistance and speci cally designed for marine use
- Electronic control thermostat ensures trouble free operation
- The unit has no hidden cost because power cable glands and all counter anges are included
- Uses environmentally friendly R-407C which complies with new stricter regulations to reduce global warming

D x W x H (mm) & weight

725614: 560 x 920 x 1500 & 177 kg

725622: 560 x 920 x 1500 & 194 kg

725630: 750 x 1220 x 1770 & 406 kg

Ordering information

Product Number	Product name	Air Flow	Water consumption	Total Cooling capacity	Power Consumption
725614	MARINE AC-UNIT 3 TON, 90MA404	2038 m3/hr	40 l/min	10.5 kw	2,9 kw
725622	MARINE AC-UNIT 5 TON, 90MA406	3400 m3/hr	66 l/min	17.5 kw	4,9 kw
725630	MARINE AC-UNIT 7.5 TON, 90MA408	5098 m3/hr	100 l/min	26.4 kw	8,7 kw

Accessories

Product Number	Product name	Height with plenum	Weight with plenum	Suitable for
603845	PLENUM CHAMBER FOR 3 & 5 TON	1940 mm	188 kg / 208 kg	725614 / 725622
637224	PLENUM CHAMBER FOR 8 & 10 TON	2200 mm	430 kg / 455 kg	725630 / 725648

Approvals

CE modi ed units are available on request

Wilhelmsen Ships Service

WELDING

All the necessary equipment, consumables and storage solutions for marine arc and gas welding and cutting processes are included in our extensive welding product portfolio.

REGULATORS 510

Unitor cylinder regulators for Acetylene and Oxygen are designed for reliability and safety of use by reducing cylinder pressure to suitable working pressure and keep it constant.

The large adjustment knobs are red for acetylene and blue for oxygen for easy identi cation of gas type. Both contents and working pressure gauges are clearly graded in psi and bar.

Features

- Easy identi cation of gas types with colour-coded adjustment knobs
- Immediate identi cation of gas pressures with easy to read gauges marked both in psi and bar
- Full capacity for all types of gas welding and cutting work
- Designed for use with Unitor gas cylinders
- Full conformance with EN ISO 2503 - Class 3

Technical data

Oxygen	0-16 bar (145 psi) max. 40 m/-3-Vh
Acetylene	0-2.5 bar (22 psi) max. 5m/-3-Vh

All regulators are delivered with spare washers, hose connection for 1/4" and 3/8", gas hoses and instructions for use. Unitor regulators ensure a correct and stable working pressure with suf cient capacity for all types of gas welding and cutting work.

Ordering information

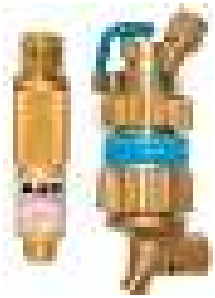
Product number	Product name
510000	REGULATOR 510 OX PRESSURE 0-16 BAR
510001	REGULATOR 510 AC PRESSURE 0-2.5 BAR
619379	MANOMETER/GAUGE GUARD +

Accessories

Product Number	Product name
SPARE PARTS	
550160	WASHER ALU 10 PCS FOR OX REGULATOR
550178	CONTENTS GAUGE OX/AR 0-400 BAR
550194	WORKING GAUGE OX 0-16 BAR
550152	WASHER NYL 10 PCS FOR AC REGULATOR
550202	WORKING GAUGE AC 0-2.5 BAR

FLASHBACK ARRESTORS

Protects regulators and gas cylinders against ashback and burnback from the welding / cutting ame



Features

- Non-return valve preventing reverse ow of gases, thereby preventing a gas mixture from reaching pipelines or cylinders. Flame lter to quench the ame front of a ashback or a burnback
- Temperature activated cut-off to prevent further gas supply in case of re (activated if the temperature rises to approx. 100° C)
- Pressure activated cut-off to prevent further gas supply after a ashback (activated by the pressure shock in front of the ashback)
- Pressure relief valve to vent off excessive pressure in case of ashback or wrongly set working pressure (on W-66S only)
- Indicator lever showing that the pressure activated cut-off has been activated; the lever is also used for resetting the ashback arrestor (W-66 only)
- Indicator ring showing that the pressure activated cut-off has been activated; the ring is also used for resetting the ashback arrestor (S55 only)

Maritime authorities, such as the Norwegian Maritime Directorate, require the installation of ashback arrestors for acetylene and oxygen, as incorrect maintenance or use of gas welding equipment may cause ashbacks of various types.

Normally these will stop in a well designed torch, and are only noticed as a popping sound in the torch. However, faulty handling, maintenance or gas pressure setting may lead to a penetrating ashback. This means that the gas ame passes back through the hose(s). In some cases it may also pass the regulator and ultimately reach the cylinder.

The ashback arrestors supplied by Unitor are designed for use both with gas cylinders and gas outlet stations and incorporate the safety functions in the 'Features' list above.

The ashback arrestors are build Conform to: EN 730/ISO 5175 and with BAM Certi cation no.: ZBF/009/12

Ordering information

Product number	Product name	Flow capacity (m^3/h)	Inlet pressure (bar)
183970	FLASHBACK ARRESTOR W-66S ACETYLENE	19	1,5
302976	FLASHBACK ARRESTOR W-66S OXYGEN	110	10
708537	FLASHBACK ARRESTOR S55 AC	8,5	1,5
708545	FLASHBACK ARRESTOR S55 OX	50	10

WELDING GAS HOSES AND RETRACTABLE HOSE REEL

Self-retracting hose reels let you pull out the required length of hose and store the rest on the reel out of harms way. This saves time, makes the job easier and contributes to increased ef ciency. A workshop oor free from hoses reduces tripping accidents, improves access for carts and trolleys and allows for easier cleaning. The Unitor Self-Retracting hose reel is made of robust steel construction, easy to install, and has a well proven design that vouches for safe and maintenance free usage. Single-layer retraction of the hose and open design for safety and easy service.
The reel is supplied with 20m 6mm (1/4") twin hose for Ac and Ox

Unitor's hoses for welding gases are made according to ISO 3821 / European Norm EN 559.

Normal working pressure up to 20 bar.
Test pressure 40 bar
Minimum bursting pressure 60 bar

The hoses are colour-coded red for acetylene, blue for oxygen and black for shielding gases.

UNITOR's hoses for acetylene and oxygen are specially made for use with welding and cutting equipment.

Ordering information

Product number	Product name
526434	Twin gas hoses blue/red 6mm (1/4") AC +OX per m
624312	Twin gas hoses blue/red 9mm (3/8") AC+ OX/m
175554	Gas hose red 6mm (1/4") Acetylene/m
175562	Gas hose blue 6mm (1/4") Oxygen/m
175539	Gas hose red 9mm (3/8") Acetylene/m
175547	Gas hose blue 9mm (3/8") Oxygen/m
576157	Gas hose black 6mm (1/4") Argon/m
725260	SELF-RETRACKTING HOSE REEL AC/OX

QUICK-COUPLINGS, HOSE JOINTS AND CLAMPS

The quick couplings are designed for use on gas regulators and ashback arrestors, ensuring quick and gas-tight connection of hoses without use of tools. Connection of wrong gas is prevented by different design of male/female connections for acetylene and oxygen. In addition connecting sleeves are color-coded red and blue. When disconnected the female socket (side towards the regulator) automatically shuts off the gas ow.

The screw connection hose joints are supplied in sets consisting of two hose sockets with nuts for connection to gas regulator and torch. A a connection stub for use between the hose sockets completes the set as a hose joint. Nuts and connection stub for acetylene are left-hand threaded and marked with a groove. Argon and Oxygen are right-hand threaded. The hose joints are made of high-grade brass.

Hose clamps are available as screw type -to be tightened with a screw driver, supplied in bags of 10, or one ear clamps which require a pincher tool for closing. These clamps are supplied in bags of 20 and provide a fastening practically without protruding parts that could damage operator's hands. Worm drive hose clamps are used where there is a need for rapid mounting/dismantling of hoses.

Ear clamps offer a better and safer solution comparred to worm type / jubilee clips when mounting hoses.
In some countries the use of worm type / jubilee clips is not allowed. Ear clamps are than the alternative product.

Ordering information

Product Number	Product name
320218	QUICK COUPL.1/4IN HOSE AC
320192	QUICK COUPL.1/4IN HOSE OX
320200	QUICK COUPL.3/8IN HOSE AC
320184	QUICK COUPL.3/8IN HOSE OX
175588	HOSE JOINT F/6MM (1/4 INCH) AC HOSE
175596	HOSE JOINT F/6MM (1/4 INCH) OX HOSE
175604	HOSE JOINT F/9MM (3/8 INCH) AC HOSE
175612	HOSE JOINT F/9MM(3/8 INCH) OX HOSE

Product Number	Product name
729442	HOSE CLAMP FOR 1/4" HOSE (10 PCS
729443	HOSE CLAMP FOR 3/8" HOSE (10 PCS
768416	CLAMP 1 EAR 12,3-14,3MM 1/4" HOSE
768432	CLAMP 1 EAR 15,6-17,8MM 3/8" HOSE
768507	PINCER TOOL FOR EAR TYPE HOSECLAMPS

SAFETY SPECTACLES AND GOGGLES

The safety spectacles have scratchproof hardcoated polycarbonate lenses, side shields and adjustable arms. Lenses are clear or shade 4 green. The shade 4 lenses may be used for light duty gas welding and brazing work.

The light half mask goggle of clear soft synthetic material is designed for protection against dust spatter and sparks during grinding.

The gas welding goggles with ip-up front has soft and comfortable surfaces against the face. The ventilation slots are designed to prevent entry of sparks and spatter, at the same time ensuring suf cient air circulation to prevent dampness and fogging of the glasses.

The lter shade glass is mounted in a ip-up front frame with a protection glass in front to protect the lter glass against spatter.
A protection glass is also tted in the xed frame for protection when grinding and using the chipping hammer.
Spare glasses are supplied in packages of 10

Features

- Safety Spectacles and goggles comply to European Norms.

Bene ts

- The headband is adjustable and elastic for comfortable use
- The lenses are clear, anti-mist acetate
- The design provides ample ventilation

Ordering information

Product Number	Product name
632943	SAFETY SPECTACLES CLEAR
632950	SAFETY SPECTACLES SHADE 5
653410	SAFETY GRINDING GOGGLES
175273	WELD.GOGGLES W/LIFT-FRONT
633305	SHADE 3 GLASS. 10 PCS
633313	SHADE 5 GLASS. 10 PCS
633321	SHADE 6 GLASS. 10 PCS
633354	SHADE 7 GLASS. 10 PCS
633297	PROTECTION GLASS. 10 PCS

GAS WELDING OPERATOR'S ACCESSORIES

HEAT RESISTANT MITTEN
Special mitten with heat and ame resistant woven kevlar outer layer and ample insulation against heat in the inner layers. Should always be kept by acetylene cylinders and outlets to make it possible to close the valve in case of re. May be used on either right or left hand. Comply to: EN 388:2003 and EN 407:2004

TIG & GAS WELDING GLOVES
Special softskin gloves for gas and TIG welding. They protect from sparks and the radiation from an arc, and still enables good control of the rod. Comply to: NEN-EN 12477 type A/B and Protection EN 388 3232 and EN 407 332222

GAS IGNITOR
The triplex gas ignitor is a popular and reliable design. Easy to use, with large sparks that effectively ignite the gas ame. Three ints are mounted in the head: one connected for operation, 2 more as spares by rotating the int holder head. Spare ints are delivered in packages of 10 three int holders

WELDERS CHALK
Flat 5x13x127MM. 144 pcs/pack is used to mark out positions when gas and plasma cutting on metals.

GALVANIZING SPRAY
6 pcs 400 ml cans, for restoring galvanizing protection where coating has been destroyed

Ordering information

Product Number	Product name
233148	HEAT RESISTANT MITTEN
632794	TIG GLOVES. 6 PAIRS
633198	GAS IGNITOR TRIPL. 2 PCS
633206	SPARE FLINT SET. 10 PCS
632968	WELDERS CHALK. FLAT
633156	GALVANIZING SPRAY. 6PCS

UCT-500 COMBINATION TORCH MASTER KIT FOR GAS WELDING/CUTTING

170 500000

The UCT-500 Master kit has been assembled to cover all ordinary Acetylene / Oxygen welding, brazing and cutting work that may occur on board.

- Welding
- Heating
- Gouging
- Flame cleaning
- Soldering
- Cutting
- Rivet burning
- Flame straightening

The kit is assembled in a strong polyethylene case where each component clicks into it's reserved compartment for good protection and complete overview. Size of case: 435 x 380 x 125 mm.
Weight with content 6,0kg
Conform to: EN/ISO 5172

Torch components

- UCT-500 shank, 6mm and 9mmhose sockets with non-return valves
- Welding attachments: 40, 80, 230, 400, 650, 1000 and 1250 nl/h for wending up to 14mm thick steel plates
- Cutting attachment 90 degr. with spare nozzle screw
- Cutting nozzles for 3-10mm, 10-25mm, 25-50mm and 50-100mm steel thickness
- Roller guide for 45-90 degr. cutting angles, with spare clamp sleeve
- Circular motion bar complete with center and sleeve for 84-960mm diameter circles

Torch maintenance equipment

- Spanner 15-, 17-, 18-, 19-, 23- and 24 mm for UCT-500
- Cleaning needle set for UCT-500 welding attachments and cutting nozzles
- Spare valve and complete O-ring set for UTC-500, including spare coupling nut for welding attachments

UCT-500 COMBINATION TORCH COMPACT KIT FOR GAS WELDING/CUTTING

170 500001

The UCT-500 Compact kit is a handy kit consisting of most equipment needed to perform the normally occurring heating, brazing, welding and cutting applications on board. The compact kit is recommended as an additional welding and cutting out t on board. It is excellent for use with the portable gas welding equipment, and it may also be mounted on the trolley for A-5/0-5 cylinders thereby making the trolley a complete portable gas welding and cutting workshop. Within the limits of the content it covers applications within:

- Welding
- Heating
- Gouging
- Flame cleaning
- Soldering
- Cutting
- Rivet burning
- Flame straightening

The kit is assembled in a strong polyethylene case where each component clicks into it's reserved compartment for good protection and complete overview.
The case is 375 x 300 x 105 , Weight with content 3,5kg. Conform to: EN/ISO 5172

Torch components

- UCT-500 shank with 6mm and 9mm hose sockets with non-return valves
- Welding attachments: 80, 230 and 650 nl/h for welding up to 7mm steel plates
- Cutting attachment 90 degr. with spare nozzle screw

Torch maintenance equipment

- Spanner 15-, 17-, 18-, 19-, 23- and 24 mm for UCT-500
- Cleaning needle set for UCT-500 welding attachments and cutting nozzles

SHANK, SHANK FBA'S AND WELDING/HEATING ATTACHMENTS

Shank
The shank is delivered with hose sockets for 6mm hoses. Non-return valves are included in the sockets.

Shank ashback arrestors
are available as an alternative to the sockets.

Welding and heating attachments
The size indicates consumption of oxygen in nl/h. Acetylene consumption is approximately 10% lower. Material thickness for welding refers to mild steel.

Equipment conform to relevant European Norms

Ordering information

Product number	Product name	Material thickness mm
174656	SHANK W/NON-RETURN VALVES	
597336	SHANK NONRETURN VALVE F/6MM AC HOSE	
597344	SHANK NONRETURN VALVE F/6MM OX HOSE	
651265	SHANK NONRETURN VALVE F/9MM AC HOSE	
651257	SHANK NONRETURN VALVE F/9MM OX HOSE	
619270	FLASHBACK ARRESTOR FR-20 FOR AC+OX	
174565	WELDING ATTACHMENT 40 L	<0.5
174573	WELDING ATTACHMENT 80L.	0.5-1
174581	WELDING ATTACHMENT 230 L	2-3
174599	WELDING ATTACHMENT 400 L	3-5
174607	WELDING ATTACHMENT 650 L	5-7
174615	WELDING ATTACHMENT 1000 L	7-10
174623	WELDING ATTACHMENT 1250 L	9-14
183780	FLEX.WELD.ATTACHMENT 160L	1-2
183756	HEATING ATTACHMENT 5000 L.	for heating
603399	MULTIFLAME HEATING ATTACHMENT 5000L	for heating

CUTTING ATTACHMENT WITH HEAD ANGLE FOR UCT-500

Cutting attchment are available with cutting head in three different angles 75, 90 an 0 degrees. The 0 degrees cutting attachment is used for gouging.

Features

- Adjustable towards shank
- Slim and simple design
- Made according to international norms
- Equipment conform to: EN/ISO 5172

Bene ts

- Able to reach dif cult locations
- Less strain on opperator
- Provide safety and long lasting quality

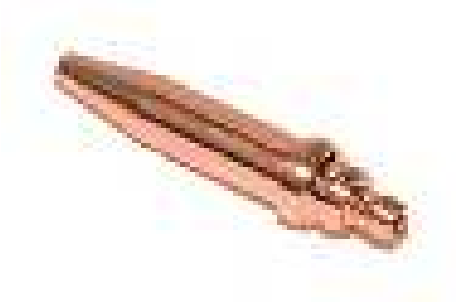
Ordering information

Product number	Product name
174664	CUTTING ATTACHMENT 75 DGR
234807	CUTTING ATTACHMENT 90 DGR
234815	CUTTING ATTACHMENT 0 DGR

Accessories

Product Number	Product name
174730	GOUGING NOZZLE
174698	CUTTING NOZZLE 3- 10MM
174706	CUTTING NOZZLE 10- 25MM
174714	CUTTING NOZZLE 25- 50MM
174722	CUTTING NOZZLE 50-100MM
183855	CUTTING NOZZLE 140MM LENGTH 40-75MM
174672	ROLLER GUIDE STANDARD
174680	CIRCULAR MOTION BAR

CUTTING NOZZLE



Ordering information

Product number	Product name	Nozzle number	Consuption OX nl/h	Consumption AC nl/h
174698	CUTTING NOZZLE 3- 10MM	No.2	1300	460
174706	CUTTING NOZZLE 10- 25MM	No.3	2150	520
174714	CUTTING NOZZLE 25- 50MM	No.4	5650	690
174722	CUTTING NOZZLE 50-100MM	No.5	7800	810
183855	CUTTING NOZZLE 140MM LENGTH 40-75MM	-	7000	800

TOOLS & SPARE PARTS FOR UCT-500

NON-RETURN VALVES
The non-return valves are for mounting on UCT-500 shank in order to prevent back ow of gas into hose. They are delivered with nuts. The non-return valves for 6mm hoses are also mounted on the shank when delivered.

TOOLS
The two tools required:
Spanner 15-, 17-, 18-, 19-, 23- and 24 mm for thightening up all connections on shank and attachments.

Cleaning needles set for cleaning the ame holes in welding attachments and cutting nozzles. The set includes 13 needles of assorted thicknesses and a le for removal of spatter

SPARE PART KIT
The kit contains the spares an operator can replace on shank and attachments

Ordering information

Product number	Product name
597344	SHANK NONRETURN VALVE F/6MM OX HOSE
597336	SHANK NONRETURN VALVE F/6MM AC HOSE
651257	SHANK NONRETURN VALVE F/9MM OX HOSE
651265	SHANK NONRETURN VALVE F/9MM AC HOSE
174649	SPANNER
175356	CLEANING NEEDLES SET
500100	UCT-500 SPARE PART KIT
The UCT-500 spare part kit contains one each of the following items	
174789	VALVE ASSEMBLY BLUE FOR OXYGEN
613762	VALVE ASSEMBLY RED FOR ACETYLENE
535005	O-RINGS SET OF 4 F/WELD./CUTT. ATT.
174771	COUPLING NUT FOR SHANK ATTACHMENTS
174813	COUPLING SCREW FOR CUTTING NOZZLES
n.a	CLAMP SLEEVE FOR ROLLER GUIDE
n.a	SLEVE FOR CIRCULAR MOTION IN ROLLER GUIDE

GAS WELDING TROLLEY FOR 5 L CYLINDERS, ACCESSORIES AND RODS

Specially designed by Unitor for on board use this trolley is developed to be a complete portable / transportable gas brazing, welding and cutting workshop for smaller jobs on board.

It has a low center of gravity which will keep it standing upright even at 30° out of vertical with all equipment mounted.

The strong lightweight steel construction is tted with solid rubber wheels for easy transport. Handles at top and bottom ensure easy carrying and lifting.

Two double brackets for Unitor rod containers give the possibility to include a selection of four different rod types when transporting.

Gas hoses may be coiled on hooks designed for this, UCT-500 compact kit t in the front box, and remaining gas welders accessories will t in the back accessories box.

The trolley is tested and certi ed according to the International Labour Of ce for the testing and examination of lifting gear used in the loading and unloading of ships.

Test load 100 kg. Safe Working Load (S.W.L.) 50 kg.

Ordering information

Product Number	Product name
778143	TROLLEY A-5/O-5 F/GAS WELDING KIT
Recommended accessories in addition to 5l Acetylene and Oxygen cylinders	
500001	UCT-500 COMBINATION TORCH COMPACT
526509	STANDARD GAS ACCESSORIES
The accessories kit contains:	
Ac and Ox cylinder regulators	
Ac and Ox flashback arrestors type S55	
10m 6mm Ac/Ox twin hose with necessary hose clamps	
Gas welding goggles with flip up front	
Softskin gas welding gloves and heat resistant mitten with kevlar insulation	
Gas ignitor and Unitor Welding Handbook	

GAS WELDING TROLLEY FOR 40 L CYLINDERS, ACCESSORIES AND RODS

This trolley is specially designed for on board use. The sturdy but lightweight construction of steel pipes is powder painted for corrosion protection. The trolley takes both 40 l and 50 l size cylinders, which are rmly secured in the trolley by means of two clamps with wing screws. As the weight of two full gas cylinders is approximately 150 kilos, the trolley has been tted with extra large rubber wheels for easy mobility. For transport by crane the trolley is tted with a lifting bow.

Being intended to function as a complete mobile gas-welding workshop for all applications required on board, the trolley is tted with a large, lockable accessories box with room for both UCT-500, accessories and consumables for the job at hand. Gas hoses are coiled on the lifting bow or driving handle.

Weight of trolley is 28 kg and the width is narrow for easy passage through gangways on board.

The trolley is tested and certi ed according to the International Labour Of ce for the testing and examination of lifting gear used in the loading and unloading of ships.

Test load 400 kg. Safe Working Load (S.W.L.) 200 kg.

Ordering information

Product Number	Product name
778145	TROLLEY A40/040 F/GAS WELDING KIT
Recommended accessories in addition to 40l Acetylene and Oxygen cylinders	
500000	UCT-500 COMBINATION TORCH MASTER
526509	STANDARD GAS ACCESSORIES
The accessories kit includes:	
Ac and Ox cylinder regulators	
Ac and Ox flashback arrestors type S55	
10m 6mm Ac/Ox twin hose with necessary hose clamps	
Gas welding goggles with flip up front	
Softskin gas welding gloves and heat resistant mitten with kevlar insulation	
Gas ignitor and Unitor Welding Handbook	

PORTABLE WELDING TABLE AND STANDARD GAS ACCESSORIES FOR MOBILE EQUIPMENTS

Foldable and Portable welding table
In on site situations a suitable work surface may be needed. This welding table has been designed for this, with work surface 60x40 cm, height 63cm and only 8cm when folded.
All galvanized steel construction, still weight only 14kg.

Standard gas accessories
The kit is a complete solution comprising all necessary equipment to use with acetylene and oxygen cylinders in portable / transportable solutions

Ordering information

Product Number	Product name
176024	PORTABLE WELD.TABLE
526509	STANDARD GAS ACCESSORIES
526509 is supplied with:	
Acetylene and oxygen cylinder regulators	
Flashback arrestors	
10 m twin hose 1/4" with clips	
Gas ignitor	
Welding goggles	
Gas welding gloves	
Heat resistant mitten	
Unitor handbook for maritime welders	

Accessories

Product Number	Product name
Welding gas cylinder devices for mobile solutions:	
176040	BACK PORTABLE RACK
176032	PORTABLE RACK
778143	TROLLEY A-5/O-5 F/GAS WELDING KIT
778145	TROLLEY A40/O40 F/GAS WELDING KIT

GAS CYLINDER TRANSPORT SOLUTIONS

ONE CYLINDER TROLLY

This trolley is specially designed for on board use when lifting or transporting 40 l and 50 l cylinders. Should it be necessary to lift up and carry the trolley with cylinder attached, there is ample holding space for 2 to 4 persons.
The driving handle is also a support for keeping the cylinder stable during work on board by resting the handle on deck, still keeping it an acceptable angle for Acetylene use.

The strong lightweight steel construction is fully corrosion protected by powder coating.

The trolley is tested and certi ed according to the International Labour Of ce for the testing and examination of lifting gear used in the loading and unloading of ships.

Test load 200 kg. Safe Working Load (S.W.L.) 100 kg.

BACK PORTABLE RACK

Lightweight back-pack for carrying two 5l gas cylinders, Thecylinders are rmly and safely secured in place with straps.

PORTABLE RACK

Sturdy lightweight construction for carrying two 5l gas cylinders by hand,

Ordering information

Product Number	Product name
778147	TROLLEY F/1 40-50L GAS CYLINDER
176040	BACK PORTABLE RACK
176032	PORTABLE RACK

GASWELDING CABINET EMPTY

094 589846

Empty storage cabinet for gas welding rods, brazing rods, uxes and gas welding equipment.

Features

- Compact design
- Sturdy and corrosion resistant
- Large storing capacity

Bene ts

- Easy overview and access to content
- Long lasting with no maintenance
- Opportunity to customise content to vessel requirements

Technical data

Length	600 mm
Height	600 mm
Depth	300mm
Weight	37,5 kg

New compact design with improved access to contents, and ample room for additional spares and accessories.

Sturdy, corrosion resistant construction from electro-galvanized steel plates, with nal coating by powder spraying and baking. Shelves are zinc/yellow-chromate passivated for optimal corrosion and scratch resistance, with hardplast protection surface for nozzles and blowpipes. The door construction provides a stable work surface for torch assembly when open, and allows for mounting the cabinet in corners or narrow openings.

GASWELDING CABINET

This cabinet is a complete gas welding work shop with equipment and consumables for all normal gas welding, brazing and cutting operations onboard
Compact design provides good access to contents, and ample room for additional spares and accessories. Sturdy, corrosion resistant construction from electro-galvanized steel plates, with nal coating by powder spraying and baking, made for marine conditions. Shelves are zinc/ yellow-chromate passivated for optimal corrosion and scratch resistance, with hardplast protection surface for nozzles and blowpipes. The door construction provides a stable work surface for torch assembly when open.

Technical data

Height	600 mm
Width	600 mm
Depth	300 mm
Weight with content	56 kg
Weight without content	37,5 kg

Ordering information

Product Number	Product name
589846	GASWELDING CABINET EMPTY
589861	GASWELDING CABINET COMPLETE
589861 is supplied with:	
The complete contents of the UCT-500 Master kit	
Welder´s accessories: Gas goggles with lift front Softskin welding gloves for gas and TIG welding Gas ignitor triplex Double row steel wire brush	
Silver brazing: AG-60 2,0 mm 0,5 kg. AG-45 2,0 mm 0,4 kg. One box each AG-60/45 ux for general use and Albro ux for use with AG-60 on Yorcalbro	
Bronze brazing: FC Bronze 2,0 mm 1,0 kg, 3,0 mm 1,0 kg. Bronze 3,0 mm 4,0 kg FC-Wearbro 3,0 mm 1,0 kg, 5,0 mm 1,0 kg. One box each of Bronzeflux and Wearbro ux	
Cast iron joining and rebuilding: Cast Iron rod, 5,0 mm 1,0 kg and one box Cast Iron Flux	
Aluminium joining: Alumag 3,0 mm 0,5 kg and one box Aluflux	
Tin soldering: Silver alloyed Led free Tin-241Ag soft solder on spool, 1,6 mm/0,5 kg	
Mild steel/heat resistant steels: MS 2,0 mm 3,5 kg, MS 3,0 mm 3,5 kg and Icromo 2,5 mm 2 kg	
Instructions and information: Unitor handbook for maritime welders	

GAS WELDING AND BRAZING CONSUMABLES

Selected for Maritime use

Unitor rods for gas welding and brazing have been carefully selected from the wide range of alloys available to the industrial production and repair industries, with the aim to cover a wide range of on board requirements and reduce the numbers of alloys required to store on board.

Flux-coated Rods

Where practical, ux coated rods have been selected to ensure the best soldering/brazing properties. In addition a range of uxes for both ux-coated and bare rods is available.

Sealed Containers

The rods are are supplied in sealed plastic containers and in 500 mm length for convenient use.

Fluxes

The uxes are supplied in 250g sealed containers with instructions for use and where applicable information about toxic content on the label.

Instructions for use

The label on each container fully identi es the contents, and also gives rod data and basic information on application areas and use
For complete information on each rod and instructions on use and welding / brazing techniques see the Unitor Welding Handbook for Maritime welders

Ordering information

Product Number	Product name	Description
777973	TIN 241 AG 1.5 MM 0.5 KG SOLDER	Lead free silver alloyed flux cored soft solder wire on spool for tinning and joining of electric conductors, electrical connections, electrical instruments, radios, batteries,
233601	AG 60 252 2.0 X A 500MM 0,5KG	ux coated cadmium free, seawater resistant, high strength silver rod for joining all types of steel, stainless steel, copper, copper alloys, nickel, nickel alloys, cast iron, Yorcalbro pipes (aluminiumbrass), cunifer pipes type 90/10 and 70/30.

Product Number	Product name	Description
519744	AG 45 253 2.0 X 500MM 0,4KG	Bare cadmium free silver rod for joining of all types of steel, stainless steel, copper, copper alloys, nickel and nickel alloys, cast iron and hard match. This brazing rod gives a very good joint and can be used for brazing nipples, sleeves and unions to copper pipes.
604371	ALBRO-FLUX 263 PF 250G	Flux for silver brazing rod AG-60-252 on Yorcalbro
778461	AG-60/45 FLUX 252 PF.250G	Flux for silver brazing rods AG-60-252 and AG-45-253
233551	FC-BRONZE 261 2.0 X500MM 1,0KG	A ux-coated brazing rod for joining and surfacing copper, brass, bronze, aluminium bronze, cast iron and steel. May be used for brazing galvanized steel without destroying the galvanized surface.
233569	FC-BRONZE 2613.0 X 500MM 1,0KG	A flux-coated brazing rod for joining and surfacing copper, brass, bronze, aluminium bronze, cast iron and steel. May be used for brazing galvanized steel without destroying the galvanized surface.
174326	BRONZE-264 3.0 X 500MM 1,7KG	An easy- owing, universal brazing bronze (brass) rod for the brazing of steel, cast iron, copper and copper alloys, nickel and nickel alloys. It gives a very smooth and attractive surface. The addition of Si, Mn and Sn guarantees a strong and high-quality deposit.
603076	BRONZE-FLUX 261 PF. 250G	Flux for brazing rod Bronze-264 and FC-Bronze-261
233577	FC-WEARBRO 262 3.0 X500MM 1,0KG	A ux-coated wear-resistant bronze rod used for applying a hard-wearing surface to bronze, brass, copper, steel, cast iron and malleable cast iron. Also used for braze welding cast iron.
233585	FC-WEARBRO 262 5.0 X500MM 1,1KG	A flux-coated wear-resistant bronze rod used for applying a hard-wearing surface to bronze, brass, copper, steel, cast iron and malleable cast iron. Also used for braze welding cast iron.
603068	WEARBRO-FLUX 262 PF. 250G	Flux for brazing rod FC-Wearbro-262
514265	ALUMAG 235 3.0 X 500MM 0,5KG	Gas welding rod for wrought and cast aluminium alloys containing up to 5 % Mg. Generally it can be used for all cast alloys containing magnesium as the main alloying element.
603043	ALUFLUX 234 F. 250 G	Flux for gas welding rod Alumag-235 on aluminium
764485	CAST IRON 237 5.0X500 MM 1.1 KG	Cast Iron rod for joining and surfacing cast iron and welding cast iron to steel. Should be used with Unitor Cast Iron Flux 236, product number 764487. Oil impregnated cast iron may also be brazed with FC-Castiron 268.
764487	CAST IRON FLUX 236 F. 250 G	Flux for use together with Cast Iron 237 for braze welding of Cast Iron
539551	MS-200 2.0 X 500M 3,5KG	Gas welding rod for welding of unalloyed structural steel with a carbon content of less than 0.2%
539569	MS-200 3.0 X 500MM 3,5KG	Gas welding rod for welding of unalloyed structural steel with a carbon content of less than 0.2%

UWI-150 TP WELDING INVERTER

191 150150

Compact and only 4,4kg weight for ease of use onboard, the UWI-150 TP offers excellent performance-to-weight ratio with full capacity for welding all normal coated electrodes up to 3,2mm, including Aluminum electrodes.

Lift-Arc TIG start provides contamination free deposit. Amperage remote control on torch ensures full control during welding and downslope when nishing.

Easy to use TIG pulse option provides excellent sheet metal welding properties which cannot be obtained with standard TIG characteristic.

Plugs in anywhere, 1phase 230V and only 16A slow fuses.

Features

- Line Voltage compensation keeps output of the power source constant regardless of uctuation in input power of +/- 10%
- Automatic hot start provides easy arc start and prevents sticking.
- Thermal overload protection with indicator lights helps prevent machine damage if the duty cycle is exceeded or air ow is blocked.
- TP function (Total Protection) prevents damage to the machine if primary supply voltage is too high.
- Safe in use. VRD function reduces touchable open circuit voltage to only 9V when the welding arc is broken. Full arc striking voltage is re-established immediately when the electrode touches the work-piece.
- Casing of high-grade aluminium and panels of high grade industrial plastic reduces weight and risk of corrosion.
- Delivered complete in carrying case with electrode holder and return clamp.

Technical data

Welding current range	5-150 A
Max touchable OCV voltage	9 V
Duty cycle at max current	30%
Power Supply	1 phase 230V 50/60Hz
Recommended fuses (Slow)	16 A
Certifying authority/institution	S, CE
IP protection	23 S
Weight	4,4 kg
Length x Width x Height	310 x 120 x 215mm

Ordering information

Supplied with:
UWI-150 TP welding machine
1 pc carrying strap
2,5m primary cable, mounted on the welding machine
3m welding cable with dix 25 quick connector and electrode holder
3m return cable with dix 25 quick connector and return clamp
All delivered in a strong protective suitcase
Instruction manual

Accessories

Product Number	**Product name**
Recommended protective equipment for welder	
767001	AUTOVISION PLUS WELDING SHIELD
632786	WELDERS GLOVES. 6 PAIRS
510438	LEATHER JACKET LARGE
633016	LEATHER TROUSERS W/BELT
510453	LEATHER SPATS. PAIR
Recommended tools for stick electrode welding:	
632976	WIRE BRUSH STEEL. 6PCS
632984	WIRE BRUSH STAINL. 6PCS
633008	CHIPPING HAMMER ST. 2PCS
632992	CHIPPING HAMMER STAINLESS
516161	WELDING GAUGE TYPE J
Recommended consumables selection for stick electrode welding	
670001	ELECTRODE CABINET WITH 9 PACKAGES
Recommended accessories for TIG welding:	
150000	TIG TORCH T-150 W.DIX 25 CONNECTOR
150151	REMOTE CONTROL FOR UWI-150 TP
607810	TIG TORCH ACCESSORIES KIT
632794	TIG GLOVES. 6 PAIRS
510010	REGULATOR 510 AR/CO2 FLOW 0-35L/MIN
619379	MANOMETER/GAUGE GUARD +
Shielding gas and gas cylinder trollies. NOTE: Lifting certi cates are available.	
905565	ARGON E-10 FILLING
778149	TROLLEY E10/M10 F/TIG/MIG WELDING
Gas hose extension and flow control at torch when welding at a distance from gas cylinder	
576157	GAS HOSE 1/4" 6.3MM BLACK
175596	HOSE JOINT F/6MM (1/4 INCH) OX HOSE
768416	CLAMP 1 EAR 12,3-14,3MM 1/4" HOSE
768507	PINCER TOOL FOR EAR TYPE HOSECLAMPS
597310	FLOWCONTROL VALVE, ARGON
597328	FLOWCONTROL METER, ARGON

Product Number	Product name
Recommended spare parts	
150161	SPARE PARTKIT UWI-150TP/UWW-161TP

UWW-161 TP MULTI PROCESS WELDING INVERTER

193 161161

A welding machine for
MIG/MAG welding
Stick electrode welding
TIG welding
of all weldable metals on board.

Features

- Fully portable, only 12 kg net weight. 1 phase 230 V 16A for use anywhere on board
- Safe in use- voltage reduction function reduces touchable open circuit voltage to 10 V
- Individual stepless adjustment of both wire speed and welding voltage through whole adjustment range provides optimal settings for any wire
- Select between softer or crisper arc on the front panel to optimize the wire welding arc
- 2-step or 4-step trigger function for wire welding operator comfort
- 2-step TIG-torch control with lift-arc start and adjustable gas post- ow
- Polarity selection allows for wire welding with all wires including self-shielding wires without shielding gas, and even for TIG welding with + polarity
- Automatic hot start and arc force control provides easy start and a stable arc in MMA modus
- Protection against both overload and high input voltage, with indicator light on the front panel, prevents machine damage from wrong primary voltage and overheating

Arc Welding Equipment
Arc welding/cutting machines

Technical data

Welding current range MIG/MAG	5-160 A
Wire speed range MIG/MAG	2-13 m/min
Voltage adjustment range MIG/MAG	10-26 V
Welding current range TIG	5-140 A
Welding current range MMA	5-140 A
Open circuit voltage (OCV)	10 V
Duty cycle at max current	30%
Electric phase	1 phase
Power supply voltage	230
Power supply cycles	50/60 Hz
Recommended fuses (slow)	16 A
Certifying authority/institution	S, CE
Recommended fuses (slow)	10 A
IP protection	23 S
Weight	12,6
Length	460 mm
Width	230 mm
Height	325 mm

UWW 161 TP is supplied complete for stick electrode welding and wire welding with gasless wire:

2,5 m primary cable with plug, tted on the welding machine.

Gas hose socket with nut and hose clamp for connection to the gas inlet of the machine

Wire welding torch with 3m cable and Euro connector complete for 0,8 mm wire

Electrode holder for stick electrode welding with 2.5m cable and Dix 25 connector

3 m return cable with Dix 25 connector and return clamp

Adjustable carrying strap

Instruction manual

Accessories

Product number	Product name
General accessories recommended for welding:	
767001	AUTOVISION PLUS WELDING SHIELD
632786	WELDERS GLOVES. 6 PAIRS
510438	LEATHER JACKET LARGE
633016	LEATHER TROUSERS W/BELT
510453	LEATHER SPATS. PAIR
Recommended accessories for stick electrode welding:	
633008	CHIPPING HAMMER ST. 2PCS
632992	CHIPPING HAMMER STAINLESS
632984	WIRE BRUSH STAINL. 6PCS
632976	WIRE BRUSH STEEL. 6PCS
516161	WELDING GAUGE TYPE J
Recommended consumables selection for stick electrode welding	
670001	ELECTRODE CABINET WITH 9 PACKAGES
Wire for gasless (FCAW) welding of steel	
160100	MS-W-201 SELFSHIELDWIRE 0,8MM 4.5KG
Recommended accessories for transport and gas supply:	
778149	TROLLEY E10/M10 F/TIG/MIG WELDING
510010	REGULATOR 510 AR/CO2 FLOW 0-35L/MIN
619379	MANOMETER/GAUGE GUARD +
576157	GAS HOSE 1/4" 6.3MM BLACK
768507	PINCER TOOL FOR EAR TYPE HOSECLAMPS

Product number	Product name
768416	CLAMP 1 EAR 12,3-14,3MM 1/4" HOSE
175596	HOSE JOINT F/6MM (1/4 INCH) OX HOSE
597310	FLOWCONTROL VALVE, ARGON
597328	FLOWCONTROL METER, ARGON
905573	UNIMIX 20 M-10 FILLING
905565	ARGON E-10 FILLING
Recommended consumable spares for wire welding	
590075	NONIRON LINER 1,2MM FOR UWW-160
613746	STEEL LINER F.UP TO 1.2MM F.UWW-160
160004	DRIVEROLL U-GROOVE FOR UWW 161
160005	DRIVEROLL KNURLED V-GR.FOR UWW 161
160003	DRIVEROLL V-GROOVE FOR UWW 161
633149	ANTI SPATTER SPRAY. 6PCS
591990	MULTI-PURPOSE PLIER FOR WIRE TORCH
160001	GAS NOZZLE FOR UWW-160
712018	10 TIPS 1,0-1.2MM FOR UWW-160 TORCH
712000	10 TIPS 1.0MM FOR UWW-160TORCH
711994	10 TIPS 0.8MM FOR UWW-160 TORCH
711986	10 TIPS 0.6MM FOR UWW-160 TORCH
Recommended accessories for TIG welding:	
160010	TIG TORCH T-161 WITH EUROCONNECTOR
607810	TIG TORCH ACCESSORIES KIT
632794	TIG GLOVES. 6 PAIRS
Skid / Trolley	
764550	SKID TROLLEY FOR PLASMA AND WELDING
Recommended spare parts	
150161	SPARE PARTKIT UWI-150TP/UWW-161TP

UWI-203 TP STICK / TIG WELDING INVERTER

191 203203

A lightweight, portable and powerful welding machine for stick electrode and TIG welding. Connects to any primary voltage between 380 and 440 V without need for any action from the operator

Line voltage compensation keeps output of the power source constant regardless of uctuation in input power from 10% below lowest to above highest rated input voltage

Safe in use with VRD function for touchable open circuit voltage only13V (from serial no. 129431, 70V on older models)

Automatic hot start for stick arc starts makes arc striking easy and prevents electrode sticking

Adjustable arc force for stick electrode welding allows the arc characteristics to be changed for speci c applications and electrodes: low arc force setting for smooth running electrodes like LH and Special and increased setting options provides optimal characteristics for stiffer, more penetrating electrodes like E6010 types, chamfering electrodes like CH2 and electrodes for ACA gouging

Lift-start in TIG mode provides easy and soft TIG arc starting

Stepless adjustment of welding current through whole current range: 5 –200A

Casing of high grade aluminium and industrial plastic to eliminate corrosion damage also contributes to low weight which together with compact outer dimensions provides good portability

Wind tunnel design for the internal cooling air ow protects electrical components and PC boards from dirt, dust, and debris, greatly improving reliability

Thermal overload protection with indicator lights helps prevent machine damage if the duty cycle is exceeded or air ow is blocked

Arc Welding Equipment
Arc welding/cutting machines

Technical data

Welding current range MMA	5-200A DC
Open circuit voltage (OCV)	13V
Duty cycle at max current	40%
Electric phase	3
Power supply voltage	380/440V
Power supply cycles	50/60Hz
Recommended fuses (slow)	10A
Certifying authority/institution	S,CE
IP protection	23S
Weight	12,2kg
Length	460mm
Width	230mm
Height	325mm
Product Number	203203

Supplied with:

- Carrying strap
- Electrode holder with 3m cable and connector
- Return clamp with 3m cable and connector
- 4m primary cable mounted on the machine

Note:
Plug for the primary cable must t the socket types used on board and is therefore not included.

Accessories

Product number	Product name
General accessories recommended for welding:	
767001	AUTOVISION PLUS WELDING SHIELD
632786	WELDERS GLOVES. 6 PAIRS
510453	LEATHER SPATS. PAIR
633016	LEATHER TROUSERS W/BELT
510438	LEATHER JACKET LARGE
Recommended accessories for stick electrode welding:	
632976	WIRE BRUSH STEEL. 6PCS
632984	WIRE BRUSH STAINL. 6PCS
633008	CHIPPING HAMMER ST. 2PCS
632992	CHIPPING HAMMER STAINLESS
516161	WELDING GAUGE TYPE J
Recommended accessories for TIG welding:	
200000	TIG TORCH T-200 W.DIX 70 CONNECTOR
607810	TIG TORCH ACCESSORIES KIT
632794	TIG GLOVES. 6 PAIRS
510010	REGULATOR 510 AR/CO2 FLOW 0-35L/MIN
619379	MANOMETER/GAUGE GUARD +
905565	ARGON E-10 FILLING
576157	GAS HOSE 1/4" 6.3MM BLACK
768416	CLAMP 1 EAR 12,3-14,3MM 1/4" HOSE
768507	PINCER TOOL FOR EAR TYPE HOSECLAMPS
175596	HOSE JOINT F/6MM (1/4 INCH) OX HOSE
597328	FLOWCONTROL METER, ARGON
597310	FLOWCONTROL VALVE, ARGON

Product number	Product name
Skid/Trolley	
764550	SKID TROLLEY FOR PLASMA AND WELDING
Recommended spare parts	
203205	SPARE PART KIT FOR UWI-203TP

UWI-320 TP WELDING INVERTER

191 320320

Compact and lightweight for ease of use on-board, the UWI-320 TP welding inverter offers excellent performance-to-weight ratio.

Designed for Operator Safety

- Voltage reduction function (VRD) ensures that maximum touchable voltage the stick electrode welder can be exposed to is 8V

Designed for durability

- Its design utilises an active fan control, which reduces the amount of dust and dirt inside the machine, thereby reducing the risk of short circuiting and increasing ef ciency and life time.
- The unique TP (Total Protection) function effectively prevents damage to the machine in case one phase in the primary power supply fails.
- Thermal overload protection prevents damage due to overload.

Easy and ef cient TIG welding function

- Lift-start in TIG mode provides easy and soft arc start.
- With the use of remote control the welder has full control of arc and heat input during welding, and at nish he has full control of down-slope and arc stop.

For all coated welding electrodes

- With up to 320A output it provides full capacity for welding all coated electrodes including most 6mm high recovery electrodes.

Parallel Connection

- Parallel connection of two machines provides 640A output for the few coated electrodes that require more than 320A, and full Air Carbon Arc gouging capacity.

Technical data

Welding current range	10-320A
Open circuit voltage	9V
Duty cycle at max current	30%
Power supply	380-440V 3 phase 50/60Hz
Recommended fuses	20-16A
IP protection	23 S
Weight	18kg
Length	460mm
Width	230mm
Height	325mm

Accessories

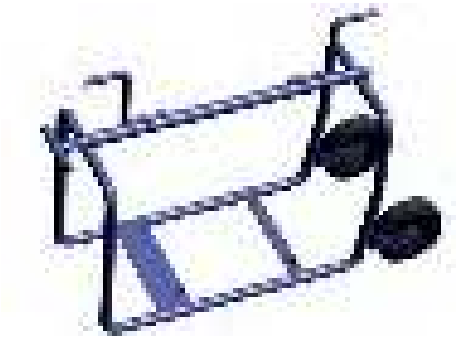
Product Number	Product name
Stick welding accessories	
670406	ACCESSORIES KIT F/UWI-320,-400,-500
	The kit consists of : Flipvision Welding Shield and Welding gloves, Electrode holder, Return Clamp and Remote control all with 3m cables and connectors, Chipping hammer and Wire brush
TIG welding accessories	
200000	TIG TORCH T-200 W.DIX 70 CONNECTOR
607810	TIG TORCH ACCESSORIES KIT
510010	REGULATOR 510 AR/CO2 FLOW 0-35L/MIN
619379	MANOMETER/GAUGE GUARD +
597310	FLOWCONTROL VALVE, ARGON
597328	FLOWCONTROL METER, ARGON
Argon shielding gas	
905565	ARGON E-10 FILLING
905174	ARGON E-50 FILLING
Cable and gas hose extensions	
670422	REMOTE CONTROLCABLE FOR UWI-320/500
175844	WELDING CABLE 50 MM2
632893	CABLE CONNECTOR DIX70 MALE-FEMALE
576157	GAS HOSE 1/4" 6.3MM BLACK
768416	CLAMP 1 EAR 12,3-14,3MM 1/4" HOSE
175596	HOSE JOINT F/6MM (1/4 INCH) OX HOSE
768507	PINCER TOOL FOR EAR TYPE HOSECLAMPS
Parallel connection of two UWI-320 machines. Note: Should be done at the work site when cable extensions are used.	
676973	REMOTE CONTROL PARALLEL CONNECTION
632901	TRIPLE CONNECTION DIX-70 MMF, 2 PCS
Air Carbon Arc gouging accessories	
528703	AIR CARBON ARC TORCH 600A
634121	CONVERSION ASSEM. 2 PCS

Product Number	Product name
Recommended spare parts	
320323	SPARE PART KIT FOR UWI-320TP
Skid/Trolley	
764550	SKID TROLLEY FOR PLASMA AND WELDING

SKID TROLLEY FOR PLASMA AND WELDING

195 764550

Sturdy and light weight skid for giving additional protection to UWW-161TP, UWI-203TP, UWI-320TP and UPC-1041 towards mechanical damage.



Features

- High handles in front and back enables coiling of cables for easy transport.
- Retractable handle and large wheels
- Bracket for safe cable storing during transport
- Increased protection of the machine the design also provides easy carrying between two persons.

Bene ts

- Easy transport
- Limits damage to equipment

UWI-500 TP WELDING INVERTER

191 500500

A welding machine for all manual arc welding and gouging processes

Features

- The UWI-500TP is designed for welding with all types and sizes of welding wires, coated electrodes, carbon electrodes and TIG rods, with current range: 5 – 500A.
- Line Voltage compensation keeps output of the power source constant regardless of uctuation in input power from 10% below lowest to above highest rated input voltage.
- Total Protection function with indicator light prevents machine damage if one phase in the primary power supply falls out or if over-voltage is supplied to the machine.
- Thermal overload protection with indicator lights helps prevent machine damage if the duty cycle is exceeded or air ow is blocked.
- Safe in use. The Voltage Reduction Device function reduces touchable open circuit voltage to only 9V, providing optimal safety for the operator.
- The remote amperage control can be used for all processes, and also for two machines in parallel for up to 1000 Amperes for Air Carbon Arc gouging.
- Separate characteristics are available for welding with standard electrodes, for cellulosic electrodes, for TIG, for Air Carbon Arc gouging and for Wire welding with or without shielding gas. This ensures optimal properties for all processes
- Adjustable Hot Start for MMA welding provides optimal arc striking for all electrode types and prevents electrode sticking.
- Adjustable Arc Force for MMA welding allows the arc characteristics to be changed for speci c applications and electrodes.
- 2-step TIG-torch control with Lift-Arc provides an easy and soft TIG arc start, and remote control from 5 amp to maximum ensures total arc control both during welding and for the down-slope nish of the weld.
  Adjustable gas post- ow prevents faults in the end phase of the weld.

Arc Welding Equipment
Arc welding/cutting machines

Technical data

Welding current range	5-500
VRD Open circuit voltage	9 V
Duty cycle at max current	50%
Electric phase	3
Power supply voltage	380-440 V
Power supply cycles	50/60 Hz
Recommended fuses (slow)	32 A
Certi cation (approval)	CE
IP protection	IP 23S
Weight	47 kg
Length	670 mm
Width	290 mm
Height	510 mm

Designed for marine applications
Compact and powerful for a complete solution on board, the UWI 500 TP cover all arc welding processes that can be needed on board. Process selection on front panel provides quick and easy selection of optimal welding characteristics for normal stick electrodes, cellulosic stick electrodes, TIG (with Lift Arc), wire welding and air carbon arc gouging.
5-500A current range covers the use of any size of welding electrodes and parallel connection of two machines provide 1000A for the most power demanding Air Carbon Arc gouging tasks. Low weight and compact dimensions provide easy transport to wherever welding is needed. A specially designed trolley is also available for easy transport along deck

Accessories

Required accessories for stick electrode welding

Product number	Product name
670406	ACCESSORIES KIT F/UWI-320,-400,-500
Consisting of: electrode holder with 3m cable and connector, return clamp with 3m cable and connector, remote control with 8m cable, welding gloves, face shield with head band, ip-up front and shade 11 glass, chipping hammer, wire brush & Unitor welding handbook	
General accessories recommended for welding:	
510453	LEATHER SPATS. PAIR
633016	LEATHER TROUSERS W/BELT
510438	LEATHER JACKET LARGE
632786	WELDERS GLOVES. 6 PAIRS
633263	SHADE 11 GLASS. 5SET
633255	SHADE 10 GLASS. 5SET
633248	SHADE 9 GLASS. 5SET
619098	FACE SHIELD W/HANDLE
709485	FLIPVISION WELDING FACE SHIELD
767001	AUTOVISION PLUS WELDING SHIELD
767000	AUTOVISION PLUS FRESHAIR WELDSHIELD
500103	UNDERCARRIAGE FOR UWI-500TP
Recommended accessories for stick electrode welding:	
632984	WIRE BRUSH STAINL. 6PCS
594325	EL.HOLDER 400A WITH DIX70 CONNECTOR
594317	RETURN CLAMP ASSY 400A W/DIX 70
632976	WIRE BRUSH STEEL. 6PCS
633008	CHIPPING HAMMER ST. 2PCS
632992	CHIPPING HAMMER STAINLESS
516161	WELDING GAUGE TYPE J
Recommended accessories for TIG welding):	
200000	TIG TORCH T-200 W.DIX 70 CONNECTOR

Product number	Product name
607810	TIG TORCH ACCESSORIES KIT
632794	TIG GLOVES. 6 PAIRS
905565	ARGON E-10 FILLING
905174	ARGON E-50 FILLING
778147	TROLLEY F/1 40-50L GAS CYLINDER
510010	REGULATOR 510 AR/CO2 FLOW 0-35L/MIN
619379	MANOMETER/GAUGE GUARD +
597310	FLOWCONTROL VALVE, ARGON
175596	HOSE JOINT F/6MM (1/4 INCH) OX HOSE
768416	CLAMP 1 EAR 12,3-14,3MM 1/4" HOSE
597328	FLOWCONTROL METER, ARGON
576157	GAS HOSE 1/4" 6.3MM BLACK
Recommended accessories for Air Carbom Arc gouging 600A:	
528703	AIR CARBON ARC TORCH 600A
634121	CONVERSION ASSEM. 2 PCS
Recommended cable extensions:	
670422	REMOTE CONTROLCABLE FOR UWI-320/500
175844	WELDING CABLE 50 MM2
175851	WELDING CABLE 70 MM2
632893	CABLE CONNECTOR DIX70 MALE-FEMALE
175729	CABLE DRUM W/CRANK
Parallel connection of two machines at the work site (both machines always on and with parallel remote)	
632901	TRIPLE CONNECTION DIX-70 MMF, 2 PCS
676973	REMOTE CONTROL PARALLEL CONNECTION
670414	REMOTE CONTROL FOR UWI-320/400
Recommended spare parts	
500505	SPARE PART KIT FOR UWI-500TP
For Wire Welding see product 500102 UWF-102 Wire Feeder:	

ACCESSORIES FOR UWI-320TP AND UWI-500TP

191 670406

Basic kit for making UWI-320TP, UWI-500TP (and old model UWI-400) welding machine fully operational for stick electrode welding

Features

- Accessories for electode welding
- Remote amp control

Bene ts

- Remote control saves time as the welder can adjust the amperage from work site also when the welding machine is not close by.
- The other accessories are basic to do stick electrode welding, and is the minimum needed if not already available on board

Ordering information

Product number	Product name
670406	ACCESSORIES KIT F/UWI-320,-400,-500
Supplied with:	
594317	RETURN CLAMP ASSY 400A W/DIX 70
594325	EL.HOLDER 400A WITH DIX70 CONNECTOR
670414	REMOTE CONTROL FOR UWI-320/400
709485	FLIPVISION WELDING FACE SHIELD
	Welding gloves
	Chipping hammer steel
	Wire brush steel two rows

Accessories

Product number	Product name
670422	REMOTE CONTROLCABLE FOR UWI-320/500

UNDERCARRIAGE FOR UWI-500TP

196 500103

Undetcarriage specially designed for mounting under UWI 500TP for easy transport of machine, cables and electrodes

Features

- The undercarriage is delivered with assembly instructions.
- UWI-500 is fastened to the undercarriage with 4 bolts
- The driving handles folds backwards when not in use to ensure good access to the front of the welding machine.
- A shelf for accessories or electrode packages is placed between the legs of the undercarriage

Technical data

Height	690 mm
Width	450 mm
Length with handles open	1120 mm
Length with handles folded	730 mm
Weight	16 kg

UWF-102 WIRE FEEDER

191 500102

UWF-102 wire feeder is a compact and lightweight wire feeder designed for use with UWI-500TP welding inverter

Features

- Spool sizes 200 mm to 300 mm can be used
- Spools are completely protected inside the case
- Takes wire sizes from 0.6 mm to 2 mm including ux-cored wires and gasless wires
- Delivered with euro-connector for torch and 4 m connection cables and gas hose for connection to UWI-500TP
- Drive roll kit for 0,8 mm wires are included with the feeder

Power supply from UWI-500TP	48 V AC 50/60Hz
Welding current rating	450A @ 60%
Wire speed range	1,5-18 M/MIN
Wire size range	0,6-2 MM
IP protection	IP 23
Length	690 mm
Width	385 mm
Height	440 mm
Weight	17.4 kg

UWF-102 is delivered with 4m connection cables and hose for connection to UWI-500TP.
V-groove drive roll kit for use with 0,8-1 mm solid wire is installed.

Torch is not included with the unit.

Accessories

Product number	Product name	Unit
Drive roll kits for UWF-102		
778192	DRIVE ROLL V-GROOVE 0,8/1,0MM	set
778194	DRIVE ROLL V-GROOVE 1,2/1,6MM	set
778195	DRIVE ROLL KNUR. V-GROOVE 0,8/1,0MM	set
778196	DRIVE ROLL KNUR. V-GROOVE 1,2/1,6MM	set
778197	DRIVE ROLL U-GROOVE 0,8/1,0MM	set
778198	DRIVE ROLL U-GROOVE 1,2/1,6MM	set
778191	OUTGOING WIRE DRIVE GUIDE F/UWF-102	pcs
Torch for gasless wire welding T-350		
750179	WIRE TORCH T-350 GL WITH 3M CABLE	pcs
750181	CONTACT TIPS 1MM FOR T-350 TORCH	set
750182	CONTACT TIPS 1.2-1.6MM 10 PCS T-350	set
750184	CERAMIC NOZZLE F/T-350 TORCH, 5 PCS	pcs
750185	TIP ADAPTER FOR T-350 TORCH	pcs
Torch for gas-shielded wire welding T-400		
607451	WIRE TORCH T-400GS W/3M CABLE	pcs

Product number	Product name	Unit
613765	GAS NOZZLE FOR T-400 TORCH	pcs
594622	CONTACT TIP 0.6-0.8MM 10 PCS T-400	set of 10
594630	CONTACT TIP 1.0-1.2 MM	set of 10
607455	CONTACT TIP 1.2-1.4MM 10 PCS T-400	set of 10
607456	CONTACT TIP 1.6-2.0MM 10 PCS T-400	set of 10
613766	NOZZLE INSULATOR 5 PCS T-400 TORCH	set of 5
613763	GAS DIFFUSOR 5 PCS FOR T-400 TORCH	set of 5
613764	NECK INSULATION 5 PCS T-400 TORCH	set of 5
Liners for torches T-350 and T-400		
594606	TORCH LINER,TEFLON,0.6-1.2 MM, 4.5M	pcs
594614	TORCH LINER,STEEL, 0.6-1.0 MM 3.0M	pcs
607457	TORCH LINER, STEEL, 1.0-1.4MM, 3.0M	pcs
777846	TORCH LINER, STEEL, 1.4-1.6MM, 3.0M	pcs
Shielding gases and equipment		
510010	REGULATOR 510 AR/CO2 FLOW 0-35L/MIN	pcs
597328	FLOWCONTROL METER, ARGON	pcs
619379	MANOMETER/GAUGE GUARD +	pcs
597310	FLOWCONTROL VALVE, ARGON	pcs
905581	UNIMIX 20 M-50 FILLING	pcs
905573	UNIMIX 20 M-10 FILLING	pcs
905174	ARGON E-50 FILLING	pcs
905565	ARGON E-10 FILLING	pcs
778147	TROLLEY F/1 40-50L GAS CYLINDER	pcs
Cable/hose extensions UWI-500 to UWF-102		
500104	CONTROL CABLE 25M FOR UWI-500TP	pcs
175851	WELDING CABLE 70 MM2	mtr
175844	WELDING CABLE 50 MM2	mtr
632893	CABLE CONNECTOR DIX70 MALE-FEMALE	pcs
576157	GAS HOSE 1/4" 6.3MM BLACK	mtr
768416	CLAMP 1 EAR 12,3-14,3MM 1/4" HOSE	
175596	HOSE JOINT F/6MM (1/4 INCH) OX HOSE	pcs
670422	REMOTE CONTROLCABLE FOR UWI-320/500	pcs

TROLLEY E10/M10 F/TIG/MIG WELDING

176 778149

Transport trolley for 10l shielding gas cylinders, welding machine, welders accessories and welding consumables.

Each trolley has a unique serial number and lifting certi cate, and can therefore also be used for lifting gas cylinders on board. Safe working load 70kg allows for all the equipment needed.

The cylinder fastening system allows for two cylinders side by side. If one cylinder is used it can be placed in centre, providing good balance during transport.

The welding machines UWI-203TP, UWI-320TP and UWW-161 t on the shelf for welding machines.They are fastened with two strong straps with good locking function.

A large toolbox has room for welders accessories and electrodes

Cables are coiled on the driving handles

Technical data

Height	1090 mm
Width	575 mm
Depth	617 mm
Weight	25.5 kg

The trolley is speci cally designed for the welding machines

- UWI-203TP
- UWI-320TP
- UWW-161TP

to be the basis of a complete movable arc welding workshop for the TIG and MIG welding processes.
It provides a safe and fast way of getting all equipment to the work site in one go.

UPC-1041 PLASMA CUTTER

192 404100

Cutting and gouging of all current carrying materials.

Features

- Best performance to weight ratio on the market: 40mm cutting capacity - weight 16 kg
- Ergonomic robust torch with safety trigger and slim nozzle design for good overview of the cut
- 6 m torch cable connected directy inside the machine to reduce size and weight and eliminate screw connector wear
- Power switch with built in quick fuse and air regulator with built in self draining water separator for protection of machine
- Active fan control provides forced air cooling only when needed, minimizing dust intake

Bene ts

- Uses air as cutting gas thereby reducing the need for oxygen and acetylene gas
- Can easily and quickly be brought to work locations
- All current carrying materials can be cut or gouged

Technical Data

Cutting current range	20-100A
Duty cycle at max current	35%
Electric Phase	3
Supply Voltage as delivered	440V
Supply voltage alternative	380/400V
Power supply Cycles	50/60Hz
Recommended Fuses (Slow)	20A (25A)
Air supply pressure	6-7 bar
Air consumption	190l/min
IP protection	IP23
Length	560mm
Width	190mm
Height	320mm
Weight	16kg

The UPC-1041 us ideal for cutting and gouging all electrically conductive materials.
It is superior to gas cutting as it also cuts stainless steel, cast iron, copper alloys and aluminum.
It is compact and lightweight to move around and cutting capacity of up to 40 mm thick steel ensures complete cut also through thick bulbs in beams. Cutting speed is more than 0,5m/min in 13mm steel plate. High duty cycle will normally provide completely uninterrupted operation for manual cutting.
The slim nozzle design gives exceptionally good overview of the actual cutting arc and provides minimal slag clogging. Highly ef cient for gouging out old welds and opening up cracks with the optional gouging nozzle.

NOTE
When delivered the machine is set for 440V input voltage. It must be reconnected to 380-400V if this is the available voltage. This is done inside the machine and is described in the manual

Ordering information

Supplied with:
Torch with 6m cable package

Supplied with:
Return clamp with cable & connector
Air regulator with filter, water separator and 6mm (1/4") hose socket for air hose
Accessories kit with initial supply of torch spares & consumables:
3 pcs electrodes
1 pc tool for electrodes
3 pcs nozzles 1,2
1 pc spatter shield
1 pc drag shield
1 pc box for kit
Owner's manual
Primary cable*
*) Primary cable plug and air-hose is not supplied

Accessories

Product number	**Product name**
Accessories for UPC-1041	
404115	TORCH WITH 15M CABLE FOR UPC-1041
404013	CONSUMABLES KIT F/UPC-1040/1041
404005	ELECTRODE LONG F/UPC-1040/1041 5PCS
404006	SWIRL RING FOR UPC-1040/1041 2PCS
404007	NOZZLE 1.0 F/UPC-1040/1041 5PCS
404008	NOZZLE 1.2 F/UPC-1040/1041 5PCS
404009	NOZZLE GOUGING F/UPC-1040/1041 5PCS
404010	SHIELD CUP F/UPC-1040/1041 2PCS
404111	SPATTER SHIELD F/UPC-1040/1041 2PCS
404112	DRAG SHIELD F/UPC-1040/1041 2PCS
404016	CIRCLE CUTT. GUIDE F/ UPC-1040/1041
624585	AIR LINE UNIT FIL/REG/LUB
Operator's protection accessories	
767000	AUTOVISION PLUS FRESHAIR WELDSHIELD
709485	FLIPVISION WELDING FACE SHIELD
619098	FACE SHIELD W/HANDLE
633248	SHADE 9 GLASS. 5SET
633255	SHADE 10 GLASS. 5SET
633263	SHADE 11 GLASS. 5SET
632786	WELDERS GLOVES. 6 PAIRS
510438	LEATHER JACKET LARGE
633016	LEATHER TROUSERS W/BELT
510453	LEATHER SPATS. PAIR
510420	LEATHER APRON F/WELDING
Skid/Trolley	
764550	SKID TROLLEY FOR PLASMA AND WELDING

WELDING CABLE

The welding cable supplied by Unitor is recognized by its marking at regular intervals with the text:
“Unitor oil resistant welding cable”, size of cable, and the standard for oil resistant welding cable: H01N2-D.

Cable drum

The drum is supplied with brackets for bulkhead mounting. It has a folding crank which locks the drum from uncoiling the cable when the crank is folded inwards. Capacity up to approximately 100m 50mm2 welding cable. Weight 10,5kg

Features

- The cable is oil resistant, ame resistant and wear resistant. The conductor is built up from 0.2 mm diameter copper wires to ensure high exibility
- The cable complies with the harmonised standard HO1N2D for exible welding cable
- Available in cross-section areas 35 mm^2, 50 mm^2 and 70 mm^2, in standard lengths of 10 m, 20 m and 50 m, tted with Unitor safety connectors.
- The standard length cable extensions are tted with Unitor safety cable connectors for optimal protection. Connection to the machine panel sockets is done with 2 pcs Dix/Unitor conversions
- When cable extensions with safety connectors are used the electrode holder and ground clamp with safety connectors should be used

Ordering information

Product number	Product name	Max Amp 35% duty cycle	Weight per 100 m
175729	CABLE DRUM W/CRANK		
175836	WELDING CABLE 35 MM2	375 A	41.5 kg
175794	WELDING CABLE 35 MM2 10M	375 A	41.5 kg
175786	WELDING CABLE 35 MM2 20M	375 A	41.5 kg
175778	WELDING CABLE 35 MM2 50M	375 A	41.5 kg
175844	WELDING CABLE 50 MM2	480 A	57 kg
175828	WELDING CABLE 50 MM2 10M	480 A	57 kg
175810	WELDING CABLE 50 MM2 20M	480 A	57 kg
175802	WELDING CABLE 50 MM2 50M	480 A	57 kg
175851	WELDING CABLE 70 MM2	600 A	78.5 kg
320010	WELDING CABLE 70 MM2 20M	600 A	78.5 kg
183665	WELDING CABLE 70 MM2 50M	600 A	78.5 kg
655266	WELDING CABLE 95 MM2	730 A	106 kg

CABLE CONNECTORS AND ADAPTERS

UNITOR connectors are available in two versions:

Dix version available in three sizes according to current capacity:

DIX 25 for welding machines up to 150A and welding cable up to 25mm2

DIX 70 for bigger machines, and welding cables up to 70mm2. In this range there also is an adapter for connecting DIX 70 to DIX 25, and an adaptor for parallel connection of two 70mm2 welding cables with DIX 70 connectors.from two UWI-500 machines in case more than 500A is required for ACA gouging.

DIX 120 connectors for up to 120mm2 welding cable should be used if extension cables from the parallel connection point is required and minimum 95mm2 cable should be used

UNITOR Safety connectors

These connectors are designed for outdoor use where they may be exposed to rain and sea water. Correctly mounted they can be close to splash water proof. They will t welding cables up to 70mm2. A conversion assembly enables connection to the welding machine. Standard 10, 20 and 50m welding cable extensions are delivered with these connectors. At the welding site electrode holder and return clamp listed below should be used.

Ordering information

Product number	Product name
632885	CABLE CONNECTOR DIX25 MALE-FEMALE
632893	CABLE CONNECTOR DIX70 MALE-FEMALE
633073	ADAP.PLUG DIX70/25.2 PCS
632901	TRIPLE CONNECTION DIX-70 MMF, 2 PCS
736744	CABLE CONNECTOR DIX120 MALE-FEMALE
513044	CABLE CONNE.SAFETY COMPL
634121	CONVERSION ASSEM. 2 PCS
676973	REMOTE CONTROL PARALLEL CONNECTION
670422	REMOTE CONTROLCABLE FOR UWI-320/500
670414	REMOTE CONTROL FOR UWI-320/400

ELECTRODE HOLDERS AND RETURN CLAMPS

Unitor's fully insulated electrode holders
Available in sizes: 200A, 400A and 600 A.
The 200A is also available with 3m cable and DIX 25 or DIX 70 cable connector.
The 400A is also available with 3m cable and DIX 70 or UNITOR safety connector.

Electrode holders are produced inaccordance with Standard 2006/95/EEG concerning low voltage, and conform to EN 60974-11

All electrode holder assemblies are produced in accordance with Standard 2006/95/EEG concerning low voltage, and conform to CEI/IEC 60974-7: 2005-07

The return clamps
The return clamps available in sizes: 400A and 800A. The 400A are spring loaded with good contact jaws. The 800A is screw type for best possible contact with a cleaned work-piece surface.

The 200A is available with 3m cable and DIX 25 or DIX 70 cable connector. The 400A is also available with 3m cable and DIX 70 or UNITOR safety connector.

Unitor Air Carbon Arc torches
600A for up to 10mm electrodes, with 2,5m cable and UNITOR safety cable connector , and 1600A for all electrode sizes, with 2,5m cable and DIX 120 cable connector

Ordering information

Product number	Product name
552497	ELECTRODE HOLDER TWISTY 200AMP
513051	ELECTRODE HOLDER TWISTY 400AMP
511006	ELECTRODE HOLDER UNIKING 600AMP
627877	EL.HOLDER 200A WITH DIX25 CONNECTOR
627885	EL.HOLDER 200A WITH DIX70 CONNECTOR
594325	EL.HOLDER 400A WITH DIX70 CONNECTOR
522680	EL.HOLDER 400A WITH SAFETYCONNECTOR
653899	RETURN CLAMP 400A.
175745	RETURN CLAMP 800A
633164	RETURN CLAMP ASSY 200A W/DIX 25
633172	RETURN CLAMP ASSY 200A W/DIX 70
594317	RETURN CLAMP ASSY 400A W/DIX 70

Product number	Product name
633180	RETURN CLAMP ASSY 400 A W/SAFETY
528703	AIR CARBON ARC TORCH 600A
740969	AIR CARBONARC TORCH HEAVYDUTY 1600A

TIG WELDING ACCESSORIES

The torches are supplied complete with nozzle, electrode, 3m cable package and connectors as described below.

Torch T-150 has gas valve, 3m cable/hose package, standard 3/8" screw connection for connection to Argon regulator, and DIX 25 cable connector for connection to 150A Unitor machines.

Torch T-161 has on/off switch, 3m cable/hose package with euro-connector for connection to UWI-161TP.

Torch T-200 has gas valve, 3m cable/hose package, standard 3/8" screw connection for connection to Argon regulator, and DIX 70 cable connector for connection to 200A and larger Unitor machines.

Accessories kit

For rst order to the vessel it is recommended to also order the Accessories kit with a basic supply of spares.

Ordering information

Product number	Product name	Qty in Accessories kit	Qty in Product number
150000	TIG TORCH T-150 W.DIX 25 CONNECTOR		1
160010	TIG TORCH T-161 WITH EUROCONNECTOR		1
200000	TIG TORCH T-200 W.DIX 70 CONNECTOR		1
607810	TIG TORCH ACCESSORIES KIT		1

Accessories

Product Number	Product name
551192	SHORT BACK CAP FOR TIG-TORCH
551200	LONG BACK CAP FOR TIG-TORCH
551168	COLLET 1,6MM FOR TIG-TORCH
551150	COLLET 2,4MM FOR TIG-TORCH
551184	COLLET BODY 1,6MM FOR TIG-TORCH
551176	COLLET BODY 2,4MM FOR TIG-TORCH
551135	TIG NOZZLE 6 FOR TIG-TORCH
551127	TIG NOZZLE 7 FOR TIG-TORCH
674710	TUNGSTEN EL. 1.6MM. 10PCS
674736	TUNGSTEN EL. 2.4MM. 10PCS

WIRE TORCHES FOR UWF-102 WIRE FEEDER

These high capacity air cooled torches have an ergonometric handgrip for easy and good control of the torch for the welder.
They are delivered complete with tools for neck adjustment and contact tip change, h 3m cable and euro-connector for connection to wire feeder.

T-400
has an adjustable neck which may be rotated in relation to the handle. It is primarily for gas shielded welding and is delivered complete with nylon liner and contact tips for 1-1,2mm wire. The nylon liner allows for all wire types including aluminium.

T-350
is only for self-shielded wire with a a heat shield protecting the welder's hand both from spatter and heat which can be considerable from the larger size wires.
A special neck design gives smooth and stable wire feed and good electric contact with the wire

Accessories

Product number	Product name	Unit	Qty.
T-400 torch for gas shielded wire welding			
607451	WIRE TORCH T-400GS W/3M CABLE		
613765	GAS NOZZLE FOR T-400 TORCH	pcs	1
594622	CONTACT TIP 0.6-0.8MM 10 PCS T-400	set	10
594630	CONTACT TIP 1.0-1.2 MM	set	10
607455	CONTACT TIP 1.2-1.4MM 10 PCS T-400	set	10
607456	CONTACT TIP 1.6-2.0MM 10 PCS T-400	set	10
613766	NOZZLE INSULATOR 5 PCS T-400 TORCH	set	5
613763	GAS DIFFUSOR 5 PCS FOR T-400 TORCH	set	5
613764	NECK INSULATION 5 PCS T-400 TORCH	set	5
T-350 torch for gasless wire welding			
750179	WIRE TORCH T-350 GL WITH 3M CABLE	pcs	1
750181	CONTACT TIPS 1MM FOR T-350 TORCH	set	10
750182	CONTACT TIPS 1.2-1.6MM 10 PCS T-350	set	10
750184	CERAMIC NOZZLE F/T-350 TORCH, 5 PCS	pcs	1
750185	TIP ADAPTER FOR T-350 TORCH	pcs	1
Liners for torches T-350 and T400			
594606	TORCH LINER,TEFLON,0.6-1.2 MM, 4.5M	pcs	1
594614	TORCH LINER,STEEL, 0.6-1.0 MM 3.0M	pcs	1
607457	TORCH LINER, STEEL, 1.0-1.4MM, 3.0M	pcs	1
777846	TORCH LINER, STEEL, 1.4-1.6MM, 3.0M	pcs	1

DRIVE ROLL

Drive rolls and outgoing wire tube for UWW-161 TP and UWF-102

Ordering information

Product number	Product name	Use for
160003	DRIVEROLL V-GROOVE FOR UWW 161	UWW-161TP
160004	DRIVEROLL U-GROOVE FOR UWW 161	UWW-161TP
160005	DRIVEROLL KNURLED V-GR.FOR UWW 161	UWW-161TP
161164	OUTGOING WIRE GUIDE TUBE F. UWW-161	UWW-161TP
778192	DRIVE ROLL V-GROOVE 0,8/1,0MM	UWF-102
778194	DRIVE ROLL V-GROOVE 1,2/1,6MM	UWF-102
778195	DRIVE ROLL KNUR. V-GROOVE 0,8/1,0MM	UWF-102
778196	DRIVE ROLL KNUR. V-GROOVE 1,2/1,6MM	UWF-102
778197	DRIVE ROLL U-GROOVE 0,8/1,0MM	UWF-102
778198	DRIVE ROLL U-GROOVE 1,2/1,6MM	UWF-102
778191	OUTGOING WIRE DRIVE GUIDE F/UWF-102	UWF-102

SHIELDING GAS ACCESSORIES

Shielding gas regulators with ow control
Unitor Argon and C02 regulators for shielding gas are designed for reliability and safety of use. The large adjustment knob is black for easy identi cation of gas type.
They reduce cylinder pressure to suitable working pressure and supplies a steady ow of shielding gas to the torch / wire feeder. Contents gauges have scale in psi/bar.
Outlet gauges are have scale in l/min.

Full conformance with EN ISO 2503
Argon cylinder connection 24.32 x 1/14"
CO2 cylinder connection CGA320/0.825"-14 NGO-RH-EXT

The regulators are delivered with spare washers, connection for 1/4" gas hose and instructions

1/4" Gas hose for shielding gas
Unitor hoses for welding gases conforms to European Norm EN 559.
Working pressure up to 20 bar, test pressure is 40 bar, minimum bursting pressure 60 bar.
Colour-code black for shielding gases.

Flow Control Needle-valve
The ow-control needle valve used at the gas inlet of the TIG-torch or the wire feeder provides nal ow adjustment at the work place regardless of distance to the gas cylinder/gas outlet.

Flow Control meter
The ow-control meter measures actual gas ow at the torch nozzle and provides the operator with accurate information of ow in l/min

Ordering information

Product number	Product name
510010	REGULATOR 510 AR/CO2 FLOW 0-35L/MIN
510012	REGULATOR 510 CO2 FLOW CGA320
619379	MANOMETER/GAUGE GUARD +
550178	CONTENTS GAUGE OX/AR 0-400 BAR
550210	WORKING GAUGE AR/CO2 0-32L/MIN
597310	FLOWCONTROL VALVE, ARGON
597328	FLOWCONTROL METER, ARGON

CONSUMABLES KIT COMPLETE. FOR UPC-1040 /-41

192 404013

Consumables kit complete

Ordering information

Product number	Product name
404013	CONSUMABLES KIT F/UPC-1040/1041
The kit includes:	
3 pcs electrodes	
1 pcs tool for electrodes	
3 pcs nozzles 1,2	
1 pcs spatter shield	
1 pcs drag shield	
1 pcs gauging nozzle	

NOZZLE 1.0 20-50A FOR UPC-1040/1041 5PCS

192 404007

Nozzle 1.0 20-50A for both UPC-1040 and UPC-1041. It contains 5pcs.

CURRENT DISTRIBUTION SYSTEM

The Unitor welding current distribution system is based on two components,
an inlet connection box at the location of the welding machine,
and outlet connection boxes at locations where welding is normally done.

Cables for welding current and remote control are installed between inlets and outlets.

The welding machine is located in the workshop and is connected to the inlet station in the distribution system when welding outside the workshop is required.

Electrode holder, return clamp and remote control is connected to the outlet station where welding is needed.

Bene ts

- Accidental falling/tripping due to loose cables along decks, in ladders etc. is avoided
- Accidental short circuiting somewhere along the often excessive lengths of live welding cables lying about is prevented
- The need for replacement of damaged lengths of welding cable is eliminated
- Manhandling of long welding cables, often more time consuming and strenuous than the actual welding job, is avoided
- Fire and gas proof doors can be kept shut
- Outlets in possible gas danger areas may be disconnected when not in use
- Permanently installed and correctly dimensioned cables ensure more ef cient use of power from welding machine
- Correct welding parameters are easily obtainable as all the remote control possibilities of the welding machine is available at the outlet

Technical data

Height	150 mm
Width	230 mm
Depth	230 mm

The inlet/outlets are made in stainless steel and are supplied with brackets for bulkhead mounting.

The hinged door is closed with a key.

The remote control socket is a 10 pole amphenol type with screw cover.

Between welding machine and inlet a remote control connection cable listed below is required.

At the outlet side a remote control adaptor, also listed below must be used.

Cables for welding current and remote control and cable glands for the boxes are to be selected by the installer.

The system comes for 400A or 800A welding current.

The 400A boxes uses standard Dix 70 contact, male on inlet station and female on the outlet.

The 800A boxes use special heavy duty Dix 120 contacts for welding current, allowing for up to 120mm2 welding cable

A red diode is placed between the welding terminals to warn when outlet is live.

Ordering information

Product Number	Product name
624320	INLET STATION WELDING CURRENT 400A
624338	OUTLET STATION WELDING CURRENT 400A
736728	INLET STATION WELDING CURRENT 800A
736736	OUTLET STATION WELDING CURRENT 800A
608760	REMOTE CONNECTION CABLE UWI-320/400
604157	REMOTECONTR. ADAPTER F/ UWI-320/400
632893	CABLE CONNECTOR DIX70 MALE-FEMALE
736744	CABLE CONNECTOR DIX120 MALE-FEMALE

AUTOVISION PLUS FRESH AIR WELDSHIELD WITH RESPIRATORY UNIT

196 767000

Head mounted face shield for protection of the welder's eyes and face against rays, heat and sparks during welding. Also prevents inhalation of welding fumes.

Features

- Air pump respiratory unit
- Automatic darkening lter glass
- Adjustable shade of darkness
- Darkening lter powered by solar panel (the light from the arc)
- Conforms to relevant standards: CE approved and conforms to EN 12941:2009.

Bene ts

- Gives user clean ltered air and prevents fume inhalation and accidents
- Protects welder from developing " arc eye". More accurate start location when welding is to commence
- Same face shield can be used for all arc welding processes and amperage settings
- No need for battery change or charging
- Provides safety and long lasting quality

This shield is the AutoVision Plus with respiratory unit. It gives the user clean, ltered air inside the helmet, and prevents inhalation of welding fumes. The air ow will keep the user fresh and let him concentrate on the work. The kit is CE approved and conforms to EN 12941-TH2P. The fan battery recharges in 2-4 hours and will provide up to 220 litres per minute for at least 8 hours.

Accessories

Product number	Product name
766997	AUTOVISION PLUS OUTSIDE COVER LENS
766998	AUTOVISION PLUS HEADBAND COMPLETE
766999	AUTOVISION PLUS FRESHAIR HEADGEAR
767002	AUTOVISION PLUS FRESHAIR FACE SEAL
767003	AUTOVISION PLUS FRESH AIR PARFILTER

AUTOVISION PLUS WELDING SHIELD

196 767001

Head mounted face shield for protection of the welder's eyes and face against rays, heat and sparks during welding

Features

- Automatic darkening lter glass
- Adjustable shade of darkness
- Darkening lter powered by solar panel (the light from the arc)
- Conforms to relevant standards: EN 175: 1997-08.

Bene ts

- Protects welder from developing " arc eye". More accurate start location when welding is to commence
- Same face shield can be used for all arc welding processes and amperage settings
- No need for battery change or charging
- Provide safety and long lasting quality

The basis is a lightweight well designed shield which allows good air ow for the welder, and a head band that allows unique possibilities for adjustment:

- Distance to face
- Angle in relation to face
- Height on head
- Head diameter
- Stay-up friction

Replaceable inside and outside protective lenses, headband and the sweatband for the headband is available as a spare. The shield is equipped with a light powered quick automatic darkening glass that switches from low shade (4) to selected shade within to selected dark state within 0,4 milliseconds (0,0004 sec). The low shade state allows for good vision while chipping slag, grinding and repositioning for next arc striking. Dark mode is adjusted with a knob at the side of the shield, from shade 9 to 13 which is from the lowest TIG welding settings (5-10A) to extreme processes at + 400A arc current.

Accessories

Product number	Product name
766997	AUTOVISION PLUS OUTSIDE COVER LENS
766998	AUTOVISION PLUS HEADBAND COMPLETE

FLIPVISION WELDING FACE SHIELD WITH HEADBAND AND SHADE 11 GLASS

196 709485

Head mounted face shield for protection of the welder's eyes and face against rays, heat and sparks during welding

The Flipvision face shield with head band tted with a ip-up front frame.

A clear safety glass is placed in the xed frame under the ip-up frame protecting the eyes when chipping slag.
The ip-up front frame is tted with a lter shade glass with shade selected according to welding current used.
The lter shade glass is protected against spatter by a clear protection glass tted in front of it.
Shade 11 glass is supplied as standard with the shield.

Proper protection is absolutely necessary to guard the welder against the danger of ultra-violet rays and bits of welding slag in the eye.

Unitor face shields for welding are made from a lightweight, robust plastic material which is unaffected by heat, cold or moisture, and both glasses and shields conform to relevant EN standards: CE approved and conforms to EN 175: 1997

Accessories

Product number	Product name	Amperage	Filter Shade	Quantity in Unit
633230	SHADE 8 GLASS. 5SET	< 20 A	8-9	5 sets
633248	SHADE 9 GLASS. 5SET	20–40 A	9-10	5 sets
633255	SHADE 10 GLASS. 5SET	40–80 A	10	5 sets
633263	SHADE 11 GLASS. 5SET	80–175 A	11	5 sets
633271	SHADE 12 GLASS. 5 SET	175–300 A	12	5 sets
633289	SHADE 13 GLASS. 5 SET	300–500 A	13	5 sets
633214	PROTECTION GLASS. 10PCS			10 pcs
633222	SAFETY GLASS. 10PCS			10 pcs
709493	HEADBAND FOR AUTOVISION+FLIPVISION			
709501	SWEAT BAND F/AUTOVISION+FLIPVISION			

SAFETY HELMET WITH FACE SHIELD AND SHADE 11 GLASS

196 619114

Safety helmet mounted face shield for protection of the welder's eyes and face against rays, heat and sparks during welding. The ip vision face shield is tted with safety helmet instead of head band.

Features

- Safety helmet
- Flip up frame
- Lightweight design
- Adjustable headband
- Conforms to relevant standards: CE approved and conforms to EN 175: 1997

Bene ts

- Protects welder from head injury
- Protects welder when chipping slag and when grinding
- Comfortable to use
- Fits all head sizes
- Provide safety and long lasting quality

A clear safety glass is placed in the xed frame under the ip-up frame protecting the eyes when chipping slag. The ip-up front frame is tted with a lter shade glass with shade selected according to welding current used. The lter shade glass is protected against spatter by a clear protection glass tted in front of it. Shade 11 glass is supplied as standard with the shield.

Proper protection is absolutely necessary to guard the welder against the danger of ultra-violet rays and bits of welding slag in the eye.

Unitor face shields for welding are made from a lightweight, robust plastic material which is unaffected by heat, cold or moisture, and both glasses and shields conform to relevant EN standards.

Accessories

Product number	Product name	Amperage	Filter Shade	Quantity in Unit
633230	SHADE 8 GLASS. 5SET	< 20 A	8-9	5 sets
633248	SHADE 9 GLASS. 5SET	20–40 A	9-10	5 sets
633255	SHADE 10 GLASS. 5SET	40–80 A	10	5 sets
633263	SHADE 11 GLASS. 5SET	80–175 A	11	5 sets
633271	SHADE 12 GLASS. 5 SET	175–300 A	12	5 sets
633289	SHADE 13 GLASS. 5 SET	300–500 A	13	5 sets
633214	PROTECTION GLASS. 10PCS			10 pcs
633222	SAFETY GLASS. 10PCS			10 pcs

FACE SHIELD WITH HANDLE AND FILTER SHADE 11 GLASS

196 619098

Hand held face shield for protection of welders eyes and face towards rays, heat and sparks during welding

Features

- Sturdy lightweight design
- Conforms to relevant stadards: CE approved and conforms to EN 175: 1997

Bene ts

- Comfortable to use
- Provides safety and long lasting quality

Proper protection is absolutely necessary to guard the welder against the danger of electric shocks, burns, ultra-violet rays and bits of welding slag in the eye.

Unitor face shields for welding are made from a lightweight, robust plastic material which is unaffected by heat, cold or moisture, and both glasses and shields conform to relevant EN standards.

The face shield with handle is supplied with shade 11 dark glass and clear protection glass as standard. It is designed to also protect the hand holding it from radiation.

Accessories

Product number	Product name	Amperage	Filter Shade	Quantity in Unit
633230	SHADE 8 GLASS. 5SET	< 20 A	8-9	5 sets
633248	SHADE 9 GLASS. 5SET	20–40 A	9-10	5 sets
633255	SHADE 10 GLASS. 5SET	40–80 A	10	5 sets
633263	SHADE 11 GLASS. 5SET	80–175 A	11	5 sets
633271	SHADE 12 GLASS. 5 SET	175–300 A	12	5 sets
633289	SHADE 13 GLASS. 5 SET	300–500 A	13	5 sets
633214	PROTECTION GLASS. 10PCS			10 pcs
633222	SAFETY GLASS. 10PCS			10 pcs

ARC WELDING GLASSES

Filter glasses for arc welding

The glasses have dimensions 60 x110 mm and are manufactured in accordance with DIN standard and are CE approved. When ordering face shields, lter shade glass of correct shade should be ordered in addition to the lter shade 11 glasses which is included. The lter glasses are supplied in sets consisting of 5 safety glasses, 5 protection glasses and 5 lter shade glasses.

Ordering information

Product number	Product name	Amperage	Filter Shade	Quantity in Unit
633230	SHADE 8 GLASS. 5SET	< 20 A	8-9	5 sets
633248	SHADE 9 GLASS. 5SET	20–40 A	9-10	5 sets
633255	SHADE 10 GLASS. 5SET	40–80 A	10	5 sets
633263	SHADE 11 GLASS. 5SET	80–175 A	11	5 sets
633271	SHADE 12 GLASS. 5 SET	175–300 A	12	5 sets
633289	SHADE 13 GLASS. 5 SET	300–500 A	13	5 sets
633214	PROTECTION GLASS. 10PCS			10 pcs
633222	SAFETY GLASS. 10PCS			10 pcs

Approvals

CE

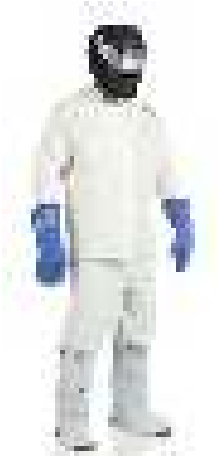
PROTECTIVE CLOTHING

A welder should bear in mind that proper protection is absolutely necessary to guard against the danger of electric shocks, burns, ultra-violet rays or bits of welding slag in the eye.

Made from specially treated leather, these protective garments are heat and moisture resistant.

They provide good protection during welding, especially when the welder has to work close to the work-piece, or where movement is limited.

It is especially important that a welding jacket is worn when welding in the overhead position, to protect the body and arms against falling sparks and slag.



Ordering information

Product number	Product name
632786	WELDERS GLOVES. 6 PAIRS
632794	TIG GLOVES. 6 PAIRS
633057	WORKING GLOVES. 12 PAIRS
510438	LEATHER JACKET LARGE
510446	LEATHER JACKET EX LARGE
633016	LEATHER TROUSERS W/BELT
184184	ARM PROTECTOR PAIR
510420	LEATHER APRON F/WELDING
510453	LEATHER SPATS. PAIR

WORK SITE PROTECTION

Welding Curtain with hooks

The purpose of the welding curtain is to avoid other personnel being harmed by the welding work taking place.
The curtain reduces light emission , but still enables one to see trough the curtain. It is made of self-extinguishing material.

The size of the curtain is 2 m high and 1,3 m wide. The top of the curtain has 7 holes and the curtain comes complete with 7 heavy-duty hooks. With the hooks the curtain can be put in a frame, or hooked up on an existing pipe or wire.
Maximum pipe diameter which the hooks will t on is 41 mm. In order for the curtain to be drawn freely the pipe should be less than 30 mm.
It is possible to join two or more curtains together by the use of snap on buttons along the side.
The curtain with hooks is supplied in a plastic bag.

Produced according to EN 1598: 2002-04.

Welding Spatter Blanket

Non-asbestos woven glass fabric with a re retardent weavelock, for protecting combustible materials and delicate machinery from spatter and spark during welding and cutting.
Available in a roll 1m x 10m. Nom. Thickness 0,82mm. Max operating temperature 550 °C.
The welding blanket is supplied in a carton box.

Produced according to EN-ISO 25980: 2012

Ordering information

Product number	Product name
633065	WELDING CURTAIN W/HOOKS
646067	WELDING SPATTER BLANKET 1 X10M

PLIER FOR WIRE WELDING, WELDERS CHALK, WELDING SPATTER SPRAY AND GALVANIZING SPRAY

Plier for use on all MIG/MAG wire torches

Six function tool includes nozzle and tip installation grips, wire cutters, nozzle cleaner, slag hammer and long nose pliers.
Fitted spring loaded, fully insulated handles
The multipurpose pliers provides means for spatter removal from the nozzle inside, tip and outside.
It has jaws for contact tip and nozzle removal and installation, and for cutting and pulling wire.
The multipurpose pliers provides means for spatter removal from the nozzle inside, tip and outside.
It has jaws for contact tip and nozzle removal and installation, and for cutting and pulling wire.

Welders chalk, at 5x13x127. 144 pcs/pack

Welders chalk is used to mark out positions when gas and plasma cutting on metals.

Galvanizing spray 400 ml in a box, 6 pcs

For touching up pipes where galvanizing has been burnt of during welding.

Anti Spatter spray

Anti spatter spray, 400 ml in a box, 6 pcs preventing welding spatter sticking to the adjecent welding seam.

Ordering information

Product Number	Product name	Unit
632968	WELDERS CHALK. FLAT	pcs
591990	MULTI-PURPOSE PLIER FOR WIRE TORCH	pcs
633156	GALVANIZING SPRAY. 6PCS	set
633149	ANTI SPATTER SPRAY. 6PCS	

CHIPPING HAMMERS, WIRE BRUSHES AND WELDING GAUGE

Chipping Hammers

The chipping hammers are used for the removal of slag after arc welding. The hammers are of robust construction and well balanced. They are available in steel or stainless steel.

For Stainless Steel

It is most important that stainless steel hammers are used for stainless steel, and not on black steel.
Black steel contamination can cause corrosion damage on stainless steel.

Wire Brushes

For the same purpose wire brushes are available in both steel and stainless steel quality.
The two row design provides easy access also in narrow T-joints to remove the last residues of slag.

Welding Gauge

The welding gauge type J is for measuring 60, 70, 80 and 90 degree groove angle for weld preparation.
After welding it is used to measure effective throat thickness up to 20mm in T-joints and reinforcements up to 10mm on at welds

Ordering information

Product Number	Product name	Unit
633008	CHIPPING HAMMER ST. 2PCS	pck
632992	CHIPPING HAMMER STAINLESS	pcs
632976	WIRE BRUSH STEEL. 6PCS	pck
632984	WIRE BRUSH STAINL. 6PCS	pck
516161	WELDING GAUGE TYPE J	pcs

MAGNAFLUX CRACK DETECTION KIT

096 653535

Magna ux crack detection kit comes in a convenient shoulder carrying bag.

It contains:
3 pcs cleaner spray cans,
2 pcs penetrant spray cans,
3 pcs developer spray cans, and 1pc cloth.

By using dye penetrant we can detect surface cracks not readily visible to the eye.

The dye penetrant kits consist of a cleaner to clean the surface for grease and oil,
a dye penetrant that penetrates down in cracks and porosity,
and a developer for showing the cracks.

It is an ef cient and easy to use inspection method.

Step 1)

Remove surface rust, scale, paint by mechanical means, spray cleaner to degrease the inspection area. Leave to dry.

Step 2) Spray penetrant over the area and allow to soak for about ten minutes.

Step 3) Remove all excess penetrant using a dry cloth and wipe dry.

Step 4) Spray developer evenly over the inspection area and wait a few minutes until the area dries white. Any surface defects will appear in red contrast.

INFORMATION ABOUT COATED STICK ELECTRODES

The Unitor standard electrode range contains electrodes for

- Mild and low alloy steels
- Cast steels
- Heat resistant steel
- Low temperature steel
- Weathering steel
- Stainless and acid-resistant steels
- Tool- and machine-part steels
- Cast iron
- Aluminium and aluminium alloys
- Copper and copper alloys
- Air-carbon-arc gouging
- Gouging with standard equipment

A product range selected for maritime Use:

High quality coupled with versatility is a basic factor for the selection of arc welding electrodes in the Unitor standard range. It is composed to cover all normally occurring applications onboard, yet to be as compact as possible. Each electrode therefore covers a wide range of applications. This reduces the number of electrode types needed on board.

With the best welding properties:

Special care has been taken to select electrodes with the best all-round welding properties. Easily welded electrodes are necessary to achieve good results without too stringet demands on the welder's skill. Welding onboard often requires awkward positions. The Unitor standard range has been composed with this in mind, whenever possible the electrodes' welding properties are equally good also in the vertical and under-up positions.

LMA properties

All electrode coatings are hygroscopic (they absorb moisture from the atmosphere). When welding the moisture turns into hydrogen in the arc that again ends up as hydrogen porosity in the weld deposit. Combined with other undesirable effects this can turn into hydrogen cracking also known as cold cracking in the weld. In order to extend the electrodes usable lifetime and safeguard against cold cracking, the Unitor electrodes for structural work have been given Low Moisture Absorption properties when manufactured. This greatly reduces the electrodes moisture absorption rate. Electrodes with LMA properties are marked "LMA electrodes".

Packed for maritime conditions:

The electrode box is made of high density polyethylene making it the right place for storing and protecting electrodes from moisture pickup, contamination and physical damage. The information label that is placed on the box gives all relevant information to how the electrodes are to be used. Label, cap and box are made out of the same recycled material and does not need to be separated when recycling.

With full instructions for use:

The label on each box fully identi es the contents, and also gives basic information on application areas. Complete information on each electrode, with instructions for use and application examples are given in the Unitor handbook for maritime welders

Ordering information

Classi cations and Approvals - Unalloyed, Low Alloyed and Stainless Steel:

Product Name	AWS	EN	DNV	GL	LR	BV	ABS
GPO-302 N	E 6013	E 38 0 RC 11	2	2	2	2	2
GPR-300 H	E 7024	E 42 0 RR 73	2	2Y	2Y	2	2
SPECIAL-303 N	E 7016	E 38 2B 32 H10	3YH10	3YH10	3YH15	3,3YH10	3H10,3Y
LH-314 N	E 7018	E 42 4 B 42 H5	3YH5	3YH5	3YH5	3YH5	3YH5
LHH-314 H	E 7028	E 42 4 B 73 H5	3YH5	3YH5	3 YH5	3YH5	3YH5

Product Name	AWS	EN	DNV	GL	LR	BV	ABS
LHV-316 N	E 8018-G	E 46 5 B 41 H5	3YH10	4YH10	4Y40H10	3YH10	3Y
LHT-318 N	E 8018-B2	E CrMo 1B 42 H5	-H10	-	-	UP	SR
LHL-319 N	E 8018-C1	E 46 6 2Ni B 32 H5	5YH5	6Y46H5	5Y42H5	1%Cr0.5Mo,H5	3Y400H5
LHR-320 N	E 8018-G	E 46 5 Z B 32	3YH10	3YH15	3YH15	3YH10	3YH5
18/8-321 N	E 316L-17	E 19 12 3 L R 1 2	316L	4571	316L	316L	E316L-17
23/14-322 N	E 309MoL-17	E 23 12 2 L R 3 2	309Mo	4459	SS/CMn	309Mo	SS/CMn
DUPLEX-325 N	E 2209-17	E 22 9 3 N L R 3 2	Duplex	4462	-	2209	DUPLEX

UNITOR RANGE OF MAINTENANCE ELECTRODES

The Unitor standard electrode range includes electrodes for

- Mild and low alloy steels
- Cast steels
- Heat resistant steel
- Low temperature steel
- Weathering steel
- Stainless and acid-resistant steels
- Tool- and machine-part steels
- Cast iron
- Aluminium and aluminium alloys
- Copper and copper alloys
- Air-carbon-arc gouging
- Gouging with standard equipment

A product range selected for maritime Use:

High quality coupled with versatility is a basic factor for the selection of arc welding electrodes in the Unitor standard range. It is composed to cover all normally occurring applications onboard, yet to be as compact as possible. Each electrode therefore covers a wide range of applications. This reduces the number of electrode types needed on board.

With the best welding properties:

Special care has been taken to select electrodes with the best all-round welding properties. Easily welded electrodes are necessary to achieve good results without too stringet demands on the welder's skill. Welding onboard often requires awkward positions. The Unitor standard range has been composed with this in mind, whenever possible the electrodes' welding properties are equally good also in the vertical and under-up positions.

LMA properties

All electrode coatings are hygroscopic (they absorb moisture from the atmosphere). When welding the moisture turns into hydrogen in the arc that again ends up as hydrogen porosity in the weld deposit. Combined with other undesirable effects this can turn into hydrogen cracking also known as cold cracking in the weld. In order to extend the electrodes usable lifetime and safeguard against cold cracking, the Unitor electrodes for structural work have been given Low Moisture Absorption properties when manufactured. This greatly reduces the electrodes moisture absorption rate. Electrodes with LMA properties are marked "LMA electrodes".

Packed for maritime conditions:

The electrode box is made of high density polyethylene making it the right place for storing and protecting electrodes from moisture pickup, contamination and physical damage. The information label that is placed on the box gives all relevant information to how the electrodes are to be used. Label, cap and box are made out of the same recycled material and does not need to be separated when recycling.

With full instructions for use:

The label on each box fully identi es the contents, and also gives basic information on application areas. Complete information on each electrode, with instructions for use and application examples are given in the Unitor handbook for maritime welders

For Stainless steel materials:

Pickling gel, product number 661778 should be used

Ordering information

Product Number	Product name	Diameter	Application onboard
699165	GPO-302N 2.5X350MM 295 PCS 5,2KG	2,5	Unalloyed steel. General applications. Easy to weld, all positions including vertical down.
699173	GPO-302N 3.2X350MM 190 PCS 5.4 KG	3,2	Unalloyed steel. General applications. Easy to weld, all positions including vertical down.

Product Number	Product name	Diameter	Application onboard
699181	GPO-302N 4.0X350MM 120 PCS 5.2 KG	4,0	Unalloyed steel. General applications. Easy to weld, all positions including vertical down.
699231	GPR-300H 3.2X450MM 85 PCS 5.8 KG	3,2	Unalloyed steel. Large welds in at position.
699249	GPR-300H 4.0X450MM 51 PCS 5.5 KG	4,0	Unalloyed steel. Large welds in flat position.
699256	GPR-300H 5.0X450MM 35 PCS 5.6 KG	5,0	Unalloyed steel. Large welds in at position.
699260	GPR-300H 6.0X450MM 23 PCS 5,3KG	6,0	Unalloyed steel. Large welds in flat position.
699199	SPECIAL-303N 2.0X350MM 115PCS 1,7KG	2,0	Unalloyed & Low alloyed Steel. Thin plate material. General applications. Double coated electrode, easy to weld.
699207	SPECIAL-303N 2.5X350MM 200PCS 4,1KG	2,5	Unalloyed & Low alloyed Steel. Thin plate material. General applications. Double coated electrode, easy to weld.
699215	SPECIAL-303N 3.2X350MM 120PCS 4,1KG	3,2	Unalloyed & Low alloyed Steel. Thin plate material. General applications. Double coated electrode, easy to weld.
699223	SPECIAL-303N 4.0X450MM 75 PCS 5,2KG	4,0	Unalloyed & Low alloyed Steel. Thin plate material. General applications. Double coated electrode, easy to weld.
699264	LH-314N 2.5X350MM 161 PCS 4.0 KG	2,5	Unalloyed & Low alloyed Steel. General applications.
699272	LH-314N 3.2X450MM96 PCS 5KG	3,2	Unalloyed & Low alloyed Steel. General applications.
699280	LH-314N 4.0X450MM 78 PCS 5.6 KG	4,0	Unalloyed & Low alloyed Steel. General applications.
699298	LHH-314H 4.0X450MM 54 PCS 5.5 KG	4,0	Unalloyed & Low alloyed Steel. Large welds in flat position
699306	LHH-314H 5.0X450MM 36 PCS 5.5 KG	5,0	Unalloyed & Low alloyed Steel. Large welds in at position
699314	LHV-316N 3.2X350MM 137 PCS 4,8 KG	3,2	Unalloyed & Low alloyed Steel. Specially suitable for vertical down welding.
699322	LHV-316N 4.0X350MM 99 PCS 5.0 KG	4,0	Unalloyed & Low alloyed Steel. Specially suitable for vertical down welding
699330	LHT-318N 2.5X350MM 75 PCS 1.7 KG	2,5	High temp. steel Boiler plates and pipes up to 550 dgr.C. Up tp 1% Cr, 0,5% Mo.
699348	LHT-318N 3.2X350MM 48 PCS 1.7 KG	3,2	High temp. steel Boiler plates and pipes up to 550 dgr.C. Up tp 1% Cr, 0,5% Mo.
683631	LHL-319N 2.5X350MM 78 PCS 1.8 KG	2,5	Low temp.steel Ice Class hull plates. Up to 2,7%Ni
683649	LHL-319N 3.2X350MM 48 PCS 1.8 KG	3,2	Low temp.steel Ice Class hull plates. Up to 2,7%Ni
683656	LHR-320 N 2.5X350MM 88 PCS 1.7 KG	2,5	Weather resistant steel Corrosion resistant to sea-water and flue gases.
699389	LHR-320N 3.2X350MM 48 PCS 1.8 KG	3,2	Weather resistant steel Corrosion resistant to sea-water and ue gases.
699397	18/8-321N 1.6X300MM 213 PCS 1,7 KG	1,6	Stainless steel AISI 304/316 L. Tanks, piping, pumps and valves.
699405	18/8-321N 2.5X300MM 89 PCS 1.7 KG	2,5	Stainless steel AISI 304/316 L. Tanks, piping, pumps and valves.

Product Number	Product name	Diameter	Application onboard
699413	18/8-321N 3.2X300MM 54 PCS 1.7 KG	3,2	Stainless steel AISI 304/316 L. Tanks, piping, pumps and valves.
699421	23/14-322N 2.5X300MM 84 PCS 1.7 KG	2,5	Stainless steel AISI 309. Joining stainless to steel. Compound steel. Stainless steel overlays.
699439	23/14-322N 3.2X350MM 50 PCS 2.0 KG	3,2	Stainless steel AISI 309. Joining stainless to steel. Compound steel. Stainless steel overlays.
699447	23/14-322N 4.0X350MM 35 PCS 2.0 KG	4,0	Stainless steel AISI 309. Joining stainless to steel. Compound steel. Stainless steel overlays.
699454	DUPLEX-325N 2.5X300MM 91 PCS 1.7 KG	2,5	Duplex steel. Joining of duplex to stainless and steel.
699462	DUPLEX-325N 3.2X350MM 55 PCS 2.0 KG	3,2	Duplex steel. Joining of duplex to stainless and steel.
699470	TENSILE-328N 2.5X300MM 79PCS 1.6 KG	2,5	Difficult to weld steel Spring steel, vanadium steel, tool steel, high carbon steel.
699488	TENSILE-328N 3.2X350MM 50PCS 2.0 KG	3,2	Dif cult to weld steel Spring steel, vanadium steel, tool steel, high carbon steel
699512	NIFE-334N 3.2X350MM 68 PCS 2.2 KG	3,2	Cast Iron. High strength. Many layers. Joining cast iron to steel.
699520	NIFE-334N 4.0X350MM 51 PCS 2.4 KG	4,0	Cast Iron. High strength. Many layers. Joining cast iron to steel.
699496	NICKEL-333N 2.5X300MM 121PCS 2.0 KG	2,5	Oily cast iron. Tolerant to high Carbon content.
699504	NICKEL-333N 3.2X350 68 PCS 2.2 KG	3,2	Oily cast iron. Tolerant to high Carbon content.
606458	TINBRO-341 3.2 X 350 MM 42PCS 1.4KG	3,2	Copper alloys Bronze and brass. Joining copper alloys to steel.
606457	ALBRONZE-344 3.2X350MM 46PCS 1.3 KG	3,2	Bronze an brass. Joining copper alloys to steel.
699538	ALUMIN-351N 3.2X350MM 71 PCS 1.1 KG	3,2	Aluminium Rolled, deawn and castings.
606454	WEARMAX-327 2.5 X 350MM 49PCS 1,6KG	2,5	Hard surfacing. Wear resistant overlays. Winchwheel pockets, cable drums.
606455	WEARMAX-327 3.2 X 350MM 68PCS 3,5KG	3,2	Hard surfacing. Wear resistant overlays. Winchwheel pockets, cable drums.
606456	WEARMAX-327 4.0 X 350MM 42PCS 3,4KG	4,0	Hard surfacing. Wear resistant overlays. Winchwheel pockets, cable drums.
606460	IMPACT-329S 3.2 X 350MM 39PCS 1.4KG	3,2	Hard surfacing. High temp. Wear resistant overlays. Exhaust valves.
606459	CH2-382 3.2 X 350MM 36 PCS 1.4 KG	3,2	Chamfering/Gauging Using standard equipment.
758474	ACA-384 6.3X305MM 50 PCS 0.8 KG	6,3	Chamfering7Gauging. Air carbon arc gouging. Gouging and weld removal using compressed air.
758466	ACA-384 8.0X305MM 50 PCS 1.3 KG	8,0	Chamfering7Gauging. Air carbon arc gouging. Gouging and weld removal using compressed air.
758458	ACA-384 15X5X305MM 50 PCS 2.1 KG	15x5	Chamfering7Gauging. Air carbon arc gouging. Gouging and weld removal using compressed air.

PICKLING GEL 2 LITRE FOR STAINLESS STEEL

095 661778

Pickling gel for removal discoloration and passivation of surface after welding.

Features

- HD polyethylene container together with brush
- In gel state

Bene ts

- Safe handling and ready to use
- Product will stick in vertical and overhead positions

Technical Information

Weight	2.5 kg

Unitor pickling gel is used to remove oxides and discoloration on stainless steel welds and surrounding surfaces. Apply with a brush, leave the gel to work for 50 minutes. Remove with water.

HEATING CABINET-85 FOR UP TO 350KG WELDING ELECTRODES

094 637850

The cabinet is designed as a ship's store for welding electrodes, with ve shelves slanted down towards the back to prevent the content from sliding out when door is opened in heavy seas. The shelves are removable.

Technical data

Height	1095 mm
Width	564 mm
Depth	640 mm
Weight	70 kg
Adjustable temprature	from 30 °C to 85 °C

Insulation: 100mm mineral wool in the bottom and 50mm in the top and side walls.
Heating element 230V 1 phase 50/60Hz 500W

Spare heating cassette complete with adjustment: product number 777853

MINIDRYER- 350 CAPACITY 8KG ELECTRODES

094 637827

The Minidryer-350 is designed to restore moist electrodes and to pre-dry electrodes before welding. It takes up to 8kg electrodes with 450mm length. and with lid in open position, the electrodes will protrude 40mm for easy access. The combined handle and support at work site provides support in a tilted position. In this position the lid will automatically close and prevent the intrusion of moist air. A rim around the opening prevents rainwater from entering.

Technical data

Height	570 mm
Width	170 mm
Depth	170 mm
Weight	7 kg
Power cable	2m with plug
Insulation	40 mm mineral wool

Adjustable temperature from 100 °C to 350 °C.
Heating element 230V 1 phase 50/60Hz 400W

ELECTRODE CABINET COMPACT WITH SELECTED ELECTRODES

094 670001

Bulkhead cabinet for arc welding electrodes, including welding electrodes

Also available empty, product number 669999

Features

- Compact design with easy access to contents and separate room for the welding handbook
- Sturdy, corrosion resistant construction from electrogalvanized steel plates, with nal coating by powder spraying and baking.
- Shelf insert for six half packages and three full packages of electrodes.
- Separate room for the welding handbook
- Label for correct position of electrode packages

Bene ts

- Full overview of a versatile ministore of electrodes for most applications ensures correct update of the content.
- The high degree of resistance against scratches and corrosion makes the cabinet well suited for maritime conditions and use in a workshop environment.
- The easily available handbook provides detailed instructions for use on all the materials covered by the content.

Technical data

Height	550mm
Height open	685mm
Width	350mm
Depth	165mm
Weight	8kg
Weight with electrodes	33kg

Product information

The «mini» electrode storing cabinet is designed to contain a limited number of electrode packages, but still covering all normally occuring welding repairs on board

- GPO-302N in 2,5 and 3,2mm size for all mild steel repairs
- LH-314N 2,5mm for ship quality steel repairs on hull and deck plates being part of the structual strength of the ship as well as cast steel components.
- 18/8-321N 2,5mm for stainless steel.
- TENSILE-328N 2,5mm for «problem steels" like spring steel, chrome-nickel steels, tool steels and other steels that are dif cult to weld.
- NICKEL-333N 2,5mm and NIFE-334N 3,2mm in combination is often required for cast iron repairs.
- ALUMIN-355N 3,2mm for seawater resistant aluminium.
- ALBRONZE-344N for bronze alloys and for joining these to steel and cast iron.

The range is selected for covering the widest range of applications with maximum 150A welding current and is a good standard selection of electrodes for the welding machine UWI-150TP

ELECTRODE CABINET SMALL EMPTY

094 669999

Bulkhead cabinet for arc welding electrodes

Features

- Compact design with easy access to contents and separate room for the welding handbook
- Sturdy, corrosion resistant construction from electrogalvanized steel plates, with nal coating by powder spraying and baking.
- Stainless steel shelf for six half packages and three full packages of electrodes.
- Separate room for the welding handbook
- Label for correct position of electrode packages

Bene ts

- Full overview of the electrodes.
- The high degree of resistance against scratches and corrosion makes the cabinet well suited for maritime conditions and use in a workshop environment.

Technical data

Height	550mm
Height open	685mm
Width	350mm
Depth	165mm
Weight	8kg

The «mini» electrode storing cabinet is designed to contain a limited number of electrode packages, but still covering all normally occuring welding repairs on board. Arecommended selection is the following:

•GPO-302N in 2,5 and 3,2mm size for all mild steel repairs •LH-314N 2,5mm for ship quality steel repairs on hull and deck plates being part of the structual strength of the ship as well as cast steel components. * 18/8-321N 2,5mm for stainless steel. * TENSILE-328N 2,5mm for «problem steels" like spring steel, chrome-nickel steels, tool steels and other steels that are dif cult to weld. * NICKEL-333N 2,5mm and NIFE-334N 3,2mm in combination is often required for cast iron repairs. * ALUMIN-355N 3,2mm for seawater resistant aluminium. * ALBRONZE-344N for bronze alloys and for joining these to steel and cast iron. The range is selected for covering the widest range of applications with maximum 150A welding current and is a good standard selection of electrodes for the welding machine UWI-150TP

The cabinet is also available with electrodes and welding handbook included, product number 670001

ELECTRODE CABINET COMPLETE WITH 27 PCKS ELECTRODES

094 670000

Complete storing cabinet including 27 packages of electrodes.

Also available empty, product number 669994

Features

- Compact design
- Sturdy and corrosion resistant
- Broad range of electrodes and sizes

Bene ts

- Easy overview and access to content
- Long lasting with no maintenance
- Able to provide electrodes for all normal repair applications onboard

A complete 'mini-store' for covered electrodes, including 27 packages of electrodes selected to cover all normally occurring welding applications on mild steels, ship quality steel, stainless steels, 'problem steels', cast iron, copper alloys and aluminium.

- Compact design with easy access to contents and separate room for the welding handbook
- Sturdy, corrosion resistant construction from elecktro-galvanized steel plates, with nal coating by powder spraying and baking, and zinc/yellow-chromate passivated shelves for optimal corrosion and scratch resistance

Dimensions H x W x D: 600 x 600 x 300mm

Necessary free distance above cabinet 310 mm

Weight with electrodes: 111 kg
Weight empty: 37,5 kg

Ordering information

Name	Size (mm)	Qty	Kg	Description
GPO-302 N	2.5	1	5.2	General mild steel repairs, all positions
GPO-302 N	3.2	2	10.8	General mild steel repairs, all positions
GPO-302 N	4.0	1	5.2	General mild steel repairs, all positions
GPR-300 H	4.0	1	5.5	General mild steel repairs, horizontal, high recovery
GPR-300 H	5.0	1	5.6	General mild steel repairs, horizontal, high recovery
SPECIAL-303N	2.0	1	1.7	Ship quality steel and cast steel
SPECIAL-303 N	2.5	1	4.1	Ship quality steel and cast steel
SPECIAL-303 N	3.2	2	8.2	Ship quality steel and cast steel
SPECIAL-303 N	4.0	1	5.2	Ship quality steel and cast steel
LHH-314 H	5.0	1	5.5	Ship quality steel, horizontal, high recovery
LHV-316 N	3.2	1	4.8	Ship quality steel, vertical down welding
LHT-318 N	2.5	1	1.7	Heat resistant steel
LHT-318 N	3.2	1	1.7	Heat resistant steel
LHL-319 N	3.2	1	1.8	Low temperature steel

Name	Size (mm)	Qty	Kg	Description
LHR-320 N	3.2	1	1.8	Weathering resistant steel
18/8-321 N	2.5	1	1.7	Stainless steel, stainless to mild steel, compound steel
18/8-321 N	3.2	1	1.7	Stainless steel, stainless to mild steel, compound steel
23/14-322 N	3.2	1	2.0	Stainless steel, stainless to mild steel, compound steel
TENSILE-328 N	2.5	1	1.6	Problem steels
NICKEL-333 N	2.5	1	2.0	Cast iron
NICKEL-333 N	3.2	1	2.2	Cast iron
ALUMIN-351 N	3.2	1	1.1	Aluminium
ALBRONZE-344	3.2	1	1.3	Bronze & brass
WEARMAX-327	2.5	1	1.6	Hardfacing
CH-2-382	3.2	1	1.4	Cutting & gouging

ELECTRODE CABINET EMPTY FOR 27 PCS ELECTRODE PACKAGES

094 669994

Empty storing cabinet for electrodes.

Features

- Compact design
- Sturdy and corrosion resistant
- Large storing capacity

Bene ts

- Easy overview and access to content
- Long lasting with no maintenance
- Opportunity to customise content to the ship's need

Technical Information

Dimensions	600H x 600W x 300D mm
Weight	37,5 kg

Electrode cabinet empty with room for 27 electrode boxes and the unitor handbook for maritime welders.

NB! Necessary free distance above cabinet 310mm.

WIRES FOR WIRE WELDING

Unitor standard range of welding wires for gas metal arc welding (GMAW) and ux cored arc welding (FCAW) is supplied on 200mm diameter spools, 51 mm width, shaft diameter 50 mm. The spools are packed in individually sealed plastic bags and cardboard cartons and labelled with information fully identifying the wire with technical data and classi cations. The labels also provide basic information on use.

Ordering information

Product Number	Product name	Description
Welding rods		
590117	GPS-W 200 0,8MM WELD. WIRE 5,0KG	Copper coated wire for welding unalloyed and low alloyed structural steel. It can be used for welding sheets in thin as well as larger thicknesses. Stable arc and little spatter. Clean all rust, scale and old paint from the area. Use 80/20% Ar/CO2 or pure CO2 shielding gas.
160100	MS-W-201 SELFSHIELDWIRE 0,8MM 4.5KG	Flux-cored self-shielded electrode wire for welding of mild steel where superior weld metal mechanical properties are required. Welds on all positions including vertical up and down. Good arc action and low spatter for excellent operator appeal. Easily removable slag.
750187	CORESHIELD8 SELFSHIELD 1,6MM 11,4KG	General Purpose Self-Shielded Electrode wire for all position welding of mild steel and ships steel from 5mm thickness. High deposition rate, up to 3,7 kg/h makes it excellent for larger steel repairs. Spool weight 11,3kg
597518	S316M-GF,221,0.9MM WELD. WIRE 2.5KG	A rutile flux cored wire designed for welding 19% Cr, 12% Ni, 3% Mo types of stainless steel, and related stabilized steel grades if service temperature is below 400 degr.C. A very stable, spatter free arc produces a bright, smooth weld surface. The slag is self-releasing. As shielding gas use preferably 80% Ar 20% CO2.
309000	S-309M GF-222 0,9MM WELD. WIRE 5KG	Rutile ux cored wire designed for welding of clad steel, stainless steel to mild steel and corrosion resistant overlays on mild steel. Also for stainless steel with up to 23% Cr, 13% Ni and 2.3% Mo. Best result with 80%/20% Ar/CO2 shielding gas.
592015	ICUNI-W 239 0,8MM WELD. WIRE 5,0KG	Wire for welding copper-nickel alloys (cunifer) in wrought or cast form, containing up to 30% Nickel, and for joining these to steel, stainless steel, cast iron, bronze or brass. It may also be used to provide corrosion resistant overlays on cast iron and mild steel. Use pure Argon as shielding gas.
777972	IALBRO-W 237 0,8MM WELD. WIRE 5,0KG	Suited for welding most bronze/brass alloys, including aluminum bronzes like Yorcalbro, in wrought as well as cast forms. It is also suited for rebuilding or joining materials to steel or cast iron, and for wear or corrosion resistant overlays on steel and cast iron. Use pure Argon as shielding gas.
590083	ALUMAG-W 235 1,0MM 2,0KG	A magnesium alloyed wire for welding all common wrought and cast aluminium alloys, e.g. AlMg, AlMgMn, AlMgSi and AlMg(Cu) alloys. It is specially suited for welds which must be resistant to seawater and high tension, and also where high ductility is required. Use pure Argon as shielding gas.

RODS AND FLUXES FOR TIG WELDING

In tungsten insert gas welding (TIG), an arc is struck between a tungsten electrode and the workpiece. An inert gas ow (argon) protects the electrode and pool from the surrounding air. The electrodes do not melt. The ller metal is inserted into the molten pool in the form of a seperate rod. The process has a similar welding technique as gas welding but uses electricity as the energy source.
The label on each container gives rod data and basic information on application areas and use.

Ordering information

Product Number	Product name	Description
Welding rods		
604850	IMS-210 2.0 X 500 MM 1,5KG	Unitor IMS is a welding rod for unalloyed and low alloyed steels. 2 .0 mm Rods with diameter are most used for TIG welding.
305532	ICROMO-216 2.5 X 500 MM 1,0KG	Icromo is a chromium-molybdenum alloyed welding rod for heat resistant steels types 10 Cr Mo-910 and 13 Mo-44 found in boiler tubes and other heat resistant components. Gas or tensile strength 560 Mpa.
602979	18/8MO-221 2.0 X 500 MM 0,5KG	A wire for welding stainless and acid resistant steel. The silisium content ensures smooth transfer and good pro le of the bead.. When welding very thin sheets and pipes (less than 2mm) it is always an advantage to use the TIG process. TIG is also an advantage for the root bead when welding thicker sheets with prepared V-grooves.
725309	IDUPLEX-222 2.0 X 500 MM 0,5KG	Iduplex-222 is a TIG rod for welding Duplex stainless steel, Duplex to Mild steel and Duplex to Stainless steel. The deposit offers elevated mechanical strength and toughness resistance to stress corrosion cracking. It is an advantage to use TIG welding in thin sheets and pipe walls. Can also be used for welding the root run in thick wall piping where the rest of the groove is filled up using the duplex electrode Duplex-325 N.
335547	ICUNI-30 239 2.5 X 500 MM 2,0KG	A welding rod for TIG welding of copper nickel alloys, for example Cunifer pipes. No ux is used in this process. Typical applications are welding anges on pipes, pipe joints, patching leaking pipes etc. Joint surfaces and adjacent areas must be thoroughly cleaned before welding. Small diameter Cunifer pipes can be joined by means of overlap joints (capillary action) using AG-60 silver solder combined with AG-60 Flux.
519736	IALBRO-237 MF 2.4 X 500MM 1,4KG	IALBRO is a flux-coated filler rod for TIG welding of aluminium- brass pipes (Yorcalbro). This type of alloy is widely used in seawater resistant piping. In TIG welding of joints it is strongly recommended that I-Flux 238 be applied to both sides of the joint on the inside. Yorcalbro pipes with a diameter less than 4" which can be joined by means of an overlap joint (capillary action) may be silver brazed using AG-60 combined with Albro Flux.
603092	I-FLUX 238PF. 250G	Unitor ux in paste form for use with the TIG rod Ialbro-237 MF as supplement to the ux on the rod. The ux on the rod is suf cient for the actual welding zone, but additional is recommended on both sides of the joint, especially on the inside of e.g. pipes. Flux residues must be washed off with water after welding.

COLD REPAIR POLYMER COMPOUNDS

Unitor metalgrade and ceramigrade products are a range of cold curing metal repair and rebuilding materials based on the latest polymer resin technology which is the result of many years of development.

Unitor rubbergrade products are cold-vulcanising elastomeric repair materials for use on rubber as well as metal components.

The products are compatible with all ferrous and non-ferrous metals as well as most plastics, and have in many cases proven themselves as permanent repairs.

They have excellent chemical resistance and are suitable for permanent immersion in many environments including seawater, hydrocarbons, oils and a very wide range of chemical solutions.

The basic range of products is selected in order to provide a versatile program for on-board applications.
The application areas complement and extend the various welding and related thermal processes already in use, providing an even more complete repair system than previously.

Features

The complete polymer repair system KIT ALFA is available in a handy kit for easy storage and transport. Each product set has its speci ed place in the kit, and the individual products may be re lled as needed.

The unitor cold repair system covers emergency repairs as well as permanent repairs on pipes, all types of mechanical equipment and machine components onboard, including non-weldable materials.

Unitor's metalgrade, aquagrade and ceramigrade products are a range of cold-curing metal repair and rebuilding materials based on the latest polymer resin technology which is the result of many years of development.

Unitor's rubbergrade products are cold-vulcanising elastomeric repair materials for use on rubber as well as metal components.

The products are compatible with all ferrous and non-ferrous metals as well as most plastics, and have proven themselves as permanent repairs. They have excellent chemical resistance and are suitable for permanent immersion in many environments including sea water,

hydrocarbons, oils and a very wide range of chemical solutions.

The basic range of products is selected in order to provide a versatile program for onboard applications. The application areas complement and extend the various welding and related thermal processes already in use, providing an even more complete repair system.

All necessary application equipment technical data sheets and health & safety data sheets are included.

Supplied with:

- 1 set Leak-stop II
- 1 set Aquagrade rebuild
- 1 set Metalgrade ready-stick
- 1 set Ceramigrade rebuild
- 1 set Metalgrade express
- 1 set Ceramigrade liner
- 1 set Metalgrade rebuild
- 1 set Rubbergrade 6 rebuild
- 1 set Metalgrade hi-temp
- 1 set Rubbergrade 6 remould

Ordering information

Product Number	Product name	Description
659300	POLYMER KIT-ALFA	The complete polymer repair system KIT ALFA is available in a handy kit for easy storage and transport. Each product set has its specified place in the kit, and the individual products may be re lled as needed.curing polymer kit for emergency repairs.
630384	LEAK-STOP PIPE REPAIR I	A special bandage impregnated with a resin system which is activated by immersion in water. Ideal for repairs to leaking pipes, simply immerse in water then wrap around the leak. The Metalgrade Ready Stick be used to plug the actual hole before putting on the tape.
606006	LEAK-STOP PIPE REPAIR II	A special bandage impregnated with a resin system which is activated by immersion in water. Ideal for repairs to leaking pipes, simply immerse in water then wrap around the leak. The Metalgrade Ready Stick be used to plug the actual hole before putting on the tape.
630392	LEAK-STOP PIPE REPAIR III	A special bandage impregnated with a resin system which is activated by immersion in water. Ideal for repairs to leaking pipes, simply immerse in water then wrap around the leak. The Metalgrade Ready Stick can be used to plug the actual hole before putting on the tape.
659227	METALGRADE READY-STICK	Base and activator in two separate sticks. Cut off the needed length and knead the two parts together until streak free. Use for sealing of leaks in pipes, tanks, ducts etc. Can be used together with Leak Stop to plug the hole before wrapping the tape. Set of 3 pairs of sticks giving: 0,72 kg Repair Compound
659235	METALGRADE EXPRESS	A two component extremely fast cold-curing metal repair compound supplied in Base and Activator containers. Used wherever there is an emergency and urgent need to get equipment back into action. Base & Activator giving: 0,25 l Rapid Repair Compound.
659243	METALGRADE REBUILD	A two component normal cold-curing engineering repair compound. A good machineable product with high mechanical properties and good heat resistance. Base & Activator giving: 0,50 l Engineering Repair Compound.
663427	METAL GRADE HI - TEMP	A ceramic and stainless- lled one part water based paste. It is temperature resistant up to 1093 degr. C (2000 degr.F). It is used to seal joints, defects, cracks and voids in cast iron, steel and stainless steel
659250	AQUAGRADE REBUILD	A two component engineering repair compound.The product can be applied mixed and will cure under water. Preferably mix above water. Base & Activator giving: 0,5 l Engineering Repair Compound.
659268	CERAMIGRADE REBUILD	A two component ceramic cold-curing compound with excellent resistance to cavitation and erosion found in uid ow environments. Used for rebuilding heavy wear on pumps, impellers, valves etc. Base & Activator giving: 0,5 l Engineering Repair Compound.

Product Number	Product name	Description
659276	CERAMIGRADE LINER	A two component ceramic cold curing fluid that is used as a liner in order to prevent cavitation and erosion found in fluid flow environments. Base & Activator giving: 0,5 l Engineering Repair Fluid.
659284	RUBBERGRADE 6 REBUILD	A two component cold-curing vulcanising repair compound. Provides a strong long term repair on rubber items or on metallic surfaces. For repairs of hoses, gaskets, electric cables etc. Set of 3 x 0,143 l Engineering Repair Compound
659292	RUBBERGRADE 6 REMOULD	A two component cold-curing vulcanising repair fluid that can be moulded or painted on to rubber or metallic surfaces. Set 3 x 0,143 l Engineering Repair Fluid.

POLYMER KIT

Complete basic cold curing polymer kit for emergency repairs.

Features

- Each product has its speci ed place
- Compact design
- Broad range of different products

Bene ts

- Easy overview and access to content
- Requires little space
- Able to provide cold curing polymer products for all normal repair applications onboard

The complete polymer repair system KIT ALFA is available in a handy kit for easy storage and transport. Each product set has its speci ed place in the kit, and the individual products may be re lled as needed.

The unitor cold repair system covers emergency repairs as well as permanent repairs on pipes, all types of mechanical equipment and machine components onboard, including non-weldable materials.

Unitor's metalgrade, aquagrade and ceramigrade products are a range of cold-curing metal repair and rebuilding materials based on the latest polymer resin technology which is the result of many years of development.

Unitor's rubbergrade products are cold-vulcanising elastomeric repair materials for use on rubber as well as metal components.

The products are compatible with all ferrous and non-ferrous metals as well as most plastics, and have proven themselves as permanent repairs. They have excellent chemical resistance and are suitable for permanent immersion in many environments including sea water, hydrocarbons, oils and a very wide range of chemical solutions.

The basic range of products is selected in order to provide a versatile program for onboard applications. The application areas complement and extend the various welding and related thermal processes already in use, providing an even more complete repair system.

All necessary application equipment technical data sheets and health & safety data sheets are included.

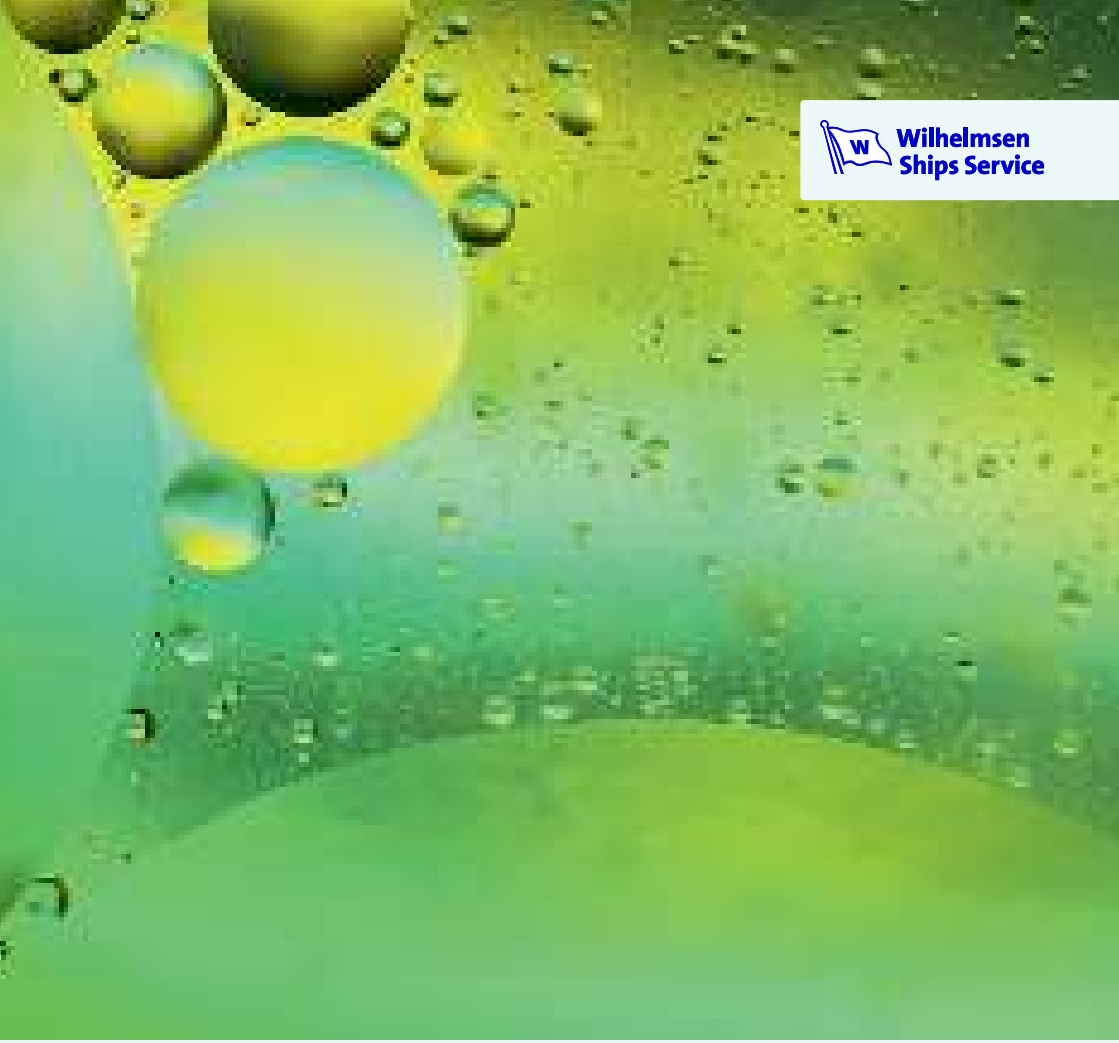
Supplied with:

- 1 set Leak-stop II
- 1 set Aquagrade rebuild
- 1 set Metalgrade ready-stick
- 1 set Ceramigrade rebuild
- 1 set Metalgrade express
- 1 set Ceramigrade liner
- 1 set Metalgrade rebuild
- 1 set Rubbergrade 6 rebuild
- 1 set Metalgrade hi-temp
- 1 set Rubbergrade 6 remould

WELDING HANDBOOK 14TH EDITION

089 805001

The Unitor Maritime Welding Handbook (14th edition) describing welding and related processes for repair and maintenance onboard.



Wilhelmsen Ships Service

MARINE CHEMICALS

Each and every drop of our innovative, industry leading marine chemicals are manufactured to ISO 9001 and ISO 14001 standards.

SLIP-COAT 25 L

659 737015

Slip-Coat is a water based liquid product specially formulated to leave a thin, temporary lm on cargo hold surfaces. The lm provides a barrier between the cargo and the cargo hold surfaces making the cleaning operation after unloading quicker and easier, and optimal cleaning result is achieved. Slip-Coat is safe to the environment and to the personnel handling it, and will not contaminant the cargo. It is non-corrosive and safe on all coatings.

Features

- Water soluble cargo hold barrier – easily removable with water
- Saves cleaning time and cleaning chemicals
- Ideal when cleaning after coal, pet coke and other dif cult cargoes
- Completely safe on all coatings
- Prevents even the most dif cult cargo to adhere to the coating
- Easy to apply – easy to remove
- Provides temporary protection against corrosion
- Water based – free from hydrocarbon solvents

Bene ts

- Complies with all environmental regulations

Ordering information

Product number	Product name
737015	SLIP-COAT 25 LTR

Approvals

- This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea when used to clean cargo holds and external surfaces on ships.

Directions for use

After drying, Slip-Coat creates a thin, non-sticky lm on the cargo hold surfaces. The lm substantially facilitates the cleaning before next cargo in two ways:

1. The lm lls the minute pores in the surface, and prevents small particles from being trapped in the pores.
2. Small, solid particles can be very dif cult to remove especially from organic coatings, even with the use of effective cleaning agents and high pressure water jets.

The reason is the build up of electromagnetic forces, and sometimes the only way to remove the particles is by scrubbing. Slip-Coat provides a barrier between the particles and the surface that minimizes this problem, and the particles may now be removed with high pressure water only. The lm is completely water soluble and is easy to remove even with cold sea water. To avoid re-deposition of contaminants a cleaning agent should be used, but at lower dosage rates than what normally is required. Slip-Coat may also be sprayed on deck, superstructure and other areas exposed to dust during loading and unloading operations.

Dosing method

The cargo hold surfaces should be as clean and dry as possible before treatment. Slip-Coat is supplied at ready-to use concentration and may be applied directly from the drum. Spray the liquid on the cargo hold surfaces by the use of suitable low-pressure spraying equipment. As soon as the surface appears water wet, a proper lm is created; do not apply more than necessary. 1 litre Slip-Coat will cover 15–20 m^2. Allow the lm to dry completely before loading the cargo. Depending on air temperature and humidity this will take 1–2 hours. After reloading, apply a 2–5% solution of a cleaning agent in water to avoid re-deposition of contaminants, and nally ush with clean, high pressure water. Suitable cleaning agents are:

Aquatuff (Product no. 607826 and 607827)

Aquatuff High Foam (Product no. 736991 and 737007)

Aquabreak PX (on zinc silicate coatings, Product no. 575613 and 607827).

After ushing with water, let the surfaces dry and then repeat the treatment with applying Slip-Coat before next cargo.

Further Technical Data

Form	Sligthly viscous liquid
Appearance	Clear
Density	1,01
pH, in conc.	6

SLIP COAT PLUS 25 LTR

659 778865

Slip Coat Plus is a liquid, waterborne protective barrier designed to perform maximum protection and ef ciency during transport and unloading operations. Slip Coat Plus is specially formulated to ll the minute pores in paintwork and leave a dense temporary water resistant lm on cargo hold surfaces. When cured the protective lm will act as a barrier between the cargo and cargo hold surfaces thus preventing cargo deposits from stubbornly adhering to the surfaces. The nature of the lm makes it ideal for cargoes loaded in damp or wet conditions as well as preventing cargo from sticking to the surface caused by moisture build-up during the voyage. Slip Coat Plus can be used in cargo holds carrying foodstuff and is safe to the environment and to the personnel handling it. It is non-corrosive and safe on all coatings.

Features

- Water resistant cargo hold barrier
- Ready to use - one single application
- Completely safe on all coatings
- Easily removable with an alkaline cleaner
- Water based - free from hydrocarbon solvents
- Composition based on FDA listed ingredients

Bene ts

- Excellent adhesion to all surfaces
- Ideal for use with humid and corrosive cargoes as sulphur, salt etc.
- Prevents even the most dif cult cargo to adhere to the coating
- Saves cleaning time and cleaning chemicals
- Provides temporary protection against corrosion

Ordering information

Product Number	Product name
778865	SLIP COAT PLUS 25 LTR

Directions for use

To achieve optimal protection the cargo hold surfaces should be as clean and dry as possible before treatment with Slip Coat Plus. The ready-to use concentration makes it ideal for application directly from the drum by use of suitable low-pressure spraying equipment. Do not apply more than necessary, one single application is suf cient and will cover 10–20 m2/ltr depending on the condition of the cargo holds. Allow the lm to dry completely before loading the cargo a process which takes 1-2 hours depending on air temperature and humidity. After drying, Slip Coat Plus creates a dense, non-sticky lm on the cargo hold surfaces. After cargo discharge, both the lm and cargo residues are easily removed by the use of an alkaline cleaner like Aquatuff or Aquatuff High Foam. A 10% solution in fresh water is recommended, leave for 15-30 minutes and nally ush with clean high pressure water. After ushing with water, let the surfaces dry and then repeat the treatment with applying Slip Coat Plus before the next cargo. The lowest application temperature for Slip Coat Plus is +5oC.

Further Technical Data

Form	Low viscous liquid
Appearance	Milky white
Density	Approx. 1
pH, in conc.	Approx. 9

AQUATUFF HIGH FOAM

Aquatuff High Foam is a heavy duty alkaline cleaner with good foaming qualities specially formulated for cleaning cargo holds on bulk carriers and OBOs. The dense foam created prevents the cleaning solution from running off vertical surfaces and thereby enhances the cleaning ef ciency. It is water based and is safe to the environment, containing only biodegradable ingredients. It effectively removes most dry cargoes to “water white standard”. Aquatuff High Foam is specially developed for cargo hold cleaning, but may also be used for other cleaning applications where Aquatuff normally is used but where high foam is bene cial.

Features

- Heavy Duty alkaline water based cleaner
- Specially formulated for the cleaning of cargo holds
- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Biodegradable
- Free from hydrocarbon solvents
- Ideal for cleaning after coal, pet coke and other dif cult cargoes
- Effective and economical in use
- Completely safe on epoxy coatings

Bene ts

- Complies with all environmental regulations and the EU Detergent Regulation

Ordering information

Product number	Product name
736991	AQUATUFF HIGH FOAM 25 LTR
737007	AQUATUFF HIGH FOAM 210 LTR

AQUATUFF HIGH FOAM 25 L

652 736991

Aquatuff High Foam is a heavy duty alkaline cleaner with good foaming qualities specially formulated for cleaning cargo holds on bulk carriers and OBOs. The dense foam created prevents the cleaning solution from running off vertical surfaces and thereby enhances the cleaning ef ciency. It is water based and is safe to the environment, containing only biodegradable ingredients. It effectively removes most dry cargoes to “water white standard”. Aquatuff High Foam is specially developed for cargo hold cleaning, but may also be used for other cleaning applications where Aquatuff normally is used but where high foam is bene cial.

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- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Biodegradable
- Free from hydrocarbon solvents
- Ideal for cleaning after coal, pet coke and other dif cult cargoes
- Effective and economical in use
- Completely safe on epoxy coatings

Bene ts

- Complies with all environmental regulations and the EU Detergent Regulation

Ordering information

Product number	Product name
736991	AQUATUFF HIGH FOAM 25 LTR

Approvals

- This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea when used to clean cargo holds and external surfaces on ships.

Directions for use

Cargo Hold Cleaning
Aquatuff High Foam is specially developed to clean vertical surfaces. When applied with the proper spray foam equipment, the dense foam created prolongs the contact time between the cleaning solution and the surface to be cleaned. It effectively removes most dry cargoes, sludge, soot, carbon deposits, sh meal etc., and is used for cargo hold cleaning when going from black to white cargo.

Aquatuff High Foam should not be used on zinc coatings - on zinc coatings use Aquabreak PX (Product no. 651 575613 and 651 575605).

1. Apply Aquatuff High Foam mixed 10–25% (ratio 1:9 to 1:3) in water, using spray foam equipment.
2. Leave for 30–45 minutes. The surface remains wet.
3. Wash down with a high pressure unit. For best results, direct the high pressure jet at the lowest parts of the hold rst and work upwards.
4. Repeat the procedure if necessary.

If Unitor Slip-Coat (Product no. 652 737015 and 652 737023) is applied to the cargo hold surfaces prior to loading, the concentration of Aquatuff High Foam in the cleaning solution may be reduced.

Dosing method

When mixing Aquatuff High Foam with seawater the following needs to be taken into account:

1. Seawater may reduce the foaming qualities of the detergent

2. Seawater may in uence the pH of the cleaning solution with a reduced cleaning effect as result
3. Seawater represents a corrosion risk to the surfaces and the equipment used

When mixing Aquatuff High Foam with seawater it is recommend to have a concentration of at least 20 - 25% (ratio 2:9 to 1-3).

Further Technical Data

Form	Liquid
Appearance	Orange
Density	1,1
pH, in conc.	13
Non Compatible	The concentrated product may react with aluminium, zinc, tin and their alloys.

AQUATUFF HIGH FOAM 210 L

652 737007

Aquatuff High Foam is a heavy duty alkaline cleaner with good foaming qualities specially formulated for cleaning cargo holds on bulk carriers and OBOs. The dense foam created prevents the cleaning solution from running off vertical surfaces and thereby enhances the cleaning ef ciency. It is water based and is safe to the environment, containing only biodegradable ingredients. It effectively removes most dry cargoes to “water white standard”. Aquatuff High Foam is specially developed for cargo hold cleaning, but may also be used for other cleaning applications where Aquatuff normally is used but where high foam is bene cial.

Features

- Heavy Duty alkaline water based cleaner
- Specially formulated for the cleaning of cargo holds
- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Biodegradable
- Free from hydrocarbon solvents
- Ideal for cleaning after coal, pet coke and other dif cult cargoes
- Effective and economical in use
- Completely safe on epoxy coatings

Bene ts

- Complies with all environmental regulations and the EU Detergent Regulation

Ordering information

Product number	Product name
737007	AQUATUFF HIGH FOAM 210 LTR

Approvals

- This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea when used to clean cargo holds and external surfaces on ships.

Directions for use

Cargo Hold Cleaning
Aquatuff High Foam is specially developed to clean vertical surfaces. When applied with the proper spray foam equipment, the dense foam created prolongs the contact time between the cleaning solution and the surface to be cleaned. It effectively removes most dry cargoes, sludge, soot, carbon deposits, sh meal etc., and is used for cargo hold cleaning when going from black to white cargo.

Aquatuff High Foam should not be used on zinc coatings - on zinc coatings use Aquabreak PX (Product no. 651 575613 and 651 575605).

1. Apply Aquatuff High Foam mixed 10–25% (ratio 1:9 to 1:3) in water, using spray foam equipment.
2. Leave for 30–45 minutes. The surface remains wet.
3. Wash down with a high pressure unit. For best results, direct the high pressure jet at the lowest parts of the hold rst and work upwards.
4. Repeat the procedure if necessary.

If Unitor Slip-Coat (Product no. 652 737015 and 652 737023) is applied to the cargo hold surfaces prior to loading, the concentration of Aquatuff High Foam in the cleaning solution may be reduced.

Dosing method

When mixing Aquatuff High Foam with water the following needs to be taken into account:

1. Seawater may reduce the foaming qualities of the detergent

2. Seawater may in uence the pH of the cleaning solution with a reduced cleaning effect as result
3. Seawater represents a corrosion risk to the surfaces and the equipment used

When mixing Aquatuff High Foam with seawater it is recommend to have a concentration of at least 20% Aquatuff High Foam with a recommended mixture of 25%.

Further Technical Data

Form	Liquid
Appearance	Orange
Density	1,1
pH, in conc.	13
Non Compatible	The concentrated product may react with aluminium, zinc, tin and their alloys.

SLIP-COAT

Slip-Coat is a water based liquid product specially formulated to leave a thin, temporary lm on cargo hold surfaces. The lm provides a barrier between the cargo and the cargo hold surfaces making the cleaning operation after unloading quicker and easier, and optimal cleaning result is achieved. Slip-Coat is safe to the environment and to the personnel handling it, and will not contaminant the cargo. It is non-corrosive and safe on all coatings.

Features

- Water soluble cargo hold barrier – easily removable with water
- Saves cleaning time and cleaning chemicals
- Ideal when cleaning after coal, pet coke and other dif cult cargoes
- Completely safe on all coatings
- Prevents even the most dif cult cargo to adhere to the coating
- Easy to apply – easy to remove
- Provides temporary protection against corrosion
- Water based – free from hydrocarbon solvents

Bene ts

- Complies with all environmental regulations

Ordering information

Product number	Product name
737015	SLIP-COAT 25 LTR

SLIP-COAT 210 L

659 737023

Slip-Coat is a water based liquid product specially formulated to leave a thin, temporary lm on cargo hold surfaces. The lm provides a barrier between the cargo and the cargo hold surfaces making the cleaning operation after unloading quicker and easier, and optimal cleaning result is achieved. Slip-Coat is safe to the environment and to the personnel handling it, and will not contaminant the cargo. It is non-corrosive and safe on all coatings.

Features

- Water soluble cargo hold barrier – easily removable with water
- Saves cleaning time and cleaning chemicals
- Ideal when cleaning after coal, pet coke and other dif cult cargoes
- Completely safe on all coatings
- Prevents even the most dif cult cargo to adhere to the coating
- Easy to apply – easy to remove
- Provides temporary protection against corrosion
- Water based – free from hydrocarbon solvents

Bene ts

- Complies with all environmental regulations

Ordering information

Approvals

- This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea when used to clean cargo holds and external surfaces on ships.

Directions for use

After drying, Slip-Coat creates a thin, non-sticky lm on the cargo hold surfaces. The lm substantially facilitates the cleaning before next cargo in two ways:

1. The lm lls the minute pores in the surface, and prevents small particles from being trapped in the pores.
2. Small, solid particles can be very dif cult to remove especially from organic coatings, even with the use of effective cleaning agents and high pressure water jets.

The reason is the build up of electromagnetic forces, and some times the only way to remove the particles is by scrubbing. Slip-Coat provides a barrier between the particles and the surface that minimizes this problem, and the particles may now be removed with high pressure water only. The lm is completely water soluble and is easy to remove even with cold sea water. To avoid re-deposition of contaminants a cleaning agent should be used, but at lower dosage rates than what normally is required. Slip-Coat may also be sprayed on deck, superstructure and other areas exposed to dust during loading and unloading operations.

Dosing method
The cargo hold surfaces should be as clean and dry as possible before treatment. Slip-Coat is supplied at ready-to use concentration and may be applied directly from the drum. Spray the liquid on the cargo hold surfaces by the use of suitable low-pressure spraying equipment. As soon as the surface appears water wet, a proper lm is created; do not apply more than necessary. 1 litre Slip-Coat will cover 15–20 m^2. Allow the lm to dry completely before loading the cargo. Depending on air temperature and humidity this will take 1–2 hours. After off-loading, apply a 2–5% solution of a cleaning agent in water to avoid re-deposition of contaminants, and nally ush with clean, high pressure water. Suitable cleaning agents are:

Aquatuff (Product no. 607826 and 607827)

Aquatuff High Foam (Product no. 736991 and 737007)

Aquabreak PX (on zinc silicate coatings, Product no. 575613 and 607827)

After ushing with water, let the surfaces dry and then repeat the treatment with applying Slip-Coat before next cargo.

Further Technical Data

Form	Slightly viscous liquid
Appearance	Clear
Density	1,01
Ph, in conc.	6

SLIP-COAT WR

Slip-Coat WR is a liquid, water based product specially formulated to leave a temporary water resistant lm on cargo hold surfaces. The lm provides a barrier between the cargo and the cargo hold surfaces making the cleaning operation after unloading quicker and easier, and optimal cleaning result is achieved. The lm is water insoluble thus making it suitable for typically humid cargoes as sulphur. The cargo hold surfaces are also protected from corrosion making lime wash unnecessary. Slip-Coat WR is safe to the environment and to the personnel handling it, and will not contaminant the cargo. It is non-corrosive and safe on all coatings.

Features

- Water resistant cargo hold barrier - easily removable with an alkaline cleaner
- Saves cleaning time and cleaning chemicals
- Ideal when cleaning after humid and corrosive cargoes as sulphur
- Completely safe on all coatings
- Prevents even the most dif cult cargo to adhere to the coating
- Easy to apply - easy to remove
- Provides temporary protection against corrosion
- Water based - free from hydrocarbon solvents

Bene ts

- Complies with all environmental regulations

Ordering information

Product number	Product name
757395	SLIP-COAT WR (25 LTR)

METAL BRITE H.D. 210 L

651 655506

Liquid detergent compound containing phosphoric acid and non-ionic surfactants, used for rust removal and as a surface brightener.

Features

- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Non- ammable
- Removes light rust and rust stains
- Cleans and passivates ferrous metal surfaces, inhibits further corrosion, and gives a base which paint will adhere
- Removes tarnish from non-ferrous metals
- Surface brightening including aluminium
- Removes rust stains from painted, ceramic and wooden surfaces
- Economical in use

Bene ts

- Approved by the Norwegian Institute of Public Health for use as cleaner of tanks in contact with cooking oil

Ordering information

Product number	Product name
655506	METAL BRITE HD 210 LTR

Approvals

- This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea when used to clean cargo holds and external surfaces on ships.
- Approved by the Norwegian Institute of Public Health for use as cleaner of tanks in contact with cooking oil.

Directions for use

Dosing method

Metal Brite H.D. should always be used in a plastic bucket.

Acid should always be added to water, never the reverse.

Remove dirt, rust akes, oil and grease prior to using Metal Brite H.D.

Apply Metal Brite H.D. to surfaces to be cleaned or pickled as follows:

For severely corroded surfaces and pickling of welding repairs, use 50% solution to neat.

For less severely corroded or soiled surfaces and tarnish on copper and brass, use a solution of 20–50%, and rinse off surface after 15–40 minutes with water.

On aluminium, use a solution of 10–30%, but rinse off surface maximum 5 minutes after application.

For removal of rust stains on painted surfaces, a solution of 10–30% should be suf cient. Rinse off with water 15–20 minutes after application.

For removal of rust stains on ceramic tiles, enamels, porcelain, glass etc., use a solution of 20–50%, depending on stains and soiling. Rinse off with water after 20–40 minutes.

For removal of light cement stains and lime, apply a 50% solution, and high pressure wash after 30–40 minutes; for solidi ed cement use Descaling Liquid.

For removal of light rust and scale in pipelines and tanks, recirculate a solution of 5–10% Metal Brite H.D. For discoloration of stainless steel and epoxy coated tanks use the same method.

For removal of white residues from epoxy-coatings that sometimes remain after carriage of Stearin, Olein, Palm fatty acid etc., recirculate a solution of 5–10% Metal Brite H.D. When injected, use a 5% solution. Recirculate or inject until residue is removed.

Further Technical Data

Form	Liquid
Appearance	Light yellow
Density	1,3
pH, 1% vol.	2
Not Compatible	Long term exposure may lead to corrosion of mild steel, cast iron, aluminium and alloys, brass, tin or galvanised material.

METAL BRITE H.D.

Liquid detergent compound containing phosphoric acid and non-ionic surfactants, used for rust removal and as a surface brightener.

Features

- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Non- ammable
- Removes light rust and rust stains
- Cleans and passivates ferrous metal surfaces, inhibits further corrosion, and gives a base which paint will adhere
- Removes tarnish from non-ferrous metals
- Surface brightening including aluminium
- Removes rust stains from painted, ceramic and wooden surfaces
- Economical in use

Bene ts

- Approved by the Norwegian Institute of Public Health for use as cleaner of tanks in contact with cooking oil

Ordering information

Product number	Product name
571679	METAL BRITE HD 25 LTR
655506	METAL BRITE HD 210 LTR

Approvals

Approved by the Norwegian Institute of Public Health.

METAL BRITE H.D. 25 L

651 571679

Liquid detergent compound containing phosphoric acid and non-ionic surfactants, used for rust removal and as a surface brightener.

Features

- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Non- ammable
- Removes light rust and rust stains
- Cleans and passivates ferrous metal surfaces, inhibits further corrosion, and gives a base which paint will adhere
- Removes tarnish from non-ferrous metals
- Surface brightening including aluminium
- Removes rust stains from painted, ceramic and wooden surfaces
- Economical in use

Bene ts

- Approved by the Norwegian Institute of Public Health for use as cleaner of tanks in contact with cooking oil

Ordering information

Product number	Product name
571679	METAL BRITE HD 25 LTR

Approvals

- This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea when used to clean cargo holds and external surfaces on ships.
- Approved by the Norwegian Institute of Public Health for use as cleaner of tanks in contact with cooking oil.

Directions for use

Dosing method
Metal Brite H.D. should always be used in a plastic bucket.
Acid should always be added to water, never the reverse.
Remove dirt, rust akes, oil and grease prior to using Metal Brite H.D.

Apply Metal Brite H.D. to surfaces to be cleaned or pickled as follows:

For severely corroded surfaces and pickling of welding repairs, use 50% solution to neat.

For less severely corroded or soiled surfaces and tarnish on copper and brass, use a solution of 20–50%, and rinse off surface after 15–40 minutes with water.

On aluminium, use a solution of 10–30%, but rinse off surface maximum 5 minutes after application.

For removal of rust stains on painted surfaces, a solution of 10–30% should be suf cient. Rinse off with water 15–20 minutes after application.

For removal of rust stains on ceramic tiles, enamels, porcelain, glass etc., use a solution of 20–50%, depending on stains and soiling. Rinse off with water after 20–40 minutes.

For removal of light cement stains and lime, apply a 50% solution, and high pressure wash after 30–40 minutes, and for solidi ed cement use Descaling Liquid.

For removal of light rust and scale in pipelines and tanks, recirculate a solution of 5–10% Metal Brite H.D. For discoloration of stainless steel and epoxy coated tanks use the same method.

For removal of white residues from epoxy-coatings that sometimes remains after carriage of Stearin, Olein, Palm fatty acid etc., recirculate a solution of 5–10% Metal Brite H.D. When injected, use a 5% solution. Recirculate or inject until residue is removed.

Further Technical Data

Form	Liquid
Appearance	Light yellow
Density	1,3
pH, 1% sol.	2
Non Compatible	Long term exposure may lead to corrosion of mild steel, cast iron, aluminium and alloys, brass, tin or galvanised material.

ENVIROCLEAN 25 LTR

652 765018

A micro emulsion water based cleaner/degreaser. This product is low toxic, biodegradable and safe to use. It is based on powerful fatty acid derivates linked with an advanced surfactant formulation. The main applications are for cleaning and degreasing in the engine room, deck cleaning and for general removal of grease, oil, sludge, polymer compounds, carbon deposits, dirt and grime.

Features

- Water based degreaser
- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Low-toxic
- Enviroclean has numerous general marine cleaning applications including the removal of greases, oil, sludge, polymer compounds, carbon deposits, dirt and grime
- As an engine room cleaner it is exceptional as not only can it be used for degreasing, cleaning paint work and carbon removal, but also for use in soak tanks, ultrasonic tanks and high pressure cleaning equipment

Bene ts

- Promotes a pleasant and healthy working environment
- Splits after cleaning, releasing the oil phase for reclamation

Product availability may be limited. Product number 571380 may be delivered instead.

Ordering information

Product Number	Product name
765018	ENVIROCLEAN 25 LTR

Approvals

This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea when used to clean cargo holds and external surfaces on ships.

Directions for use

1. General cleaning
Enviroclean can be used for all types of cleaning and degreasing and can be applied by brush, hand spray or used in ultrasonic cleaning tanks. Recommended dosage up to 25% (1 litre Enviroclean + 3 litres of water) depending on the amount and type of soil to be removed. After use as an engine room cleaner, bilge slops must be given suf cient time to separate before passing through an oily water separator.

2. Spot cleaning
Enviroclean can be diluted with water and hand sprayed. Recommended dosage up to 25% (1 litre Enviroclean + 3 litres of water) depending on the amount and type of soil to be removed. Left for about 20–30 minutes before washing off with water.

Further Technical Data

Form	Liquid
Appearance	Pale yellow liquid
Density	1
pH	10,5
Compatibility	May soften some rubber and synthetic rubber

COLDWASH HD 25 L

651 571430

Coldwash HD is a heavy duty degreaser based on petroleum solvents, emulsifying agents and surfactants. This product is excellent for use on soiled surfaces, bilges and machinery parts.

Features

- Emulsifying agents are biologically degradable
- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Effective on mineral oils and petroleum based residues
- Safe to use on most metal surfaces and painted surfaces
- Removes oil contamination from machinery, engine parts and bilges
- Allows soak cleaning of machinery parts

Bene ts

- Easy to recover as it splits after cleaning, releasing the oil phase
- Powerful degreaser with quick penetration and good emulsifying properties
- Rapid rinsing, leaves clean and oil-free surfaces

Splits after cleaning, releasing the oil phase for reclamation. Powerful degreaser with quick penetration and good emulsifying properties. The emulsifying agents in this product are biological degradable. Does not contain nonyl phenol ethoxylates or other estrogenic compounds. Effective on mineral oils and petroleum based residues. Safe to use on most metal surfaces and painted surfaces. Removes oil contamination from machinery, engine parts and bilges. Soak cleaning of machinery parts. Rapid rinsing, leaves clean and oil-free surfaces.

Ordering information

Product Number	Product name
571430	COLDWASH HD 25 LTR

Directions for use

This product is excellent for use on soiled surfaces, bilges and machinery parts.

This degreaser must be applied neat with a brush, by hand spray, immersion, soaking etc. The contact, or soaking, time should be between 15 minutes to 2 hours before washing off with hot or cold water. Hot water will improve the result of the cleaning.

Spot cleaning

Spray neat Coldwash HD onto surfaces to be cleaned. The contact time should be at least 30 minutes or up to 2 hours if time allows. Bulkheads/walls can be washed down by use of high pressure cleaning machines. The best result is achieved with hot water between 60–80°C.

Spray method

Spray Coldwash HD neat onto soiled surfaces. The contact time should be between 15–30 minutes, and then wash off with water. To clean stubborn deposits, mechanical agitation such as scrubbing will improve the cleaning.

Soak method

Immerse the parts to be cleaned into a bath of neat Coldwash HD for 30 minutes, and then wash off with water.

Circulation method

Cleaning of equipment such as lube oil heat exchangers, fuel oil preheaters and lters can be accomplished by circulating neat Coldwash HD.

CLEANBREAK 25 L

651 571497

Cleanbreak is a degreaser containing self-splitting emulsi ers.It allows the slop water to break into separate oil and water phases. Cleanbreak is solvent based. The main applications are for cleaning in the engine room for machinery spaces, bulkheads, tank tops and on deck.

Features

- Highly effective, economical solvent cleaner
- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Reduces disposal costs and associated problems
- Low toxicity, non corrosive
- Used for general cleaning of machinery spaces, bulkheads, decks, tank tops and any oil/grease soiled areas
- Should be used where slops are required to pass through oily water separators to meet current IMOregulations

Bene ts

- Rapid penetration
- Slop emulsions break into two distinct phases
- Allows oil residues to be reclaimed
- Approved by Blohm+Voss AG for OWS type TCS/HD
- Approved by Marin oc AB for use in engine rooms

Ordering information

Product number	Product name
571497	CLEANBREAK 25 LTR

Approvals

- This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea when used to clean cargo holds and external surfaces on ships.
- Approved by Blohm+Voss AG for OWS type TCS/HD
- Approved by Marin oc AB for use in engine rooms

Directions for use

The main applications are for cleaning in the engine room for machinery spaces, bulkheads, tank tops and on deck.

Cleanbreak is recommended for local cleaning and degreasing of engine rooms, bilges and tank tops. It can be applied by brush, spray, immersion, soaking, or any other conventional means. Cleanbreak is used neat. Allow a residence time of at least 30–60 minutes where possible to ensure good penetration.

Wash down all surfaces using hot water if possible and high pressure water jet. The emulsion residue after cleaning must be allowed to separate in a holding tank over suf cient time before passing through an oily water separator.

To achieve the best results from the splitting action of Cleanbreak. It is important that no other type of solvent/ emulsifying cleaner is used in the engine room.

SEACLEAN 25 L

652 571406

Seaclean is a highly concentrated cleaner based on petroleum solvents, emulsifying agents and surfactants. Seaclean is formulated for cleaning double bottom, deep and wing tanks etc., used for fuel oils.

Features

- The emulsifying agents in this product are biological degradable
- Does not contain nonylphenol ethoxylates or other estrogenic compounds
- Can be used for general removal of oil and grease from soiled surfaces

Bene ts

- Highly concentrated cleaner with quick penetration and emulsifying properties
- Economical - very low dosage rates

Ordering information

Product number	Product name
571406	SEACLEAN 25 LTR

Directions for use

Cleaning of the oil side of the Lube Oil Heat Exchangers.
Cleaning is best achieved by the recirculation method using a heated 20% solution of Seaclean. The UNITOR Chemical Cleaning Unit - Order no 613807 - is recommended to be used.

1. Disconnect the heat exchanger's oil inlet and outlet, drain off any remaining oil.
2. Connect the discharge side of the Chemical Cleaning Unit (CCU) to the lower heat exchanger connection and t the return to the CCU.
3. Add the required solution to the drum and use the installed heater or live steam. Raise the temperature of the cleaning solution between 65 to 75°C. Maintain the temperature throughout the cleaning operation. Cleaning without heating will extend the cleaning operation.
4. Circulate the solution for 12 to 15 hours. When the cleaning is completed, drain the cleaning solution.
5. Connect a fresh water supply to the upper heat exchanger connection, and rinse until the water runs clean from the lower connection. Flush thoroughly with fresh water.
6. When rinsing is completed, disconnect the water supply and thoroughly drain and dry the heat exchanger.

For heavy carbonised deposits, see Product Data Sheet for Carbon Remover.

Sampling and testing
Seaclean is formulated for cleaning double bottom, deep and wing tanks etc. used for fuel oils.

SEACARE OSD-2

Seacare OSD-2 Oil Spill Dispersant is a biodegradable hydrocarbon based product with high dispersing ef ciency and low toxicity. It is approved as a Type I dispersant according to LR448 speci cations by the Department for Environment, Food & Rural Affairs (DEFRA) formerly UK Ministry of Agriculture, Fisheries and Food (MAFF).

Features

- Approved Type I dispersant according to the latest LR448 speci cations of AEA Technology Plc. covering both ef ciency and toxicity for use in dispersing oil on sea, beaches and rocks
- Disperses mineral oils, crude oils, residual fuel oils, diesel fuel oil, kerosene, white spirit and lubricant oils
- For use on oil spills that may occur during loading or discharging of cargo or bunkers where allowed
- For cleaning of spills on deck, ships side, piers, wharfs, etc. where allowed

Bene ts

- Raised standards for operator safety in handling and use, being biodegradable and having low toxicity and a high ash point
- Rapid ef cient dispersal of a wide range of oil residues. Converts hydrocarbons into very ne emulsions
- Ready to use product

De nition
Type I: Conventional hydrocarbon-base - for use primarily undiluted on beaches, but may also be used undiluted from WSL spray sets using breaker boards or other suitable means of application and agitation.

Department for Environment, Food & Rural Affairs (DEFRA)

APPROVAL OF THE USE OF SUBSTANCES PRODUCED FOR THE PURPOSE OF TREATING OIL ON THE SURFACE OF THE SEA

Notes for guidance 1. Article 3 of the Deposits in the Sea (Exemptions) Order 1985 as read with paragraph 21 of the Schedule to it, provides that a licence is not needed under Part II of the Act to deposit any substance produced for the purpose of treating oil on the surface of the sea provided you meet the following conditions:

• The substance is one, the use of which, is for the time being approved by the licensing authority; • The substance is used in accordance with any conditions to which the approval was subject; • No deposits made in an area of the sea of a depth of less than 20 metres or within one mile of any such area, save with the approval of the licensing authority; • Similarly a licence is not needed (if conditions are satis ed) for the loading of a vessel aircraft, hovercraft, marine structure or oating container in England and Wales, with products for deposit for the treatment of oil on the surface of the sea, within British Fishery limits (other than waters adjacent to Scotland).

1. The Ministry of Agriculture, Fisheries and Food has tested this product for toxicity and found it to be satisfactory at the speci ed application rate. It has also been tested for ef ciency and safety in use by AEA Technology Pic. And similarly found to be satisfactory.
2. A person who deposits in the sea a substance not for the time being approved by the licensing authority for the purpose of treating oil on the surface of the sea or not within the terms of this approval, may be in breach of the terms of the Food and Environment Protection Act, 1985.
3. A person who intends to use any substance for the purpose of treating oil on the surface of the sea should also consult the Nature Conservancy Council before beginning operations.
4. Copies of the current Continental Shelf Operations Notice (CSON 7) are obtainable from the Department of Energy, Petroleum Engineering Division, Thames House South, Millbank, London SW1P 4QJ.

Further information on the use of oil spill dispersants is contained in the Institute of Petroleum (London) publication "Guidelines on the Use of Oil Spill Dispersants" 2nd Edition (1988).

Ordering information

Product number	Product name	Quantity
764420	SEACARE OSD-2	25 LTR
764422	SEACARE OSD-2	210 LTR

Approvals

• This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea when used to clean cargo holds and external surfaces on ships. • Approved as a Type I dispersant according to LR448 speci cations by the Department for Environment, Food & Rural Affairs (DEFRA) former the U.K. Ministry of Agriculture, Fisheries and Food (MAFF). See de nition Above • Approved as a type I dispersant by MMO (Marine Management Organisation) for oil spill treatment applications in the United Kingdom

Directions for use

Oil Spills at Sea Seacare OSD-2 is used undiluted by direct spraying to clean up oil spills at sea. It can be applied by hand spray, work boats with mounted spray booms, or re hoses with injectors. Allow some time for the oil to absorb the Seacare OSD-2 and then disperse mixture by vigorous agitation using re hoses, ship's propeller, breaker boards towed behind work boats, etc. Seacare OSD-2 should not be used in an area of sea of a depth less than 20 metres or within one mile of such area except in accordance with the advice of the local District Inspector of Fisheries of Ministry or Scottish Of ce Agriculture, Environmental and Fisheries Department (SOAEFD).

Oil on Beaches and Shore Line Seacare OSD-2 should be applied neat by spraying over oiled areas. Allow time for the oil to absorb the Seacare OSD-2 then follow by washing down the beach or rocks, etc. The treatment rate depends on the type and thickness of the oil spill, also on the age and condition. Under conditions where it is a thin slick of oil, 1 litre of Seacare OSD-2 is enough to treat approximately 10 square metres of oil. In many cases, several applications may be necessary.

Oil Spill on Deck Remove as much of the oil as possible, then spray Seacare OSD-2 over area covered by the oil and allow some time for it to be absorbed. Disperse the mixture with water by means of a re hose. Depending on the type of oil it may be necessary to use several applications.

Note: Do not mix this Oil Spill Dispersant with any other products.

SEACARE ECOSPERSE LT23 25LTR II/III

652 764424

Seacare Ecosperse LT23 is a concentrated type II & III oil spill dispersant which is highly ef cient for use on a wide range of oils.

Features

Used as a dispersant:

- High dispersion ef ciency product
- Helps prevent crude oil from ending up on shore
- Simple, quick and ef cient
- Ef cient dispersion of wide range of oils in a broad range of temperatures, salinities and concentrations.

Used as cleaning agent:

- High ef ciency for cleaning hydrocarbons (oil and other related products)
- For cleaning of hydrocarbon spills on deck, ships side, piers, wharfs etc., where allowed
- Cleaning up after spills that may occur during loading of bunkers where allowed
- Low stocks required compared to Type I products
- High standards in operator safety in handling and uses

Bene ts

- Multi-purpose product: economical, safe, ef cient
- Converts hydrocarbons into ne emulsions that can be biodegraded much more quickly in sea water
- It can be applied both by boat or aerial spraying.

When authorized, this product can be used as a concentrate or diluted for many types of oil cleaning operations at sea, on rocky shoreline and beaches. Seacare Ecosperse LT23 is non toxic and biodegradable.

De nition

The following classi cation and de nition of oil spill treatment products is valid for the UK and Scotland:

Type II: Water-dilutable Concentrate - for use at sea after dilution 1:10 with sea water and sprayed from WSL spray sets using breaker boards or other suitable means of application and agitation. Type III: Concentrate - for use undiluted from aircraft, ships or on beaches, using appropriate spray gear.

Department for Environment, Food & Rural Affairs (DEFRA)

APPROVAL OF THE USE OF SUBSTANCES PRODUCED FOR THE PURPOSE OF TREATING OIL ON THE SURFACE OF THE SEA

Notes for guidance It is the responsibility of the user to comply with the restrictions that can apply for each country regulation and depending if the product is used as a dispersant and/or as a cleaning agent.

International guides for using marine dispersants

- "Using dispersant to treat oil slicks at sea", AIRBORNE AND SHIPBORNE TREATMENT-RESPONSE MANUAL François Xavier Merlin, December 2005, CEDRE (Centre de Documentation, de Recherche et d'Expérimentations sur les Pollutions Accidentelles des Eaux)
- "Dispersants and their role in oil spill response" 2nd edition, 2001 IPIECA (International Petroleum Industry Environmental Conservation Association)
- "Guidelines on Oil Spill Dispersant Application", IMO (International Maritime Organization) Ref. IA575E for english, IA577S for spanish, IA576F for French version "Manual on Oil Pollution - Section IV", 2005 Ed, IMO (International Maritime Organization) Ref. I578E for english, IA569F for French, IA569S for spanish
- "The use of chemical dispersants to treat oils", TECHNICAL INFORMATION PAPER N° 4, 2005 ITOPF (The International Tanker Owners Pollution Federation Limited)

Ordering information

Product Number	Product name
764424	SEACARE ECOSPERSE LT23 25LTR **II/III**

Approvals

- This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea when used to clean cargo holds and external surfaces on ships.
- Approved as a Type II and Type III dispersant according to LR448 speci cations by the Department for Environment, Food & Rural Affairs (DEFRA) former the U.K. Ministry of Agriculture, Fisheries and Food (MAFF). See de nition above
- Approved as a Type II and Type III dispersant by MMO (Marine Management Organisation) for oil spill treatment applications in the United Kingdom
- Approved by CEDRE
- Approved by ROPME

Directions for use

Oil Spills at Sea - Application from boat

Seacare Ecosperse LT23 can be used neat or diluted with sea water. It can be applied by spray from booms on work boats, hand sprayers or hoses using an injector. Used neat (Type III for UK & Scotland), 1 litre of Seacare Ecosperse LT23 will disperse between 20 and 30 m2 of oil depending on the thickness and age of oil being treated. Used diluted (Type III for UK & Scotland), Seacare Ecosperse LT23 can be diluted with seawater at a ratio of 1 to 10. Mix immediately before use. 1 litre of mixture will cover approximately 10 square metres of oil spill. The ratio can vary depending on the type and thickness of oil spill. At sea one part of mixture will disperse 2–3 parts of oil. To maximize the ef ciency of dispersion it is important that a dispersant is used at an early stage of the operation, before oil weathering takes place.

Oil Spills at Sea - Aerial Spraying

In the UK, aircraft using the appropriate form of spraying equipment which has been tested and found satisfactory by AEA Technology Plc. may spray Seacare Ecosperse LT23 over the sea. Seacare Ecosperse LT23 has passed tests in accordance with the speci cation of the UK Ministry of Defence.

Oil on Beaches and rocky shore

Remove and reclaim as much oil as possible. Then using suitable spraying equipment, spray Seacare Ecosperse LT23 over the oiled areas using one part of dispersant to 7–20 parts of oil. Wash down the beach or rocks with water. The quantity of product used depends on the type and thickness of oil spill, also on the amount of weathering of the oil. In some cases several applications may be necessary.

Note: Do not mix this Oil Spill Dispersant with any other products.

Further Technical Data

Form	Slightly viscous liquid
Appearance	Amber
Density	1,0
Flash Point	Above 110 oC
Compatibility	Do not use together with natural rubber; may swell synthetic rubber

SEACARE ECOSPERSE 52

Seacare Ecosperse 52 is a concentrated oil spill dispersant which is highly ef cient for use on a wide range of oils.

Features

- Used as a dispersant:
  - High dispersion ef ciency product
  - Accelerates natural biodegradation of dispersed hydrocarbons
  - Helps prevent crude oil from ending up on shore
  - Simple, quick and ef cient
  - Ef cient dispersion of wide range of oils in a broad range of temperatures, salinities, and concentrations. Only application in low salinity water is not recommended
- Used as cleaning agent:
  - High ef ciency for cleaning hydrocarbons (oils and other related products)
  - For cleaning of hydrocarbons spills on deck, ships side, piers, wharfs, etc., where allowed
  - Cleaning up after spills that may occur during loading of bunkers where allowed
- Low stocks required compared to Type I products
- High standards in operator safety in handling and uses

Bene ts

- Multi-purpose product: economical, safe, ef cient

Seacare Ecosperse 52 converts hydrocarbons into ne emulsions that can be biodegraded much more quickly in sea water. It can be applied by boat or aerial spraying. When authorized, this product can be used as a concentrate or diluted for many types of oil cleaning operations at sea, on rocky shoreline and beaches. Seacare Ecosperse 52 is non toxic and biodegradable.

De nition

The following classi cation and de nition of oil spill treatment products is valid for the UK and Scotland:

Type II : Water-dilutable Concentrate - for use at sea after dilution 1:10 with sea water and sprayed from WSL spray sets using breaker boards or other suitable means of application and agitation.

Type III: Concentrate - for use undiluted from aircraft, ships or on beaches, using appropriate spray gear.

Notes for guidance

It is the responsibility of the user to comply with the restrictions that can apply for each country regulation and depending if the product is used as a dispersant and/or as a cleaning agent.

International guides for using marine dispersants

- "Using dispersant to treat oil slicks at sea", AIRBORNE AND SHIPBORNE TREATMENT-RESPONSE MANUAL François Xavier Merlin, December 2005, CEDRE (Centre de Documentation, de Recherche et d'Expérimentations sur les Pollutions Accidentelles des Eaux)
- "Dispersants and their role in oil spill response" 2nd edition, 2001 IPIECA (International Petroleum Industry Environmental Conservation Association)
- "Guidelines on Oil Spill Dispersant Application", IMO (International Maritime Organization) Ref. IA575E for english, IA577S for spanish, IA576F for French version "Manual on Oil Pollution - Section IV", 2005 Ed, IMO (International Maritime Organization) Ref. I578E for english, IA569F for French, IA569S for spanish
- "The use of chemical dispersants to treat oils", TECHNICAL INFORMATION PAPER N° 4, 2005 ITOPF (The International Tanker Owners Pollution Federation Limited)

Ordering information

Product number	Product name
769661	SEACARE ECOSPERSE 52 210 LTR

Approvals

Of cial approvals and listings:

- Approved by DEFRA (UK) as a Type II/III dispersant according to the LR448 Speci cations of AEA Technology Plc. for dispersion ef ciency and the "Fisheries research Technical Report N° 102" covering the toxicity for use in dispersion of oil on sea, beaches and rocks. Reference No. MAFF/ FEPA 129/2001. Type II and Type III dispersant
- SOAEFD. Scottish Of ce Agriculture, Environment and Fisheries Department. Reference No. FEP/ DISP/2001/7
- Registered by the US EPA National Contingency Plan (Federal Register, Subpart J - Use of Dispersants and Other Chemicals)

Directions for use

Dispersion

Oil Spills at Sea - Application from boat

Seacare Ecosperse 52 can be used neat or diluted with sea water. It can be applied by spray from booms on work boats, hand sprayers or hoses using an injector.

Used neat (Type III for UK & Scotland), 1 litre of Seacare Ecosperse 52 will disperse between 20 and 30 m2 of oil depending on the thickness and age of oil being treated.

Used diluted (Type III for UK & Scotland), Seacare Ecosperse 52 can be diluted with seawater at a ratio of 1 to 10. Mix immediately before use. 1 litre of mixture will cover approximately 10 square metres of oil spill. The ratio can vary depending on the type and thickness of oil spill. At sea one part of mixture will disperse 2–3 parts of oil.

To maximize the ef ciency of dispersion it is important that a dispersant is used at an early stage of the operation, before oil weathering takes place.

Oil Spills at Sea - Aerial Spraying

In the UK, aircraft using the appropriate form of spraying equipment which has been tested and found satisfactory by AEA Technology Plc. may spray Seacare Ecosperse 52 over the sea, the product being used neat. Seacare Ecosperse 52 has passed tests in accordance with the speci cation of the UK Ministry of Defence.

Cleaning

Oil on beach and rocky shore

Remove and reclaim as much oil as possible. Then using suitable spraying equipment, spray Seacare Ecosperse 52 over the oiled areas using one part of dispersant to 7–20 parts of oil. Wash down the beach or rocks with water. The quantity of product used depends on the type and thickness of oil spilt, also on the amount of weathering of the oil. In some cases several applications may be necessary.

ACC PLUS 25 L

651 698704

ACC Plus is a powerful cleaning agent for cleaning of diesel engine air coolers, scavenging air systems and the compressor side of turbochargers. ACC Plus is a microemulsion type cleaner, where a synergistic blend of biodegradable surfactants and low toxicity solvents replace the use of the harmful solvents traditionally used in air cooler cleaners without reducing the cleaning performance. It is formulated to meet the latest environmental standards, and is non toxic both to the environment and to persons handling it. ACC Plus contains no chlorinated or aromatic hydrocarbon solvents, nonylphenol ethoxylates or other substances harmful to the environment.

Features

- Meets the latest environmental standards
- Equal cleaning performance to traditional cleaners based on harmful chlorinated solvents
- Low toxicity, low evaporation and pleasant smell
- Formulated to remove oil, grease and carbon deposits from air coolers and scavenging systems
- Maintains, stabilises and maximises air cooler ef ciency
- Leaves no residue and has no harmful effect on engine.
- Can be used for handspray cleaning while diesel engine is stationary
- Ideal for use in soak bath or cleaning tanks, such as the Chemical Cleaning Unit and the Ultrasonic Bath

Bene ts

- Ef cient and economical

Ordering information

Product number	Product name
698704	ACC PLUS 25 LTR

Directions for use

Recirculation method in-situ
For this cleaning procedure the engine needs to be stopped and secured. Permanently installed spray nozzles in combination with a cleaning solution tank and pump, such as the Unitor Chemical Cleaning Unit should be used. It is advised to blind off the cooler outlet. Properly mix water and 10-30% ACC Plus, depending on the severity of the contamination, in the tank. Connect the pump's outlet to the nozzle assembly and the air cooler drain to the tank. Start the pump and spray the solution through the nozzles over the entire surface of the cooler and drain back to the tank. Circulate the solution for a period of 1 to 6 hours. After cleaning, rinse with fresh water. Remove the outlet blind and disconnect the pump and tank loop.

Soaking method in-situ
For this cleaning procedure the engine needs to be stopped and secured. Blind off the cooler outlet and ood the cooler with a solution of 10-30% ACC Plus in water depending on the severity of the contamination. Soak for a period of 1 to 6 hours and drain to slop tank. Agitation by means of steam or compressed air will improve the cleaning effect. After cleaning, rinse with fresh water. Remove outlet blind and close drain.

Out of Service Cleaning:

Soak bath method
Remove the cooler from the engine and place in a soak bath lled with a solution of 10-30% ACC Plus in water for a period of 1-6 hours. Agitation by means of steam or compressed air will improve the cleaning effect. After cleaning rinse with fresh water and reinstall the cooler. This method is also suitable for machine parts with stubborn carbon deposits.

Hand spray method
For this cleaning procedure the engine needs to be stopped and secured. Open the inspection cover on top of the cooler and the drain valve. Spray undiluted ACC Plus into the tube nest, with e.g. a Unitor Jet Spray Unit, and allow to penetrate into the deposits for a minimum of 1 hour. Rinse thoroughly with a high pressure jet such as a Unitor High Pressure Machine. Close inspection cover and drain.

In-service cleaning
The general principle is to inject a solution of ACC Plus

into the air trunking upstream of the charge air cooler followed by a clean water rinse. For ef cient cleaning of air coolers, it is necessary to use correctly installed dosing and injection equipment. To calculate the amount of solution required to clean an air cooler, calculate or nd the cross-sectional area of the cooler and use 3 litres of cleaning solution per square metre or as table below:

Engine HP	Solution mix. with 25% ACC Plus
6,000 to 12,000	3 litre mix
12,000 to 24,000	4.5 litre mix
24,000 or more	6 litre mix

For in-service cleaning of air coolers and the air-side of turbochargers, a solution of 25% ACC Plus in freshwater is recommended.
The appropriate dosage of cleaner is then placed in the dosing pot and injected up stream of the air cooler for a period of 10 minutes. After a further 10 minutes, a similar quantity of fresh water is injected to rinse off the emulsi ed deposits. Rate and frequency of application depends mainly on the condition of the air coolers. However when starting with the use of ACC Plus, recommended injection is every 24 hours. After the initial cleaning period, the cleaning effect should last for 48 hours of operational time. Although frequency of cleaning may vary, the calculated cleaning dose should remain the same. This cleaning method is only recommended if approved by the engine manufacturer!

AIR COOLER CLEANER 25 L

651 764452

Air Cooler Cleaner is a powerful solvent emulsion cleaner for the cleaning of diesel engine air coolers, scavenging air systems and compressor sides of turbochargers.

Features

- Formulated to remove oil, grease and carbon deposits from air coolers and scavenging systems
- Ef cient and economical
- May be used for in-service cleaning
- Renders surfaces oil-repellent
- Maintains and stabilises air cooler ef ciency at maximum
- Saves time, maintenance costs and avoids risks of damage when dismantling
- Leaves no residue and has no harmful effect on engine
- Product in water solution is non- ammable, non-explosive and has no ash point
- Can be used for light carbon removal from machinery parts

Ordering information

Product number	Product name
764452	AIR COOLER CLEANER 25 LTR

Directions for use

In-service cleaning - the general principle is to inject a solution of Air Cooler Cleaner into the air trunking upstream of the charge air cooler, followed by a clean water rinse. For ef cient cleaning of air coolers, it is necessary to use correctly installed dosing and injection equipment.
To calculate the amount of solution required to clean an air cooler, calculate or nd the cross-sectional area of the cooler and use 3 litres of cleaning solution per square metre or as table below:

Engine HP	Solution mix. with 25% Air Cooler Cleaner
6,000 to 12,000	3 litre mix
12,000 to 24,000	4.5 litre mix
24,000 or more	6 litre mix

For in-service cleaning of the air cooler and air-side of turbochargers, a solution of 25% Air Cooler Cleaner in freshwater is recommended.

The appropriate dose of cleaner is then put in the dosing pot and injected up-stream of the air cooler in 10 minutes. After a further 10 minutes, a similar quantity of fresh water is injected to rinse off the emulsi ed deposits.

Rate and frequency of application depends mainly on the condition of the air coolers. However, when starting with the use of Air Cooler Cleaner, we recommend injection every 24 hours. After initial cleaning period, the cleaning effect should last for 48 hours of operational time. Although frequency of cleaning may vary, the calculated cleaning dose should remain the same.

This cleaning method is only recommended if approved by engine manufacturers.

Out of service cleaning
Handspray Cleaning - in this situation the engine must be stopped.

Open an appropriate air trunking inspection cover.

Open air cooler drain valves.

Using a pressure handspray, apply undiluted Air Cooler Cleaner all over the cooler coils. Allow the Air Cooler Cleaner to penetrate the deposits for a minimum of 1 hour, then use a high pressure lance or water jet to wash off the loosened deposits.

After satisfactory cleaning, and ushing through with fresh water, close air cooler drains.

Soak Method - this method may be used for machine parts with stubborn carbon deposits. Put parts to be cleaned into a bath of undiluted Air Cooler Cleaner and allow deposits to be broken down and loosened before removal, then rinse.

Unitor Air Cooler Cleaner Injection System

The engine manufacturer should be consulted before installing injectors.

Large engines will normally require two injectors per cooler, but one injector is usually suf cient for medium and small engines.

CARBONCLEAN LT 25 L

651 575696

Carbonclean LT is a non-corrosive, powerful micro emulsion based cleaner for removal of carbonaceous deposits. Carbonclean LT contains no chlorinated solvents or phenolic compounds and has low toxicity to the environment and to persons handling it.

Features

- Reformulated with improved cleaning properties
- Can be used for cleaning engine parts including, but not limited to:
  - Pistons
  - Piston rings
  - Valves
  - Valve cages
- Does not contain nonylphenol ethoxylates or other estrogenic compounds
- Non-corrosive, safe on all light metals, including aluminium
- Quickly dissolves deposits containing carbon, resins or varnishes
- Simple and economical to use by soaking or circulation method
- Eliminates need for hard scraping
- Low toxicity
- Low evaporation rate
- No phenolic or chlorinated compounds
- Can be used for removal of carbon type deposits from burner tips, fuel injectors and all components fouled by carbon, resin or varnishes
- Cleans oil side of fuel and lube-oil heaters, oil coolers, etc.
- Removes carbon based deposits from fuel and lube oil lters

Ordering information

Product number	Product name
575696	CARBONCLEAN LT 25 LTR

Directions for use

Soaked method
This method is an effective way of cleaning deposits from machine parts. The items to be cleaned are dipped into the cleaning solution. A wire basket can be used for small components. For removal of light deposits or oil, a dilution of up to 1:2 in fresh water can be used. Light deposits will be removed in 1 hour, whereas heavily oxidised deposits may need overnight soaking. After the components have been removed from the soaking bath, remaining cleaning solution is easily ushed off with water.

Due to a very low evaporation rate, no precautions are necessary to prevent loss of liquid, but adequate ventilation is recommended.

Cleaning the Oil Side of Heat Exchangers Where in-situ cleaning is required, Carbonclean LT can be used neat and circulated through the unit in question. Time required for this process will again depend on extent of fouling and may take up to 24 hours.

The Unitor Chemical Cleaning Unit - Product no. 664 613807 - is recommended to be used.

1. Disconnect the heat exchanger's oil inlet and outlet, drain off any remaining oil.
2. Connect the discharge side of the Chemical Cleaning Unit (CCU) to the lower heat exchanger connection and t the return to the CCU.
3. Add Carbonclean LT to the drum, Carbolcean LT can be diluted to 25% with fresh water, and heat, maintaining the temperature (max 60°C), throughout the cleaning operation. If heat is not available the cleaning time will need to be extended and a higher product concentration is bene cial.
4. Circulate for 12 hours. When the cleaning is complete, disconnect the lower heat exchange connection and drain out the cleaning solution.
5. Connect a fresh water supply to the upper heat exchanger connection. Rinse until water runs clear.

6. Disconnect the water supply, drain and dry the heat exchanger.

The Unitor Chemical Cleaning Unit can also be used for cleaning by soaking or circulation. Results can be achieved with maximum ef ciency and with the minimum use of Carbonclean LT.

CARBON REMOVER 25 L

651 571604

A powerful non-corrosive solvent for breaking down carbon deposits

Features

- Quickly dissolves deposits containing carbon, resins or varnishes
- Eliminates need for hard scraping
- Non ammable
- Removes carbon type deposits from burner tips, fuel injectors and all components fouled by carbon, resin or varnishes
- Cleans oil side of fuel heaters, oil coolers, etc.
- Removes carbon based deposits from fuel and lube oil lters
- Can be used for cleaning of: - Pistons - Piston rings - Valve cages

Bene ts

- Simple and economical to use

Ordering information

Product Number	Product name
571604	CARBON REMOVER 25 LTR

Directions for use

Soak Method
This method is an effective way of cleaning deposits from components and machine parts. In order to reduce the evaporation of Carbon Remover both on the pure product as well as on its emulsions, a skin is formed when exposed to air.

The items for cleaning are submerged into the active solvent. A wire basket can be used for small components. Immersion time will depend upon the nature of the deposits to be removed. Light deposits will be removed in 1 hour, whereas heavily oxidised deposits might need longer time.

The components should be rinsed thoroughly before handling.

Cleaning the Oil Side of Heat Exchangers
The Unitor Chemical Cleaning Unit - Product no. 664 737189 - is recommended to be used.

1. Isolate the oil supply, disconnect the heat exchanger oil inlet and outlet, drain off any remaining oil.
2. Connect the discharge side of Chemical Cleaning Unit (CCU) to the lower heat exchanger connection and t the return to the CCU.
3. Add Carbon Remover to the drum, product can be diluted with diesel oil down to 25 % and heat, maintaining the temperature (max 50°C) throughout the cleaning operation. If heating is not available, the cleaning time will need to be extended and a higher product concentration is bene cial.
4. Circulate for 12 hours. When the cleaning is complete, disconnect the lower heat exchanger connection and drain.
5. Connect a high pressure fresh water supply to the upper heat exchanger connection. Rinse until water runs clear.
6. Disconnect, drain and dry.

DESCALEX 25 KG

651 571646

Descalex is a dry acid cleaner formulated to remove rust and scale deposits.

Features

- Dry acid cleaner contains inhibitors to protect metals
- Contains colour indicator to show the strength of the solution and anti-foam agent
- Safe and easy handling and storage
- Fast and effective scale remover
- Removes scale from boilers and diesel engine cooling water systems
- Removes scale and rust from condensers, evaporators, heat exchangers etc.

Bene ts

- Ef cient, economical, safe

Descaling of Boilers, Descaling of Diesel Engine Cooling Water Systems, Condensers, Evaporators, Calori ers, Heat Exchangers:

See Unitor's Water Treatment Handbook.

Unitor has developed a 210 litres capacity cleaning unit designed among other for use with chemical acid solutions for cleaning boilers, calori ers, heat exchangers and other types of equipment where rust and scale form.

Chemical Cleaning Unit: Product no. 737189

Notes regarding safety in descaling operations:

Descalex contains strong acids. Handle with care and pay special attention to Material Safety Data Sheet and / or Product Label. Use personal protection equipment as recommended.

Reaction products from acid components in descaling products may include gasses like carbon dioxide and hydrogen. Formation of hydrogen gas can be monitored with gas detection equipment on the vents. To avoid suffocation and potentially explosive atmosphere, gasses should be removed safely by purging system with water after draining the cleaning solution. Vent of system during descaling operations must be provided for same reason. Always use gas detection equipment to check that the atmosphere is safe before entering con ned spaces for inspection after descaling operations. When circulating the descaling solution, always circulate with inlet at the bottom to avoid air pockets and potential entrapment of gaseous reaction products.

Ordering information

Product number	Product name
571646	DESCALEX 25 KG

Approvals

Approved by the Norwegian National Institute of Public Health for cleaning of evaporators.

Directions for use

The most effective descaling is accomplished by circulation. In the case of small components, the soak method in an immersion bath can be used.

If the equipment to be cleaned is contaminated by oil, grease and sludge, then pre-cleaning with Seaclean Plus or Enviroclean is necessary.

Depending on the extent of scaling, use a solution of 2.5–10% Descalex. The solution will have a red colour which disappear when the solution is neutralised.

Whenever possible, the solution should be heated to 60°C.

Neutralised solutions can be reactivated by adding more Descalex until the red colour reappears. This should not be done more than twice.

Descalex should not be used on aluminium, zinc, tin or galvanised surfaces.

After use of Descalex a 0.5% solution of Alkalinity Control in fresh water should be used for neutralisation.

DESCALING LIQUID 25 L

651 571653

Descaling Liquid is a liquid acid containing descaling accelerators, corrosion-inhibitors and wetting agents.

Features

- Acid based product contains inhibitors against attack on ferrous metals
- Unlimited shelf life
- Easy to rinse off
- Fast and effective scale remover
- Removes scale and rust from condensers, evaporators, heat exchangers, etc.
- Removes water scale from boilers
- Approved by the Norwegian National Institute of Public Health for cleaning of evaporators

Descaling Liquid should not be used on aluminium, zinc, tin, stainless steel or any galvanized surfaces for which a special grade cleaner should be used.

Unitor has developed a 210 litres capacity cleaning unit designet among other for use with chemical acid solutions for cleaning boilers, calori ers, heat exchangers and other types of equipment where rust and scale form.

Chemical Cleaning Unit: Product no. 664 737189.

Descaling Boilers, Condensers, Evaporators, Calori ers and Heat exchangers:

See Unitor Unitor Water Treatment Handbook.

Notes regarding safety in descaling operations:

Descaling liquid contains strong acids. Handle with care and pay special attention to Material Safety Data Sheet and / or Product Label. Use personal protection equipment as recommended.

Reaction products from acid components in descaling products may include gasses like carbon dioxide and hydrogen. Formation of hydrogen gas can be monitored with gas detection equipment on the vents. To avoid suffocation and potentially explosive atmosphere, gasses should be removed safely by purging system with water after draining the cleaning solution. Vent of system during descaling operations must be provided for same reason. Always use gas detection equipment to check that the atmosphere is safe before entering con ned spaces for inspection after descaling operations. When circulating the descaling solution, always circulate with inlet at the bottom to avoid air pockets and potential entrapment of gaseous reaction products.

Ordering information

Product number	Product name
571653	DESCALING LIQUID 25 LTR

Approvals

- This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea when used to clean cargo holds and external surfaces on ships.
- Approved by the Norwegian National Institute of Public Health for cleaning of evaporators.

Directions for use

The most effective descaling is accomplished by circulation for large systems or components. In the case of small components, the soak method in an immersion bath can be used.

If the equipment to be cleaned is contaminated by oil, grease, sludge or carbonised oil, then pre-cleaning with Seaclean Plus or Enviroclean is necessary.

Descaling Liquid should alway be used in plastic bucket. Acid should always be added to water, and never the reverse.

Descaling Liquid should be mixed with fresh water to form a solution of 10–30%, depending on the extent of scaling. After using Descaling Liquid it is essential to thoroughly rinse all metal surfaces at least once with a 0.5% solution of Alkalinity Control in fresh water. This solution should be circulated for 2–4 hours or until an acceptable pH value is

obtained. This will neutralize any remaining acidity and passivate steel surfaces.

METAL BRITE 25 L

651 571661

Liquid detergent compound containing rust dissolving acids, emulsi ers and passivators.

Features

- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Non- ammable
- Prevents ash rusting
- Surfaces rendered suitable for painting
- Surface brightening
- When cleaning aluminium, brass and copper ush with water upon completion of cleaning

Ordering information

Product number	Product name
571661	METAL BRITE 25 LTR

Approvals

- This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea when used to clean cargo holds and external surfaces on ships.

Directions for use

Metal Brite should always be used in a plastic bucket. The acid should always be added to water, never the reverse.

For removal of rust stains and oxide stains on aluminium, brass, copper and stainless steel, apply Metal Brite (after removal of oil and grease) neat with a brush, rag, etc. Wash off after 15 minutes. Repeat if necessary. Do not let Metal Brite dry on surfaces as it may leave a hard white deposit.

For steel surfaces remove oil, grease and old paint. Wet down the entire surface with neat Metal Brite and allow to dry. Second wash may be necessary. Surface should have a grey/white appearance when the Metal Brite is dry. Steel surfaces will have a resistance to rust and will render a good base for paint.

For removal of rust stains on painted surfaces and wood, Metal Brite should be applied at full strength for heavy stains, or diluted to 30–50% for light stains. Allow to soak for 20 to 30 minutes and wash off with water. A second application may be necessary to remove the stubborn stains.

DISCLEAN 25 L

651 571687

Disclean is a water based blend of inhibited acids, surfactants and emulsifying agents. Disclean removes the heavy tenacious deposits which collect in fuel and lube oil centrifugal separators, and it is extremely effective in removing these deposits without the necessity of separating the discs from the stack.

Features

- Acid based product containing surfactants
- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Non- ammable
- Remove heavy tenacious deposits
- Cleans down to metal surfaces
- Leaves no lm or residue
- Reduces down time
- Allows cleaning of disc without dismantling of disc stacks
- Cleans all types of separator discs
- Approved by Marin oc AB for use in engine rooms

It is recommended that this product is not used on zinc, tin, galvanised surfaces or anodised aluminium.

The Unitor Chemical Cleaning Unit (Product no. 664 737189) can be used for soak cleaning of disc stacks.

Ordering information

Product number	Product name
571687	DISCLEAN 25 LTR

Directions for use

Disclean may be used neat or diluted down to 20% by volume with fresh water, depending on the severity of contamination, availability of heat and time to complete cleaning operation. The higher the concentration the more ef cient the cleaning action.

The time for a cleaning operation will vary from 30 minutes to maximum 2 hours depending on the above factors. Faster and more ef cient cleaning can be accomplished by heating to a maximum temperature of 60 °C.

After the unit or parts have been satisfactorily cleaned, they shall be rinsed thoroughly with fresh water to remove all traces of contamination and Disclean.

Method of cleaning Separators can be cleaned by:

1. Removing the separator disc stack and soaking in a solution of Disclean. Circulating the solution and heating will enhance the cleaning.
2. Removing the separator discs and dismantling stack, then soaking discs in Disclean. Circulating and heating the solution will enhance the cleaning. Discs can be sprayed if soaking tank is not available.

DECK CLEAN NP 25 L

651 765990

Deck Clean NP is a liquid cleaning formulation containing acids, emulsi ers and passivators used for removal of rust and water born stains on super structure and on decks. Deck Clean NP is free of phosphoric acid and is readily biodegradable.

Features

- Highly concentrated
- Waterborne
- Removes waterborne stains from windows
- Removes light rust and rust stains from painted and wooden surfaces, metals and glass.
- Does not contain nonylphenol ethoxylates or other estrogenic compounds.
- Phosphoric acid free
- Readily biodegradable
- Easy to rinse off
- Non- ammable

Ordering information

Product number	Product name
765990	DECK CLEAN NP 25 LTR

Approvals

- This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea when used to clean cargo holds and external surfaces on ships.

Directions for use

Dosage and control
Deck Clean NP should always be added to water, never the reverse. Remove dirt, rust akes and oil/grease prior to using Deck Clean NP. Required dosage may vary slightly depending on degree of stain.

For the removal of rust stains on painted surfaces & wood, Deck Clean NP should be applied at full strength for heavy stains or diluted to 10-30% strength for light stains.

Allow to soak for 20-30 minutes and rinse off surface with water. A second application may be necessary to remove the stubborn stains.

Deck Clean NP can be used for brightening of teak, mahogany and oak decking and to remove rust and water stains on Wood and Varnished wood.

Make up to a 10% solution of Deck Clean NP and allow to soak for about 20 minutes and rinse of surface with water. Do not let Deck Clean NP dry on surface.

TEAK RENEWER 20 KG

651 758623

Teak Renewer is a dry acid product formulated for brightening wooden decks. For removal of oil and fat and for daily cleaning use Aquabreak PX or HP-Wash.

Features

- Dry acid deck cleaner
- Surface brightening of wood
- Removes stains and discolouration
- Water soluble for ease of use

Bene ts

- Quick, ef cient cleaning power

Ordering information

Product number	Product name
758623	TEAK RENEWER 20 KG

Approvals

- This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea when used to clean cargo holds and external surfaces on ships.

Directions for use

Dosing method
1. Dissolve 5 to 10% Unitor Teak Renewer in fresh water.
2. Apply the solution on the surface with a chemical spray unit.
3. Leave for 30 to 45 minutes.
4. Wash off with fresh clean water.

Sampling and testing
Teak Renewer is used to remove wood discolouration commonly found on untreated teak, mahogany or oak decking.

AQUATUFF 25 L

651 607826

Aquatuff is a heavy-duty water based alkaline cleaner. It has numerous cleaning applications including removal of greases, waxes, vegetable and animal oils, sludge, soot, carbon deposits, dirt and grime. Aquatuff is also used for cargo hold cleaning after coal and pet coke.

Features

- Heavy duty water based cleaner
- Does not contain nonylphenol ethoxylates or other estrogenic compounds
- Biodegradable
- Free from hydrocarbon solvents
- Removal of soot deposits from inert gas systems
- Aquatuff is most suitable for removal of wax deposits
- Numerous cleaning applications including removal of grease, vegetable and animal oil, soot and general dirt and grime
- Ideal for cleaning after coal and pet coke
- Effective and economical in use
- Completely safe on epoxy coatings
- Approved by Marin oc AB for use in engine rooms

Ordering information

Product number	Product name
607826	AQUATUFF 25 LTR

Approvals

- This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea when used to clean cargo holds and external surfaces on ships.
- Approved by Marin oc AB for use in engine rooms

Directions for use

General Cleaning
Aquatuff can be used for different types of cleaning, and it can be applied by brush, hand spray, high- and low pressure washing machines etc. It can be applied on vertical surfaces by adding Unitor Foam-Agent (Product no. 651 614537) for increased resident time.

Removal of soot from Inert Gas Systems (IGS)

1. Apply Aquatuff with a Unitor High Pressure Cleaning Machine and use 1:4 with water. However, if used with a hand sprayer, apply the product neat on the surfaces, allowing 1 litre per 12m^2.
2. Leave for about 30-45 minutes. The surface remains wet.
3. Wash down with hot water (80°C) and check the results.
4. Repeat the procedure if necessary.

Cargo hold cleaning
Aquatuff can be used for cargo hold cleaning after soot, coal, pet coke and other bulk materials.

Dosing method

1. Apply Aquatuff mixed 10–25% (ratio 1:9 to 1:3) in water, using spray foam equipment.
2. Leave for 30–45 minutes. The surface remains wet.
3. Wash down with a high pressure unit. For best results, direct the high pressure jet at the lowest parts of the hold rst and work upwards.
4. Repeat the procedure if necessary.

If Unitor Slip-Coat (Product no. 652 737015 and 652 737023) is applied to the cargo hold surfaces prior to loading, the concentration of Aquatuff in the cleaning solution may be reduced.

MARINE CHEMICALS

Cleaning Chemicals
Cleaning and Maintenance

When mixing Aquatuff with seawater the following needs to be taken into account:

1. Seawater may reduce the foaming qualities of the detergent
2. Seawater may in uence the pH of the cleaning solution with a reduced cleaning effect as result
3. Seawater represents a corrosion risk to the surfaces and the equipment used

When mixing Aquatuff with seawater it is recommend to have a concentration of at least 20 - 25% (ratio 2:9 to 1-3).

AQUABREAK PX 25 L

651 575613

It is very important to have a cleaning product with good performance that is safe to man and nature and Aquabreak PX has been formulated with this in mind. Aquabreak PX is a low toxic multipurpose water based cleaner.
Dirt and oil are effectively removed without the use of strong solvents. Aquabreak PX is NSF approved so it can be used to clean food serving areas and food stations.

Features

- Multi purpose cleaner
- Biodegradable, low toxic and non-caustic
- Safe on all materials

Bene ts

- Has several applications so you can minimise the number of cleaners used onboard
- Safe to use and your safety is always our priority
- Minimise the risk to damage surfaces

Good for use in the following applications:

- Good for use in galleys and on decks
- Engine room cleaner
- Suitable for cargo tank cleaning
- Suitable for cleaning of soiled textiles as rugs, covers, mats, overalls etc.
- Effectively cleans berglass boats

Ordering information

Product number	Product name
575613	AQUABREAK PX 25 LTR

Accessories

Product Number	Product name
614537	FOAM - AGENT 3X5 LTR

Approvals

- Approved by NSF
- This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea when used to clean cargo holds and external surfaces on ships.
- IMO approved and listed in Annex 10 of the MEPC.2/ Circular
- Approved by Marin oc AB for use in engine rooms

Directions for use

General Cleaning

Aquabreak PX can be used for all types of cleaning and degreasing, and it can be applied by brush, hand spray or used in ultrasonic bath.

It can be used undiluted or diluted up to 50 parts in water according to the amount and type of soil to be removed.

Aquabreak PX can be applied on vertical surfaces by adding Unitor Foam Agent for increasing the resident time.

Tank Cleaning

Direct injection method with tank washing machines:

Use a dose rate of 0.5-5 litres per ton wash water (0.05-0.5%).

Recirculation method:
Use a dose rate of 0.5-7 litres per ton wash water (0.05-0.7%).

Spot cleaning: Hand sprayed neat or diluted up to 1-5 parts with water. Leave solution for about 20-30 minutes

before washing off, but make sure the surface remains wet.

For problem deposits, please consult the Unitor Tank Cleaning Manual.

Aquabreak PX can be used on the majority of tank coating materials, painted or lacquered surfaces, light metals, plastics and textiles.

FOAM-AGENT 3X5 L

651 614537

Foam-agent is a water based non- ammable product. When using this foam additive, the cleaning ef ciency of the cleaning chemicals will be enhanced. It will also be a more economical use of the cleaning chemicals.

Features

- Biodegradable
- Does not contain nonylphenol ethoxylates or other estrogenic compounds
- Non- ammable
- Suitable for use with our water based alkaline cleaning chemicals
- Prevents the chemicals from running off vertical surfaces, and increases the resident time

Ordering information

Product number	Product name
614537	FOAM - AGENT 3 X 5 LTR

Approvals

- This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea when used to clean cargo holds and external surfaces on ships.

Directions for use

Dosing method
Foam-Agent can be used together with the below mentioned water based cleaning chemicals. This makes it possible to apply the chemicals as foam,and prevent that the cleaning chemicals run off from vertical surfaces.

Aquatuff, Aquabreak PX, Alkleen Liquid, Alkleen Safety Liquid, Fore & Aft, H.P. Wash and Reefer Cleaner.

Add 50 ml Foam-Agent per 10 litres washing solution, mix and apply with foam-equipment onto soiled surfaces.

Advice to follow the directions for use for the actual cleaning product.

After the cleaning process:
Defoamer Concentrate edp 651 661843 can be used to remove undesirable foam.

MULTI CLEAN 25 L

651 777708

Multi Clean is an alkaline mixture of water, natural citrus solvent and a synergistic blend of synthetic surfactants. Multi Clean can be used for general cleaning of accommodation areas, oor plates and engine room cleaning and has a pleasant citrus odour.

Features

- Versatile- can be used for general cleaning
- Non- ammable, non-toxic - Ingredients are all biodegradable

Bene ts

- Highly effective concentrated cleaner
- Environmentally adapted

Multiclean is formulated to meet the latest MARPOL regulations and does not contain any chlorinated solvents and less than 10 % aromatics. Also, with respect to European PARCOM regulations the product does not contain any Alkyl Phenol Ethoxylates. The ingredients of Multiclean are fully biodegradable.

Ordering information

Product number	Product name
777708	MULTI CLEAN 25 LTR

Approvals

- This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea when used to clean cargo holds and external surfaces on ships.
- Approved for use with MARINFLOC bilge water cleaning systems

Directions for use

Applications Multiclean may be used in all types of cleaning and degreasing operations and is effective against oil, grease and may other dif cult soils. Multiclean can be used neat or diluted with water or paraf n and may be applied by brush swab or spray. It may also be used in immersion tanks. The product should be allowed to stay in contact with the soil to be removed for 15-30 minutes to allow penetration before ushing with water.

EASYCLEAN CLEANING & DISINFECTION

642 778845

The EASYCLEAN CLEANING & DISINFECTION is a highly ef cient combined cleaning and disinfection product with outstanding bactericidal performance. EASYCLEAN CLEANING & DISINFECTION is recommended for use in the galley and accommodation areas including refrigeration rooms to eliminate and avoid transmission of bacteria, fungi and viruses.

Features

- Easy to use cleaning and disinfection product
- Can be used on most hard surfaces

Bene ts

- Bactericidal, Yeasticidal, Virucidal against Vaccinia, Tuberculocidal, In uenza and BVDV viruses
- VAH, tested according to VAH requirements (German Society for Hygiene and Microbiology, now VAH)
- DVG, Tested according to DVG requirements (8th list, food sector)

IMPORTANT!

EASYCLEAN CLEANING & DISINFECTION is biodegradable when diluted in water, this means that a fresh solution must be made before every cleaning and disinfection process.

The fact that the EASYCLEAN CLEANING & DISINFECTION is biodegradable means that it will not give a long term negative effect on the desired microbiological effect produced by the Gamazyme cleaning and treatment products in the drain pipes, tanks or ef uent treatment system.

Ordering information

EasyClean Cleaning & Disinfection cannot be delivered in US & Canada , for deliveries in US please contact the local Customer Service Organisation. For more information on alternative product delivered in US, please see Product Data Sheet for Sanite 128 F.

Product number	Product name	Unit	Packaging
778845	EASYCLEAN CLEANING & DISINFECTION	LTR	10 litre pail
764128	SANITE 128 F (US ONLY)	LTR	10 litre pail

Accessories

Product Number	Product name
778889	EASYCLEAN RE-USABLE BOTTLE C&D x6
778844	UNITOR MIXING STATION 4 - 4
778833	UNITOR MIXING STATION 4 - 14
778822	UNITOR CLEANING STATION 2

Directions for use

1. Clean heavy soiled areas with EASYCLEAN FLOOR & HARD SURFACE prior to disinfection
2. Dilute the concentrate of EASYCLEAN CLEANING & DISINFECTION to the correct concentration prior to use through the UNITOR MIXING STATION 4 - 14 OR UNITOR MIXING STATION 4 - 4;
   1 : 100 (1,0 %) for galley and other areas and
   1,5 : 100 (1,5 %) for hospital
3. The product is biodegradable and will have reduced effect over time
4. Apply the cleaning solution with cloth, mop, sponger or by soaking. Allow to work for 15 min for galley and 30 min for hospital
5. Rinse off or allow to air dry. Areas that can come in contact with food and oors if they are being vaxed or polished must be rinsed off with fresh water

Further Technical Data

Form	Liquid
Odour	Amine odour
Density	1,022 g/cm3 at 20 deg C
pH	10 at 20°C

SANITE 128 F

SANITE 128 F is a highly effective Cleaning and Disinfection product for deliveries in US. The product is recommended for use in the galley and accommodation areas including refrigeration rooms to eliminate and avoid transmission of bacteria, fungi and viruses.

Features

- Easy to use cleaning and disinfection product
- Can be used on most hard surfaces

Bene ts

- Kills all the most normal bacteria, yeasts and viruses

Ordering information

Sanite 128 F cannot be delivered outside of the US. For deliveries outside of the US please contact the local Customer Service Organisation. For more information on alternative product delivered outside of the US and Canada, please see Product Data Sheet for EasyClean Cleaning & Disinfection.

Product Number	Product name	Unit	Packaging
764128	SANITE 128 F (US ONLY)	LTR	10 Litre pail
778845	EASYCLEAN CLEANING & DISINFECTION	LTR	10 Litre Pail

Accessories

Product Number	Product name
778889	EASYCLEAN RE-USABLE BOTTLE C&D x6
778844	UNITOR MIXING STATION 4 - 4
778833	UNITOR MIXING STATION 4 - 14
778822	UNITOR CLEANING STATION 2
778845	EASYCLEAN CLEANING & DISINFECTION

FORE & AFT 25 L

651 571554

Fore & Aft is a biodegradable cleaner containing surfactants and alkaline materials, suitable for cleaning accommodation and galley areas.

Features

- Biodegradable cleaner
- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Non-caustic
- Non- ammable
- Acceptable for use in the food storage areas
- Suitable for cleaning of sanitary xtures i.e. showers, toilets etc
- Can be used on windows and port holes
- Phosphate free

Bene ts

- Economical in use

Ordering information

Product number	Product name
571554	FORE & AFT 25 LTR

Directions for use

Dosing method

Depending on the applications, Fore & Aft can be diluted with water in concentrations from 0,15 to 1,25%.

For cleaning in public areas, such as oors, tiles, walls, paint work etc., it can be used in concentrations between 0,15 to 1,25% and applied by mops, spray or sponge and rinsed off with water after the cleaning.

For objects such as furnitures, plastics, vinyls etc., a concentration between 0,15 to 0,75% is recommended. Rinse off with water after the cleaning.

H.P. WASH 25 L

651 571729

H.P. Wash is an alkaline cleaner with detergents and surfactants which quickly dissolve grease and dirt deposits. H.P. Wash is designed for use with high pressure cleaning machines such as Unitor High Pressure Cleaners. H.P. Wash is suitable for most painted surfaces and dries leaving a good shine.

Features

- Reformulated with improved cleaning properties
- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Biodegradable cleaner
- Non- ammable
- Formulated for use with H.P. cleaning machines
- Rapid dispersal of a large range of oils and greases
- Low dose rates 0.5–5%
- Leaves a good shine on hard surfaces after cleaning
- H.P. Wash is suitable for hot or cold high pressure spray equipment
- Can be used for general cleaning in the engine room, outside paint work and on the deck
- Can be used on Ro/Ro vessel car decks, for removal of traf c lm
- Can be used for cleaning of sh holds and process machinery onboard factory vessels
- Approved by Marin oc AB for use in engine rooms
- Phosphate free

Ordering information

Product number	Product name
571729	H.P. WASH 25 LTR

Approvals

- This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea when used to clean cargo holds and external surfaces on ships.

Directions for use

Dosing method
For high pressure cleaning, apply the cleaning agent in an even layer using low pressure. Allow solution to penetrate soil for about 3–5 minutes before washing off thoroughly with high pressure water.

The recommended dose rates for the application using low pressure side of the cleaning machine, is between 0.5–5% depending on amount and type of soil.

H.P. Wash can be used by conventional cleaning using brush, rag or spray at a dose rate of 5–20% in water depending on the soiling. Allow 5 minutes for penetration, then rinse off with water.

Sampling and testing
H.P. Wash is suitable for most painted surfaces and dries leaving a good shine.

UNI-WASH 25 L

651 571745

Uni-Wash is a liquid detergent with good foaming qualities. It contains wetting agents that allow rapid penetration to remove fat, oil, grease or grime. Uni-Wash is pH-neutral and suitable for cleaning accommdation areas.

Features

- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Non- ammable
- Pleasant smell
- Leaves surfaces residue free
- Acceptable for use in food areas
- Suitable for accommodation cleaning of woodwork, leather, desks etc.
- Suitable for cleaning of toilets and showers
- Can be used for cleaning of dishes
- Can be used for cleaning of windows and port holes

Ordering information

Product number	Product name
571745	UNIWASH 25LTR

Approvals

- This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea when used to clean cargo holds and external surfaces on ships.

Directions for use

Dosing method
Depending on the degree of contamination Uni-Wash shall be mixed with warm water at a dose rate of 50 to 200 ml per 10 litres, i.e. 1 cup to a bucket of water.

Uni-Wash solution can be applied simply by mops, brushes or rags, or dip the soiled articles into the Uni-Wash solution. After cleaning, rinse off with cold or warm water.

Due to high foaming properties, Uni-Wash is not recommended for laundry washing machines.

Sampling and testing
Uni-Wash is an accommodation cleaner.

ULTRA SONIC CLEANER USC 12X1 L

651 607819

Unitor USC is a water-based alkaline low-toxic product with an exceptional solvency power on soil and oily matter. It is specially developed for ultrasonic cleaning applications. It is free from hydrocarbon solvents, biodegradable, and safe to handle.

Features

- Water-based
- Low-toxic
- Biodegradable
- Non- ammable
- Free of hydrocarbon solvents
- Specially developed for use with ultrasonic cleaning baths
- Removes grease, oil, carbon deposits, soil and grime
- Keeps loosened deposits in suspension preventing re-deposition
- Effective and economical in use
- Self splitting

Ordering information

Product number	Product name
607819	UNITOR USC 12 X 1 LTR

Directions for use

Dosing method
Unitor USC is specially formulated for use in the ultrasonic cleaning tank, Unitor Ultrasonic T-1040/HM.

Fill the ultrasonic unit with approx. 30 litres of clean fresh water.

Prior to use, the ultrasonic bath must be de-gassed. Allow the bath to run for 1-2 minutes without any objects or cleaning agent until the evolution of gas bubbles ceases. This is to enhance the cleaning effect.

Mix in 1 litre Unitor USC. For stubborn deposits, a second litre may be added.

Best results are obtained at temperatures of 60-80°C.

Time necessary for cleaning depends on the nature and thickness of the deposits. 20-30min. will suf ce for most applications. Hardened, carbonised or aged deposits may require up to 4 hours.

If the cleaning solution is not heavily contaminated, it may be re-used at a later stage.

Sampling and testing
Suitable for cleaning engine components like fuel and lube oil lters, pump components, inlet and exhaust valves etc.

NATURAL HAND CLEANER 5 LTR

651 571752

Natural Hand Cleaner is an orange gel skin cleaner containing natural ingredients such as citrus oils. The product is effective, mild to the skin and contains no petroleum solvent derivatives. It removes the most severe industrial grime, oil and grease in complete safety. It incorporates poly beads to assist removal if the most severe industrial grime.

Features

- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Pleasant citrus smell
- Mild antiseptic properties
- Contains poly beads which act like a light scrubbing brush to assist the cleaning action. The poly beads are harmless to bilge pumps
- Effective and suitable for the most severe soiling. Due to its mildness it can be used safely day after day
- Easier to rinse off than many other gel cleaners
- Approved by The Royal Institute of Public Health

Ordering information

Product number	Product name
571752	NATURAL HAND CLEANER 4 X 5 LTR

Approvals

Approved by The Royal Institute of Public Health

Directions for use

Natural Hand Cleaner should be massaged onto the soiled skin without the use of water. The skin should then be rinsed with clean water and dried thoroughly with a towel or tissue.

ULTRACIP 25 L

651 770727

Ultra CIP is a multi-purpose product that can handle several different applications as well as solve and clean complex contaminations. Ultra CIP removes deposits like coked oil, oil mixed with hard deposits like rust and lime. Ultra CIP can also remove deposits from glycol and similar products.

Features

- The product is readily biodegradable and non- ammable
- Remove heavy tenacious deposits
- Cleans down to metal surfaces and leaves no lm or residue
- The product is self splitting

Bene ts

- A good environmental choice that you can use to clean all separator surfaces
- Saves you time and cost as you can clean the separator discs without dismantling it
- Leaves a clean surface and a product that quickly will split into a water and oil phase

Ordering information

Product number	Product name
770727	UNITOR ULTRACIP 25 LTR

Accessories

Product Number	Product name
737189	CHEM. CLEAN. UNIT W/HEATING, COATED

Approvals

- Product is tested and approved by Marin oc.

Directions for use

UNITOR Ultra CIP can be used for cleaning of lube- and fuel oil separators, heat exchangers and pipe systems. Ultra CIP can be used for manual cleaning and Cleaning In Place with cleaning equipment intended for CIP. For most applications our Chemical Cleaning Unit can be used, product nr 737189.

Manual Cleaning

For manual cleaning of separator parts and machinery parts.

Use a solution between 5-20% concentration depending on how dirty the equipment to be cleaned is. Both oil and lime will be solved with time, let soak for at least 2 hours.

After 2 hours the parts can be cleaned using high pressure cleaners, rinsing or brushing.

Cleaning In Place of Separator

For the lube oil separator use a 20% solution

For the fuel oil separator use a 10% solution

Recommended cleaning temperature is 70-90oC (158-194oF). A normal cleaning cycle is between 1 to 3 hours depending on the dirtiness and character. If the separator has very hard deposits the cleaning cycle may have to be repeated with new cleaning uid.

COMMISSIONING CLEANER 25 L

651 624932

Commissioning Cleaner is a multifunctional water based cleaner. It is the new generation in one step cleaner products. Low foaming, Commissioning Cleaner is for cleaning of new boilers and cooling systems on board new buildings. It will remove scale, rust, oil and grease at the same time from the systems. The product is recirculated through the system,using an external circulation pump.

Features

- Water based multifunctional cleaner
- Biodegradable
- Does not contain nonylphenol ethoxylates or other estrogenic compounds
- Cleaning of new systems for mill scale, rust, oil etc.
- Cleans water systems with light scale and a thin oil lm
- Provides a temporary protection against corrosion by passivation
- No need of neutralization chemicals afterwards
- Safe on aluminium, zinc, tin and their alloys
- Quick separation of oil after cleaning

Ordering information

Product number	Product name
624932	COMMISSIONING CLEANER 25 LTR

Directions for use

Commissioning Cleaner is for cleaning of new boilers and cooling systems on board new buildings. It will remove scale, rust, oil and grease at the same time from the systems. The product is recirculated through the system, using an external circulation pump.
Use the dosage 5-10% solution depending on the grade of contamination.

Degreasing and descaling of boiler and cooling water systems
The Unitor Chemical Cleaning Unit - Product no. 664 737189 - is recommended to be used.

1. Drain system to be cleaned if necessary.
2. Inspect as completely as possible to determine the extent of contamination and general condition of system.
3. Fill with fresh water.
4. Add a solution 5-10% strength of Commissioning Cleaner.
5. Circulate through the system for 5 to 8 hours at the maximum temperature allowed by the system.
6. Drain system complete and ush thoroughly the entire system and all compounds with fresh water until ef uent is clear.
7. Reinspect to determine results of the cleaning process.
8. If unsatisfactory, repeat steps 3 through 7.
9. Re ll system with distillate or good quality fresh water and dose the required amount of cooling or boiler water treatment.
10. Test system on a regular basis to insure chemical residuals are maintained with speci c limits.

BILGE WATER FLOCCULANT 25 L

651 690669

Bilge Water Flocculant is a very effective liquid treatment based on Poly Aluminium Chloride (PAC) to separate oil residues from bilge water. It is iron-free, and is completely safe to the environment.

Features

- Cost-effective bilge water treatment based on specially selected Poly Aluminium Chloride
- Iron-free. Completely safe to the environment
- Acts by both breaking the oil-in-water emulsion and by building ocs
- Helps to meet environmental regulations on oil content. Discharged water contains normally less than 3 ppm oil
- Remaining oil sludge can be burned onboard or pumped ashore-contains very little water
- Low dosage, economical use
- Effective over an extended pH-range. Eliminates the use of pH-stabilising chemicals
- Approved by manufacturers of bilge water cleaning systems

Applications
International environmental regulations set strict rules as to the oil content in ef uent water from ships. To meet these regulations, a combination of mechanical and chemical cleaning is necessary. Bilge Water Flocculant is used in combination with multistage bilge water cleaning systems that include mechanical separation of free oil, emulsion breaking, occulation and ltration. After dosing, Bilge Water Flocculant breaks the oil-in-water emulsion created by contaminants in lubricating and fuel oils, emulsifying cleaning agents etc. It then destabilizes the remaining small oil droplets and agglomerates them into larger particles (ocs) that are easily collected by ltering.

Ordering information

Product number	Product name
690669	BILGE WATER FLOCCULANT 25 LTR

Approvals

- Approved by manufacturers of bilge water cleaning systems.

Directions for use

Dosing method

Typical dose rate: 100 - 500ppm (0.1 - 0.5 litre/m^3 of water)
In a multistage bilge water cleaning system, Bilge Water Flocculant is fed undiluted through a dosage pump connected to the pressure side of the oil descaler. The oc tank is fed according to the ow of the bilge water pumped into it. The feed is adjusted in connection with the installation and normally needs no alteration. If required, dosing can also be controlled by measuring the level in the container.

DEFOAMER CONCENTRATE

Defoamer Concentrate is a non-silicone based water dispersible, liquid defoamer. It controls foaming in sewage and waste water systems, and it is stable in alkaline conditions. Defoamer Concentrate can be used to remove foam in water based systems and collecting tanks in vacuum toilet systems.

Features

- Non-silicone defoamer
- Stable in alkaline conditions
- Can be used in sewage and waste water systems
- Outstanding for all atmospheric, pressurised and continuous waste equipment
- Excellent to control foaming and remove foam when necessary
- Approved by ZENON Environmental Inc. for use in membrane bio reactor systems

Ordering information

Product number	Product name
661843	DEFOAMER CONCENTR. 25 LTR
624314	DEFOAMER CONCENTR. 20 LTR BIB

Approvals

- Approved by ZENON Environmental Inc. for use in membrane bio reactor systems

PENETRON PLUS 12X0,5 L

651 575506

Penetron Plus is a fast acting liquid compound containing special oils and solvents that penetrate iron oxides and loosens carbon deposits. Penetron Plus loosens corroded parts as nuts, bolts, etc.

Features

- Liquid oil based product
- Low-toxic, emits no toxic fumes or vapours
- Fast acting penetration of rusty seized up parts
- Helps to avoid cutting or burning off bolts from engines or machinery
- Keeps tools clean and rust free
- Dismantling of assemblies seized up from rust and soiling
- Cleaning of rusty and soiled metal parts
- Protection of machinery parts and tools

Ordering information

Product number	Product name
575506	PENETRON PLUS 12 X 0,5 LTR

Directions for use

Penetron Plus can be applied by brush, spray, spout from can or used in a soak tank.

For nuts, bolts and other corroded parts a few drops of Penetron Plus on the thread and nut is usually suf cient to free a seized thread.

Small rusty and soiled parts can be immersed in a tank, to remove rust scale and soiling i.e. grease, tar and oils.

Use a brush or spray to prepare larger machinery parts for dismantling, to free nuts and bolts and clean parts.

For protection against rust, brush or spray a coating over parts to be protected.

Always use Penetron Plus neat.

Sampling and testing
Penetron Plus loosens corroded parts as nuts, bolts, etc.

ELECTROSOLV-E 25 L

651 604389

A non-chlorinated solvent with a controlled evaporation rate for cleaning and degreasing electrical equipment.

Features

- Contains no chlorinated solvents
- Powerful solvent with controlled evaporation
- Rapid penetration and action
- Harmless to electrical insulation- tested for breakthrough voltage after DIN-57370 to 209 KV/cm

Bene ts

- Ef cient cleaning with no grease lm or moisture residue
- Non-corrosive - can be used on all normal components with no risk of corrosive damage
- Cleans and degreases electrical parts and equipment without the need for rinsing

Ordering information

Product number	Product name
604389	ELECTROSOLV - E 25 LTR

Directions for use

Electrosolv-E must only be used in suf cient ventilated areas. Electrosolv-E should always be used undiluted. It can be applied by brush, swab or as a ne spray using suitable hand held spray equipment.

NOTE! Never open ame when using ne spray.

Small components be cleaned y brief immersion in a bath of Electrosolv-E. The most suitable way of applying Electrosolv-E is by using hand spray or syphon spray gun. Once the deposits of dirt and grease have been ushed away with Electrosolv-E the remaining solvent may be evaporated by using clean compressed air at low pressure and high volume.

MUD & SILT REMOVER 25 L

652 635326

Mud & Silt Remover is a liquid compound. It keeps mud in suspension and cleans fouled systems completely. Mud & Silt Remover removes sediments, silt and mud from ballast tanks, cooling water systems, pipelines, etc.

Features

- No acids, alkali or solvent
- Biodegradable
- Non-toxic
- Non- amable
- Keeps mud in suspension and cleans fouled systems
- Removes sediments, silt and mud from ballast tanks, cooling water systems, pipelines, etc.
- Inject in small quantities into the ballast or cooling water system to be cleaned

Bene ts

- Effective and economical in use

Ordering information

Product number	Product name
635326	MUD & SILT REMOVER 25 LTR

Directions for use

Mud & Silt Remover removes sediments, silt and mud from ballast tanks, cooling water systems, pipelines, etc.

Mud & Silt Remover should be injected in small quantities into the ballast or cooling water of the system to be treated, prior to lling the tanks or the system. Heavy deposits may require several treatments.

Caution!
Spillages of Mud & Silt Remover should be avoided, as oors, decks, etc. will become very slippery. Clean as soon as possible.

NOTE: SHELF LIFE - 24 MONTHS FROM PRODUCTION

Dosing method
If product is regular dosed each time tanks are ballasted, a maintenance dosage of 2.5 Ltr/100 tonnes of ballast water is recommended. To clean heavy accumulation a dose rate of 10 Ltr Mud & Silt Remover per 100 tonnes of ballast water is recommended.

Inject Mud & Silt Remover preferably into the suction line of the ballast or cooling water pump, to ensure thorough mixing with the incoming water. If possible, circulate the water through the tanks and the suspended mud and silt will be pumped out when deballasting.

CLEANRIG

Cleanrig HP is a water-based rig cleaner specially designed to provide ef cient cleaning and optimum environmental and handling properties.

It contains unique environmentally adapted surfactants, pH regulating additives and corrosion inhibitors allowing removal of oil spills, sludge, oil- and water based mud, dirt and grime from all surfaces included painted.

Features

- Water based cleaner
- Rig cleaner for use on deck, tanks, engine rooms, drilling equipment
- Biodegradable
- Non-toxic
- Highly ef cient
- Non- ammable
- No hydrocarbon solvents
- Contains no nonyl phenol ethoxylates or other estrogenic compounds

Bene ts

- Can be used in con ned rooms
- Removes oil spills, sludge, mud, dirt and grime
- Leaves a good shine on hard surfaces after cleaning

Ordering information

Product number	Product name
719013	Cleanrig HP 25 LTR
719021	Cleanrig HP 200 LTR

Approvals

Cleanrig HP is according to Norwegian environmental authorities classi ed as “Yellow” product containing biodegradable surfactants and pH-regulating compounds.

Directions for use

Cleanrig HP is an alkaline cleaner designed to remove oil and grease by penetration of surfactants creating an emulsion, which is washed away with water. PH regulating additives provide increased action and dissolution of hydrocarbons and dirt particles. It can be used undiluted or diluted up to 50 parts with water depending on the amount and type of soil to be removed, but often low concentrations are suf cient. Cleanrig HP is applied by spraying or by other means on to surfaces that requires cleaning. Allow the cleaning solution to penetrate soil for 10-30 minutes depending on amount and type of soil as well as the temperature. During this time the cleaning solution should not be allowed to dry on the surface to be cleaned. Wash down with water hose preferably with hot water or by use of high pressure cleaning equipment.

SEACLEAN PLUS 210 L

652 654723

Seaclean Plus is a modern low-toxic, biodegradable solvent based product. It meets IMO's requirements regarding safety and pollution hazards of chemicals. This product is excellent as a tank cleaner and degreaser.

Features

- The emulsifying agents in this product are biodegradable
- Does not contain nonylphenol ethoxylates or other estrogenic compounds
- Versatile, can be used for a wide range of applications.
- Easy to use by any conventional means
- Can be used for cleaning and gas-freeing of double bottom, deep, and fuel oil tanks at sea
- Can also be used for cleaning and gas-freeing of crude and re ned mineral oil cargo tanks
- Can be used for degreasing and cleaning of bilge spaces and engine rooms
- Safe to use on most metal surfaces, painted surfaces and tank coatings

Bene ts

- Highly concentrated tank cleaner with quick penetration and powerful emulsifying properties
- Easy rinse off, leaving clean and oil-free surfaces
- Economical, very low dosage rates

Ordering information

Product number	Product name
654723	SEACLEAN PLUS 210 LTR

Approvals

- Seaclean Plus has been evaluated by the BLG Working Group on the Evaluation of Safety and Pollution Hazards of Chemicals (ESPH) and found to meet the requirements of paragraph 13.5.2 of the MARPOL Annex II and is consolidated into annex 10 of the MEPC.2/Circular.
- This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea when used to clean cargo holds and external surfaces on ships.

Directions for use

Direct injection method - for tank cleaning machines
The dose rate should be between 0.1-0.2% i.e.1-2 litres per ton wash water.

Recirculation method - for tank cleaning machines
It is advised to use a solution of 0.1-0.2% i.e. 1-2 litres per ton wash water mixed in the tank to be cleaned.

Dose rates and results will vary depending on contamination, the temperature of the cleaning solution, and number of tanks to be cleaned with the solution. Best results are obtained when water is heated to a temperature between 65-80°C.

Spot cleaning
Seaclean Plus can be sprayed neat onto tank surfaces to be cleaned. The contact time should be at least 30 minutes. Bulkheads/walls can be washed down by use of tank washing machines or high pressure cleaning machines. The best result is achieved with hot water between 60-80°C. Slops should be constantly stripped from the tank and transferred to a holding tank or pumped ashore to slop tanks.

Rock and Roll method

1. Cleaning of double bottom tanks during voyages.
2. Heat the remaining fuel in the tank, trimming the vessel as required to assist in stripping tank.
3. Flush tank with sea water, stripping constantly.
4. After ushing, ensure all suction and discharge valves in the engine room are closed.
5. Dose tank with Seaclean Plus through the sounding pipe or manhole between 0.5 - 1 litre per ton of water, for 75-80% of capacity of tank to be cleaned.

6. Fill tank to 25% capacity with sea water, raise the temperature up to 60°C and maintain this for 24 hours.
7. Top up tank to 75-80% capacity with sea water and continue to heat for 48-72 hours.
8. Discharge and strip tank. Fill to 50-60% capacity with sea water and allow 2 hours rinsing time.
9. Discharge tank and strip, ush tank with sea water for 2 hours, stripping continuously. When completed, inspect tank to ascertain if second cleaning is required. If so:
10. Add second dose of Seaclean Plus, ll tank to 75-80% capacity with sea water and raise the temperature to 60°C maximum. Maintain this for 48-72 hours. In calm seas recirculate the solution in tank as long as possible.
11. Discharge and strip tank, ush with sea water, stripping continuously for 2 hours. To gas-free, ll tank with sea water to over ow through vents and sounding pipes, discharge and strip completely.

Rock and Roll cleaning dosage chart

Fuel oil Viscosity at 50 Degrees Celsius	SEACLEAN PLUS per ton of water 1st Stage	SEACLEAN PLUS per ton of water 2nd Stage
Over 320	1 litre	1 litre
180 to 320	1 litre	0,75 litre
30 to 180	0.75 litre	-
Up to 30	0.5 litre	-

For full cleaning instruction for various types of cargo, please consult the Unitor Tank Cleaning Manual.

Degreasing Marine Diesel Engine Cooling Water Systems

(This method can only be used when engine is out of service)

1. Drain the cooling system and ush with water.
2. Re ll engine with water adding 20 litres Seaclean Plus per 1000 litres cooling water.
3. Circulate the solution through the system and heat until a temperature of about 60°C.
4. Continue circulation of the solution through the system for a minimum of 5 hours.
5. Drain engine and check the cleaning result. Repeat cleaning procedure if necessary.
6. When cleaning is completed, drain the system, and thoroughly ush with clean water. Re ll while adding an anticorrosion treatment such as Dieselguard NB or Rocor NB Liquid.

Seaclean Plus can also be used for local cleaning and degreasing in engine rooms and on deck. It can be applied by brush, hand spray, immersion soaking or any other conventional means. Apply undiluted onto soiled surfaces and allow a contact time of 15-30 minutes before rinsing off with water.

Soak method
Immerse heavily soiled parts into bath of undiluted Seaclean Plus, medium to light soiled parts may be cleaned in a 10-30% solution in water. Parts should be soaked for at least 30 minutes before washing off with water.

Spray method
Spray Seaclean Plus undiluted onto soiled areas. Allow between 15-30 minutes of penetration time before rinsing off with water.

Further Technical Data

Form	Liquid
Appearance	Clear pale yellow
Density	0,8
Flash Point, deg C	Above 61

ALKLEEN SAFETY LIQUID

Non-caustic water based alkaline cleaner, containing corrosion inhibitors to prevent the corrosion of metals such as zinc, aluminium, copper, brass and tin. Alkleen Safety Liquid minimises the hazards in handling caustic based materials.

Features

- Non-caustic
- Non- ammable
- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Non-corrosive to ferrous metals
- Suitable for all tank-coatings
- Can be used for gas and hydrocarbon-freeing of tanks
- Can be used for deodorizing
- IMO approved and listed in Annex 10 of the MEPC.2/ Circular

Bene ts

- Safe, meets current regulation

Ordering information

Product number	Product name
571521	ALKLEEN SAFETY LIQ 210 LTR
571513	ALKLEEN SAFETY LIQ 25 LTR

Approvals

- IMO approved and listed in Annex 10 of the MEPC.2/ Circular

ALKLEEN SAFETY LIQUID 25 L

652 571513

Non-caustic water based alkaline cleaner, containing corrosion inhibitors to prevent the corrosion of metals such as zinc, aluminium, copper, brass and tin. Alkleen Safety Liquid minimises the hazards in handling caustic based materials.

Features

- Non-caustic
- Non- ammable
- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Non-corrosive to ferrous metals
- IMO approved and listed in Annex 10 of the MEPC.2/ Circular

Bene ts

- Suitable for all tank-coatings
- Can be used for gas and hydrocarbon-freeing of tanks
- Can be used for deodorizing
- Safe, meets current regulation

Ordering information

Product number	Product name
571513	ALKLEEN SAFETY LIQ 25 LTR

Approvals

Alkleen Safety Liquid has been evaluated by the BLG Working Group on the Evaluation of Safety and Pollution Hazards of Chemicals (ESPH) and found to meet the requirements of paragraph 13.5.2 of the MARPOL Annex II and is consolidated into annex 10 of the MEPC.2/ Circular.

Directions for use

Cargo tank cleaning following discharge of drying, semi-drying and non drying natural oils and fats.
As soon as possible after the cargo has been discharged, the tanks should be ushed with cold water to prevent polymerisation and evaporation of the lighter oil fractions.

Whenever possible, the cleaning solution should be heated to 60-80°C. However, the polymerising nature of some natural oils may demand lower cleaning temperatures.

Dosing method The most economical method of using Alkleen Safety Liquid is by direct injection followed by recirculation washing, using tank cleaning machines. If this method is not possible, hand spraying provides acceptable options. Refer to dosage table for dosage rates.

Cargo Residue	Hand Spray	Recirculation	Direct Injection	*Approx. recirculation consumption, litres per 1000 m3 tank space
Fatty acids, fatty alcohols Fish oils	100%	3-5%	2-4%	180-300
Drying & Semi drying	100%	3-5%	2-4%	180-300
Vegetable oil	50-100%	2-4%	1-3%	120-240
Non drying vegetable oil	50-100%	2-4%	1-3%	120-240

*When using the recirculation method, the tank to be cleaned is lled with water to a level that the heating coils are covered. As an average, this is approximately 0.6% of the volume of the tank. The gures mentioned in this column are the quantity of Alkleen Safety Liquid required to obtain the recommended solution strengths.

Further Technical Data

Form	Liquid
Appearance	Colourless
Density	1,1
pH, in conc.	13
pH, in 1% sol.	11,4
Non Compatible	The concentrated product may react with aluminium, zinc, tin and their alloys.

ALKLEEN SAFETY LIQUID 210 L

652 571521

Non-caustic water based alkaline cleaner, containing corrosion inhibitors to prevent the corrosion of metals such as zinc, aluminium, copper, brass and tin. Alkleen Safety Liquid minimises the hazards in handling caustic based materials.

Features

- Non-caustic
- Non- ammable
- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Non-corrosive to ferrous metals
- Suitable for all tank-coatings
- Can be used for gas and hydrocarbon-freeing of tanks
- Can be used for deodorizing
- IMO approved and listed in Annex 10 of the MEPC.2/ Circular

Bene ts

Ordering information

Product number	Product name
571521	ALKLEEN SAFETY LIQ 210 LTR

Approvals

Alkleen Safety Liquid has been evaluated by the BLG Working Group on the Evaluation of Safety and Pollution Hazards of Chemicals (ESPH) and found to meet the requirements of paragraph 13.5.2 of the MARPOL Annex II and is consolidated into annex 10 of the MEPC.2/ Circular.

Directions for use

Cargo tank cleaning following discharge of drying, semi-drying and non drying natural oils and fats.
As soon as possible after the cargo has been discharged, the tanks should be ushed with cold water to prevent polymerisation and evaporation of the lighter oil fractions.

Whenever possible, the cleaning solution should be heated to 60-80°C. However, the polymerising nature of some natural oils may demand lower cleaning temperatures.

Dosing method The most economical method of using Alkleen Safety Liquid is by direct injection followed by recirculation washing, using tank cleaning machines. If this method is not possible, hand spraying provides acceptable options. Refer to dosage table for dosage rates.

Cargo Residue	Handspray	Recirculation	Direct Injection	*Approx. recirculation consumption, litres per 1000 m3 tank space
Fatty acids, fatty alcohols Fish oils	100%	3-5%	2-4%	180-300
Drying & semi-drying	100%	3-5%	2-4%	180-300
Vegetable oil	50-100%	2-4%	1-3%	120-240
Non-drying vegetable oil	50-100%	2-4%	1-3%	120-240

*When using the recirculation method, the tank to be cleaned is lled with water to a level that the heating coils are covered. As an average, this is approximately 0.6% of the volume of the tank. The gures mentioned in this column are the quantity of Alkleen Safety Liquid required to obtain the recommended solution strengths.

Further Technical Data

Form	Liquid
Appearance	Colourless
Density	1,1
pH, in conc.	13
pH, in 1% sol.	11,4
Non Compatible	The concentrated product may react with aluminium, zinc, tin and their alloys.

ALKLEEN LIQUID

Alkleen Liquid is a heavy duty water based alkaline tank cleaner, containing natural based detergents. For zinc silicate coatings use Alkleen Safety Liquid.

Features

- Reformulated with improved cleaning properties
- Powerful alkaline tank cleaner containing detergents
- The emulsifying agents are biodegradable
- Non- ammable
- Non-corrosive to ferrous metals and epoxy coatings
- Rapid penetration and emulsi cation of vegetable, animal and sh oils
- Rapid rinsing
- Removes hardened oxidised oil and grease deposits
- Used as heavy duty cargo tank cleaner following discharge of drying, semi-drying & non-drying natural oils & fats
- Can also be used as nal treatment for cleaning tank from black to white or grain
- Can be used for hydrocarbon freeing of cargo tanks
- IMO approved and listed in Annex 10 of the MEPC.2/Circular

Alkleen Liquid is a powerful cleaner for cleaning of cargo tanks after discharge of drying, semi-drying and non-drying natural oils and fats. Alkleen Liquid can be used for tank sanitising and deodorising prior to changing to foodstuffs. To achieve the high standard of cleanliness required, a nal wash will be necessary by using this product.

Alkleen Liquid has been evaluated by the BLG Working Group on the Evaluation of Safety and Pollution Hazards of Chemicals (ESPH) and found to meet the requirements of paragraph 13.5.2 of the MARPOL Annex II and is consolidated into annex 10 of the MEPC.2/Circular.

Ordering information

Product number	Product name
756255	ALKLEEN LIQUID 210 LTR
756254	ALKLEEN LIQUID 25 LTR

Approvals

- IMO approved and listed in Annex 10 of the MEPC.2/Circular.

ALKLEEN LIQUID 25 L

652 756254

Alkleen Liquid is a heavy duty water based alkaline tank cleaner, containing natural based detergents. For zinc silicate coatings use Alkleen Safety Liquid.

Features

- Powerful alkaline tank cleaner containing detergents
- The emulsifying agents are biodegradable
- Non- ammable
- Non-corrosive to ferrous metals and epoxy coatings
- IMO approved and listed in Annex 10 of the MEPC.2/Circular

Bene ts

- Rapid penetration and emulsi cation of vegetable, animal and sh oils with rapid rinsing
- Removes hardened oxidised oil and grease deposits and can be used as heavy duty cargo tank cleaner following discharge of drying, semi-drying and non-drying natural oils and fats
- Can also be used as nal treatment for cleaning tank from black to white or grain
- Can be used for hydrocarbon freeing of cargo tanks

Alkleen Liquid is a powerful cleaner for cleaning of cargo tanks after discharge of drying, semi-drying and non-drying natural oils and fats. Alkleen Liquid can be used for tank sanitising and deodorising prior to changing to foodstuffs. To achieve the high standard of cleanliness required, a nal wash will be necessary by using this product.

Alkleen Liquid has been evaluated by the BLG Working Group on the Evaluation of Safety and Pollution Hazards of Chemicals (ESPH) and found to meet the requirements of paragraph 13.5.2 of the MARPOL Annex II and is consolidated into annex 10 of the MEPC.2/Circular.

Ordering information

Product number	Product name
756254	ALKLEEN LIQUID 25 LTR

Approvals

Alkleen Liquid has been evaluated by the BLG Working Group on the Evaluation of Safety and Pollution Hazards of Chemicals (ESPH) and found to meet the requirements of paragraph 13.5.2 of the MARPOL Annex II and is consolidated into annex 10 of the MEPC.2/Circular.

Directions for use

Immediately after use the cargo has been discharged , the tanks should be ushed with cold water to prevent polymerisation and evaporation of the lighter fractions. Whenever possible, the cleaning solution of 0.2-3% in fresh water should be heated to 60-80°C. However, the polymerising nature of some natural oils demand lower cleaning temperatures.

Dosing method
The most economical method to use Alkleen Liquid is by direct injection followed by recirculation washing by using tank cleaning machines.

If this method is not possible, use of other methods such as recirculation or hand spraying.

When changing refrigerated cargoes the need may arise to clean holds to remove animal or vegetable fat to santise and deodorise before the next cargo. A solution of 5-10% in fresh water can be used for this purpose, and may be sprayed on and rinsed off by using hot water and high pressure.

Further Technical Data

Form	Liquid
Appearance	Pale yellow
Density	1,2
pH, in conc.	13
Non Compatible	Corrosive to aluminium, magnesium, zinc and tin.

ALKLEEN LIQUID 210 L

652 756255

Alkleen Liquid is a heavy duty water based alkaline tank cleaner, containing natural based detergents. For zinc silicate coatings use Alkleen Safety Liquid.

Features

- Powerful alkaline tank cleaner containing detergents
- The emulsifying agents are biodegradable
- Non- ammable
- Non-corrosive to ferrous metals and epoxy coatings
- IMO approved and listed in Annex 10 of the MEPC.2/Circular

Bene ts

- Rapid penetration and emulsi cation of vegetable, animal and sh oils with rapid rinsing
- Removes hardened oxidised oil and grease deposits and can be used as heavy duty cargo tank cleaner following discharge of drying, semi-drying and non-drying natural oils and fats
- Can also be used as nal treatment for cleaning tank from black to white or grain
- Can be used for hydrocarbon freeing of cargo tanks

Alkleen Liquid is a powerful cleaner for the cleaning of cargo tanks after discharge of drying, semi-drying and non-drying natural oils and fats. Alkleen Liquid can be used for tank sanitising and deodorising prior to changing to foodstuffs. To achieve the high standard of cleanliness required, a nal wash will be necessary by using this product.

Alkleen Liquid has been evaluated by the BLG Working Group on the Evaluation of Safety and Pollution Hazards of Chemicals (ESPH) and found to meet the requirements of paragraph 13.5.2 of the MARPOL Annex II and is consolidated into annex 10 of the MEPC.2/Circular.

Ordering information

Product number	Product name
756255	ALKLEEN LIQUID 210 LTR

Approvals

Alkleen Liquid has been evaluated by the BLG Working Group on the Evaluation of Safety and Pollution Hazards of Chemicals (ESPH) and found to meet the requirements of paragraph 13.5.2 of the MARPOL Annex II and is consolidated into annex 10 of the MEPC.2/Circular.

Directions for use

Immediately after use the cargo has been discharged , the tanks should be ushed with cold water to prevent polymerisation and evaporation of the lighter fractions. Whenever possible, the cleaning solution of 0.2-3% in fresh water should be heated to 60-80°C. However, the polymerising nature of some natural oils demand lower cleaning temperatures.

Dosing method
The most economical method to use Alkleen Liquid is by direct injection followed by recirculation washing by using tank cleaning machines.

If this method is not possible, use of other methods such as recirculation or hand spraying.

When changing refrigerated cargoes the need may arise to clean holds to remove animal or vegetable fat to santise and deodorise before the next cargo. A solution of 5-10% in fresh water can be used for this purpose, and may be sprayed on and rinsed off by using hot water and high pressure.

Further Technical Data

Form	Liquid
Appearance	Pale yellow
Density	1,2
pH, in conc.	13
Non Compatible	Corrosive to aluminium, magnesium, zinc and tin.

ZINC COAT CONDITIONER

Zinc Coat Conditioner is a clear organic liquid based on acetates. Zinc Coat Conditioner cleans and upgrades coated cargo tanks that have contained leaded gasoline, carbon tetrachloride, methylene chloride or virgin naphtha. It is a cost effective way to remove lead, chloride, zinc, salts and iron sulphite from the pores of zinc silicate and epoxy coatings.

Features

- Organic based liquid cleaner
- Biodegradable
- Free from hydrocarbon solvents
- Removal of white deposits (metallic salts) from tank coatings
- Can clean and upgrade coated cargo tanks after leaded gasoline, carbon tetrachloride, methylene chloride and virgin naphtha
- Cost effective in use
- IMO approved and listed in Annex 10 of the MEPC.2/ Circular

Ordering information

Approvals

- IMO approved and listed in Annex 10 of the MEPC.2/ Circular

ZINC COAT CONDITIONER 210 L

652 625558

Zinc Coat Conditioner is a clear organic liquid based on acetates. Zinc Coat Conditioner cleans and upgrades coated cargo tanks that have contained leaded gasoline, carbon tetrachloride, methylene chloride or virgin naphtha. It is a cost effective way to remove lead, chloride, zinc, salts and iron sulphite from the pores of zinc silicate and epoxy coatings.

Features

- Organic based liquid cleaner
- Biodegradable
- Free from hydrocarbon solvents
- Removal of white deposits (metallic salts) from tank coatings
- Can clean and upgrade coated cargo tanks after leaded gasoline, carbon tetrachloride, methylene chloride and virgin naphtha
- IMO approved and listed in Annex 10 of the MEPC.2/ Circular

Bene ts

- Cost effective in use

Ordering information

Approvals

Zink Coat Conditioner has been evaluated by the BLG Working Group on the Evaluation of Safety and Pollution Hazards of Chemicals (ESPH) and found to meet the requirements of paragraph 13.5.2 of the MARPOL Annex II and is consolidated into annex 10 of the MEPC.2/ Circular.

Directions for use

Zinc Coat Conditioner can be used neat on the surfaces to be cleaned if the normal cleaning procedures have failed to remove metallic salts from the micro pores of the tank coating leaving the cargo tank unacceptable for the next cargo. It is recommended to establish the average penetration time of Zinc Coat Conditioner carrying out some tests on small areas.

Spray Method

1. Apply 1 litre Zinc Coat Conditioner per 3-5m^2 of tank surface.
2. Leave for about 15-45 minutes penetration time.
3. Wash down with fresh water and check the result.
4. Repeat the procedure if necessary.

Recirculation method

1. A washing solution of max. 10% Zinc Coat Conditioner with freshwater should be prepared in a mixing tank.
2. The cleaning solution should be heated up to max. 45°C.
3. Using tank cleaning machine the solution should be recirculated up to 45 minutes.
4. Rinse with freshwater and check the result.
5. Repeat cleaning procedure if necessary.

Further Technical Data

Form	Liquid
Appearance	Clear
Density	1,0
pH, in conc	5,5

ZINC COAT CONDITIONER 25 L

652 661801

Zinc Coat Conditioner is a clear organic liquid based on acetates. Zinc Coat Conditioner cleans and upgrades coated cargo tanks that have contained leaded gasoline, carbon tetrachloride, methylene chloride or virgin naphtha. It is a cost effective way to remove lead, chloride, zinc, salts and iron sulphite from the pores of zinc silicate and epoxy coatings.

Features

- Organic based liquid cleaner
- Biodegradable
- Free from hydrocarbon solvents
- Removal of white deposits (metallic salts) from tank coatings
- Can clean and upgrade coated cargo tanks after leaded gasoline, carbon tetrachloride, methylene chloride and virgin naphtha
- Cost effective in use
- IMO approved and listed in Annex 10 of the MEPC.2/ Circular

Approvals

Zink Coat Conditioner has been evaluated by the BLG Working Group on the Evaluation of Safety and Pollution Hazards of Chemicals (ESPH) and found to meet the requirements of paragraph 13.5.2 of the MARPOL Annex II and is consolidated into annex 10 of the MEPC.2/ Circular.

Directions for use

Zinc Coat Conditioner can be used neat on the surfaces to be cleaned if the normal cleaning procedures have failed to remove metallic salts from the micro pores of the tank coating leaving the cargo tank unacceptable for the next cargo. It is recommended to establish the average penetration time of Zinc Coat Conditioner carrying out some tests on small areas.

Spray Method

1. Apply 1 litre Zinc Coat Conditioner per 3-5 m2 of tank surface.
2. Leave for about 15-45 minutes penetration time.
3. Wash down with fresh water and check the result.
4. Repeat the procedure if necessary.

Recirculation method

1. A washing solution of max. 10% Zinc Coat Conditioner with freshwater should be prepared in a mixing tank.
2. The cleaning solution should be heated up to max. 45°C.
3. Using tank cleaning machine the solution should be recirculated up to 45 minutes.
4. Rinse with freshwater and check the result.
5. Repeat cleaning procedure if necessary.

Further Technical Data

Form	Liquid
Appearance	Clear
Density	1,0
pH, in conc.	5,5

SEACLEAN PLUS 25 L

652 654715

Seaclean Plus is a modern low-toxic, biodegradable solvent based product. It meets IMO's requirements regarding safety and pollution hazards of chemicals. This product is excellent as a tank cleaner and degreaser.

Features

- The emulsifying agents in this product are biodegradable
- Does not contain nonylphenol ethoxylates or other estrogenic compounds
- Versatile, can be used for a wide range of applications
- Easy to use by any conventional means
- Can be used for cleaning and gas-freeing of double bottom, deep, and fuel oil tanks at sea
- Can also be used for cleaning and gas-freeing of crude and re ned mineral oil cargo tanks
- Can be used for degreasing and cleaning of bilge spaces and engine rooms
- Safe to use on most metal surfaces, painted surfaces and tank coatings

Bene ts

- Highly concentrated tank cleaner with quick penetration and powerful emulsifying properties
- Easy rinse off, leaving clean and oil-free surfaces
- Economical, very low dosage rates

Ordering information

Product number	Product name
654715	SEACLEAN PLUS 25 LTR

Approvals

- Seaclean Plus has been evaluated by the BLG Working Group on the Evaluation of Safety and Pollution Hazards of Chemicals (ESPH) and found to meet the requirements of paragraph 13.5.2 of the MARPOL Annex II and is consolidated into annex 10 of the MEPC.2/Circular.
- This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea when used to clean cargo holds and external surfaces on ships.

Directions for use

Direct injection method - for tank cleaning machines
The dose rate should be between 0.1-0.2% i.e.1-2 litres per ton wash water.

Recirculation method - for tank cleaning machines
It is advised to use a solution of 0.1-0.2% i.e. 1-2 litres per ton wash water mixed in the tank to be cleaned.

Dose rates and results will vary depending on contamination, the temperature of the cleaning solution, and number of tanks to be cleaned with the solution. Best results are obtained when water is heated to a temperature between 65-80°C.

Spot cleaning
Seaclean Plus can be sprayed neat onto tank surfaces to be cleaned. The contact time should be at least 30 minutes. Bulkheads/walls can be washed down by use of tank washing machines or high pressure cleaning machines. The best result is achieved with hot water between 60-80°C. Slops should be constantly stripped from the tank and transferred to a holding tank or pumped ashore to slop tanks.

Rock and Roll method

1. Cleaning of double bottom tanks during voyages.
2. Heat the remaining fuel in the tank, trimming the vessel as required to assist in stripping tank.
3. Flush tank with sea water, stripping constantly.
4. After ushing, ensure all suction and discharge valves in the engine room are closed.
5. Dose tank with Seaclean Plus through the sounding pipe or manhole between 0.5 - 1 litre per ton of water, for 75-80% of capacity of tank to be cleaned.

6. Fill tank to 25% capacity with sea water, raise the temperature up to 60°C and maintain this for 24 hours.
7. Top up tank to 75-80% capacity with sea water and continue to heat for 48-72 hours.
8. Discharge and strip tank. Fill to 50-60% capacity with sea water and allow 2 hours rinsing time.
9. Discharge tank and strip, ushing tank with sea water for 2 hours, stripping continuously. When completed, inspect tank to ascertain if second cleaning is required. If so:
10. Add second dose of Seaclean Plus, ll tank to 75-80% capacity with sea water and raise the temperature to 60°C maximum. Maintain this for 48-72 hours. In calm seas recirculate the solution in tank as long as possible.
11. Discharge and strip tank, ush with sea water, stripping continuously for 2 hours. To gas-free, ll tank with sea water to over ow through vents and sounding pipes, discharge and strip completely.

Rock and Roll cleaning dosage chart

Fuel Oil Viscosity Centistokes at 50 degrees celsius	SEACLEAN PLUS per ton of water 1st Stage	SEACLEAN PLUS per ton of water 2nd Stage
Over 320	1 litre	1 litre
180 to 320	1 litre	0.75 litre
30 to 180	0.75 litre	-
Up to 30	0.5 litre	-

For full cleaning instruction for various types of cargo, please consult the Unitor Tank Cleaning Manual.

Degreasing Marine Diesel Engine Cooling Water Systems

(This method can only be used when engine is out of service)

1. Drain the cooling system and ush with water.
2. Re ll engine with water adding 20 litres Seaclean Plus per 1000 litres cooling water.
3. Circulate the solution through the system and heat until a temperature of about 60°C.
4. Continue circulation of the solution through the system for a minimum of 5 hours.
5. Drain engine and check the cleaning result. Repeat cleaning procedure if necessary.
6. When cleaning is completed, drain the system, and thoroughly ush with clean water. Re ll while adding an anticorrosion treatment such as Dieselguard NB or Rocor NB Liquid.

Seaclean Plus can also be used for local cleaning and degreasing in engine rooms and on deck. It can be applied by brush, hand spray, immersion soaking or any other conventional means. Apply undiluted onto soiled surfaces and allow a contact time of 15-30 minutes before rinsing off with water.

Soak method
Immerse heavily soiled parts into bath of undiluted Seaclean Plus, medium to light soiled parts may be cleaned in a 10-30% solution in water. Parts should be soaked for at least 30 minutes before washing off with water.

Spray method
Spray Seaclean Plus undiluted onto soiled areas. Allow between 15-30 minutes of penetration time before rinsing off with water.

Further Technical Data

Form	Liquid
Appearance	Pale yellow
Density	0,8
Flash Point, deg C	Above 61

UNIPOL

Unipol is a pH-neutral, liquid concentrated detergent with good cleaning qualities. It contains effective but mild and environmentally safe wetting agents and surfactants that allow rapid penetration to remove fats and oils. Unipol is especially suitable for hydrocarbon freeing of tanks, and is safe on all tank coatings including zinc silicate.

Features

- Non-caustic, pH neutral
- Solvent free
- Non- ammable
- Does not contain nonylphenol ethoxylates or other estrogenic compounds
- Non-corrosive to metals
- Suitable for all tank-coatings
- Can be used for gas and hydrocarbon-freeing of tanks
- Can be used for deodorizing
- Complies with all environmental regulations and the EU Detergent Regulation
- IMO approved and listed in Annex 10 of the MEPC.2/ Circular

Ordering information

Product number	Product name
736983	UNIPOL 210 LTR
736975	UNIPOL 25 LTR

Approvals

Unipol has been evaluated by the BLG Working Group on the Evaluation of Safety and Pollution Hazards of Chemicals (ESPH) and found to meet the requirements of paragraph 13.5.2 of the MARPOL Annex II and is consolidated into annex 10 of the MEPC.2/Circular.

UNIPOL 25 L

652 736975

Unipol is a pH-neutral, liquid concentrated detergent with good cleaning qualities. It contains effective but mild and environmentally safe wetting agents and surfactants that allow rapid penetration to remove fats and oils. Unipol is especially suitable for hydrocarbon freeing of tanks, and is safe on all tank coatings including zinc silicate.

Features

- Non-caustic, pH neutral
- Solvent free
- Non- ammable
- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Non-corrosive to metals
- Suitable for all tank-coatings
- Can be used for gas and hydrocarbon-freeing of tanks
- Can be used for deodorizing
- Complies with all environmental regulations and the EU Detergent Regulation
- IMO approved and listed in Annex 10 of the MEPC.2/ Circular

Ordering information

Product number	Product name
736975	UNIPOL 25 LTR

Approvals

Unipol has been evaluated by the BLG Working Group on the Evaluation of Safety and Pollution Hazards of Chemicals (ESPH) and found to meet the requirements of paragraph 13.5.2 of the MARPOL Annex II and is consolidated into annex 10 of the MEPC.2/Circular.

Directions for use

Dosing method
The most economical method of using Unipol is by recirculation washing, using tank cleaning machines. Make up a solution of 1 – 5% in preferably fresh water in the tank and recirculate. Whenever possible, the cleaning solution should be heated to 50 - 80°C. Rinse off with hot fresh water. Alternatively, hand spray the tank with a 20 – 50% solution of Unipol and allow to stay for 30 – 60 minutes before a nal rinse with hot water. When the tank is cleaned to a “water white standard”, remove any free water and ventilate until the tank is dry.

Sampling and testing
For the removal of traces of hydrocarbons to a hydrocarbon free wall wash test speci cation prior to loading of sensitive cargoes. Unipol may also be used as a general purpose economical tank cleaning detergent.

Further Technical Data

Form	Liquid
Appearance	Light yellow
Density	1,1
pH, in conc.	8-9
pH, in 1% sol.	7-8

UNIPOL 210 L

652 736983

Unipol is a pH-neutral, liquid concentrated detergent with good cleaning qualities. It contains effective but mild and environmentally safe wetting agents and surfactants that allow rapid penetration to remove fats and oils. Unipol is especially suitable for hydrocarbon freeing of tanks, and is safe on all tank coatings including zinc silicate.

Features

- Non-caustic, pH neutral
- Solvent free
- Non- ammable
- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Non-corrosive to metals
- Suitable for all tank-coatings
- Can be used for gas and hydrocarbon-freeing of tanks
- Can be used for deodorizing
- Complies with all environmental regulations and the EU Detergent Regulation
- IMO approved and listed in Annex 10 of the MEPC.2/ Circular

Ordering information

Product number	Product name
736983	UNIPOL 210 LTR

Approvals

Unipol has been evaluated by the BLG Working Group on the Evaluation of Safety and Pollution Hazards of Chemicals (ESPH) and found to meet the requirements of paragraph 13.5.2 of the MARPOL Annex II and is consolidated into annex 10 of the MEPC.2/Circular.

Directions for use

Dosing method
The most economical method of using Unipol is by recirculation washing, using tank cleaning machines. Make up a solution of 1 – 5% in preferably fresh water in the tank and recirculate. Whenever possible, the cleaning solution should be heated to 50 - 80°C. Rinse off with hot fresh water. Alternatively, hand spray the tank with a 20 – 50% solution of Unipol and allow to stay for 30 – 60 minutes before a nal rinse with hot water. When the tank is cleaned to a “water white standard”, remove any free water and ventilate until the tank is dry.

Sampling and testing
For the removal of traces of hydrocarbons to a hydrocarbon free wall wash test speci cation prior to loading of sensitive cargoes. Unipol may also be used as a general purpose economical tank cleaning detergent.

Further Technical Data

Form	Liquid
Appearance	Light yellow
Density	1,1
pH, in conc.	8-9
pH, in 1% sol.	7-8

TANKLEEN ADVANCE 210 L

652 571489

Tankleen Advance is a microemulsion water based tank cleaner. This product is low toxic, biodegradable and safe to use. It contains natural solvents linked with easily biodegradable surfactants. Main application is for hydrocarbon freeing but it may also be used for other tank cleaning purposes where a strong degreasing effect is required.

Features

- Water-based degreaser
- Does not contain nonylphenol ethoxylates or other estrogenic compounds
- Low-toxic
- Non- ammable
- Splits after cleaning, releasing the oil phase for reclamation

Bene ts

- Micro emulsion based formulation that combines the performance of a water and solvent based product into one low toxic product
- Helps with rapid hydrocarbon freeing of tanks

Approvals

- Tankleen Advance has been evaluated by the BLG Working Group on the Evaluation of Safety and Pollution Hazards of Chemicals (ESPH) and found to meet the requirements of paragraph 13.5.2 of the MARPOL Annex II and is consolidated into annex 10 of the MEPC.2/Circular
- Approved by Blohm+Voss AG for OWS type TCS/ HD
- Approved by Marin oc AB for use in engine rooms

TANKLEEN BRIGHT 190 L

652 766097

Concentrated acidic cleaner containing phosphoric acid and non-ionic surfactants. Tankleen Bright is formulated for effective removal of white residues from epoxy-coatings remaining after carriage of fatty acids as well as stains removal and to upgrade coated cargo tanks.

Features

- Concentrated product
- Solvent-free
- Odourless
- Does not contain nonylphenol ethoxylates or other estrogenic compounds
- Non- ammable
- Economical in use
- IMO approved and listed in Annex 10 of the MEPC.2/ Circular

Approvals

Tankleen Bright has been evaluated by the BLG Working Group on the Evaluation of Safety and Pollution Hazards of Chemicals (ESPH) and found to meet the requirements of paragraph 13.5.2 of the MARPOL Annex II and is consolidated into annex 10 of the MEPC.2/Circular.

SEACLEAN PLUS

Seaclean Plus is a modern low-toxic, biodegradable solvent based product. It meets IMO's requirements regarding safety and pollution hazards of chemicals. This product is excellent as a tank cleaner and degreaser.

Features

- The emulsifying agents in this product are biodegradable
- Does not contain nonylphenol ethoxylates or other estrogenic compounds
- Versatile, can be used for a wide range of applications
- Easy to use by any conventional means
- Can be used for cleaning and gas-freeing of double bottom, deep, and fuel oil tanks at sea
- Can also be used for cleaning and gas-freeing of crude and re ned mineral oil cargo tanks
- Can be used for degreasing and cleaning of bilge spaces and engine rooms
- Safe to use on most metal surfaces, painted surfaces and tank coatings

Bene ts

- Highly concentrated tank cleaner with quick penetration and powerful emulsifying properties
- Easy rinse off, leaving clean and oil-free surfaces
- Economical, very low dosage rates

Ordering information

Product number	Product name
654715	SEACLEAN PLUS 25 LTR
654723	SEACLEAN PLUS 210 LTR

Approvals

Seaclean Plus has been evaluated by the BLG Working Group on the Evaluation of Safety and Pollution Hazards of Chemicals (ESPH) and found to meet the requirements of paragraph 13.5.2 of the MARPOL Annex II and is consolidated into annex 10 of the MEPC.2/Circular.

Directions for use

Direct injection method - for tank cleaning machines
The dose rate should be between 0.1-0.2% i.e.1-2 litres per ton wash water.

Recirculation method - for tank cleaning machines
It is advised to use a solution of 0.1-0.2% i.e. 1-2 litres per ton wash water mixed in the tank to be cleaned.

Dose rates and results will vary depending on contamination, the temperature of the cleaning solution, and number of tanks to be cleaned with the solution. Best results are obtained when water is heated to a temperature between 65-80°C.

Spot cleaning
Seaclean Plus can be sprayed neat onto tank surfaces to be cleaned. The contact time should be at least 30 minutes. Bulkheads/walls can be washed down by use of tank washing machines or high pressure cleaning machines. The best result is achieved with hot water between 60-80°C. Slops should be constantly stripped from the tank and transferred to a holding tank or pumped ashore to slop tanks.

Rock and Roll method

1. Cleaning of double bottom tanks during voyages.
2. Heat the remaining fuel in the tank, trimming the vessel as required to assist in stripping tank.
3. Flush tank with sea water, stripping constantly.
4. After ushing, ensure all suction and discharge valves in the engine room are closed.
5. Dose tank with Seaclean Plus through the sounding pipe or manhole between 0.5 - 1 litre per ton of water, for 75-80% of capacity of tank to be cleaned.
6. Fill tank to 25% capacity with sea water, raise the temperature up to 60°C and maintain this for 24 hours.
7. Top up tank to 75-80% capacity with sea water and continue to heat for 48-72 hours.
8. Discharge and strip tank. Fill to 50-60% capacity with sea water and allow 2 hours rinsing time.
9. Discharge tank and strip, ushing tank with sea water for 2 hours, stripping continuously. When completed, inspect tank to ascertain if second cleaning is required. If so:

10. Add second dose of Seaclean Plus, ll tank to 75-80% capacity with sea water and raise the temperature to 60°C maximum. Maintain this for 48-72 hours. In calm seas recirculate the solution in tank as long as possible.

11. Discharge and strip tank, ush with sea water, stripping continuously for 2 hours. To gas-free, ll tank with sea water to over ow through vents and sounding pipes, discharge and strip completely.

Rock and Roll cleaning dosage chart

	SEACLEAN PLUS per ton of water 1st Stage	SEACLEAN PLUS per ton of water 2nd Stage
Over 320	1 litre	1 litre
30 to 180	0.75 litre	-
Up to 30	0.5 litre	-

For full cleaning instruction for various types of cargo, please consult the Unitor Tank Cleaning Manual.

Degreasing Marine Diesel Engine Cooling Water Systems

(This method can only be used when engine is out of service)

1. Drain the cooling system and ush with water.
2. Re ll engine with water adding 20 litres 3. Seaclean Plus per 1000 litres cooling water.
3. Circulate the solution through the system and heat until a temperature of about 60°C.
4. Continue circulation of the solution through the system for a minimum of 5 hours.
5. Drain engine and check the cleaning result. Repeat cleaning procedure if necessary.
6. When cleaning is completed, drain the system, and thoroughly ush with clean water. Re ll while adding an anticorrosion treatment such as Dieselguard NB or Rocor NB Liquid.

Seaclean Plus can also be used for local cleaning and degreasing in engine rooms and on deck. It can be applied by brush, hand spray, immersion soaking or any other conventional means. Apply undiluted onto soiled surfaces and allow a contact time of 15-30 minutes before rinsing off with water.

Soak method
Immerse heavily soiled parts into bath of undiluted Seaclean Plus, medium to light soiled parts may be cleaned in a 10-30% solution in water. Parts should be soaked for at least 30 minutes before washing off with water.

Spray method
Spray Seaclean Plus undiluted onto soiled areas. Allow between 15-30 minutes of penetration time before rinsing off with water.

GAMAZYME 700FN

656 571711

Gamazyme 700FN is a concentrated biologically active powder formulation containing a blend of patented bacterial strains, speci cally developed to deal with sewage wastes.

Features

- Powder formulation for easy use
- Biodegradable
- Reactivates biological activity in systems which have been rendered inactive by overloading, washout or use of aggressive cleaning products
- Eliminates the need for hazardous chemicals
- Cost-effective, saves time, money and manpower

Bene ts

- Eliminates the odours associated with sanitary systems which are overloaded or blocked
- Cleans sewage holding tanks without the need for manual entry
- Clears pipes and systems blocked by organic waste matter
- Clears organic materials in slow draining pipes and scuppers
- Restarts septic sewage treatment plant
- Keeps complete sanitary systems in optimum operational condition

Gamazyme 700FN is formulated to degrade excess residual waste products in shipboard sanitation pipe work systems, holding tanks and marine sewage treatment plants. The specialised strains in Gamazyme 700FN will digest grease, fats, sewage, starch and other organic compounds. The degradation of paper, protein and waste product residuals is greatly increased, and the odours that these produce, are reduced.

The bacteria in Gamazyme 700FN will colonise the waste organic material which lines the pipework/tank system and degrade the waste until the system is clean. The biological activity in the marine sewage treatment plant is greatly increased, so the plant can thus handle more waste. The obnoxious smells in toilet areas and scuppers, normally associated with overloaded or blocked systems, are reduced.

Ordering information

Product Number	Product name
571711	GAMAZYME 700FN 12KG

Directions for use

Dosing method

Sewage treatment plant
Direct dosing to the sewage treatment plant or via the nearest toilet will greatly enhance the biological activity and keep the plant at peak operating ef ciency.

A) On ships except passenger vessels Ineffective or septic sewage treatment can be reactivated and maintained in peak operating ef ciency by dosing Gamazyme 700FN direct in the tank or via the nearest toilet. To reactivate the plant, 1kg Gamazyme 700FN should be mixed with 10-15 litres of hand hot (35°C) fresh water, left for 10-15 minutes (stirring periodically) for the bacteria to activate before dosing into the tank daily until the system is operating ef ciently. Maintenance dosing of 0.1 - 0.25kg weekly will keep the system operating effectively. Replacing the toilet cleaner in use by Gamazyme BTC (biological toilet cleaner) will dose millions of specialised bacteria into the system. These powerful bacteria will digest organic material lining the pipes and boost the bacterial activity in the sewage treatment plant, keeping it operating at peak ef ciency.

B) On passenger vessels
The applications is the same as mentioned above, but the dose rates are different.

The dose rate depends on the number of people on board the vessel. As a rule of thumb use 50 gram per m^3 of the volume of the sewage tank. Then a weekly dosage of 10 gram per m^3 of the volume of the sewage tank.

An example of a cruise vessel with a sewage tank on 100 m^3 and 2500 people and on a two weeks cruise. What is the consumption of Gamazyme 700FN?

Initial dosage: (50 g/m^3 x 100 m^3):1000 = 5kg

Weekly dosage: (10 g/m^3 x 100 m^3):1000 x 2 weeks = 2kg On this cruise, will be used. 7kg of Gamazyme 700FN

Tank cleaning
Holding tanks can be cleaned periodically or prior to entry without the use of dangerous toxic chemicals.

Grey and black water holding tanks, sewage tanks, sewage treatment plant should be ooded and pumped empty to clear excess soil before cleaning. Holding tanks must be tted with an air manifold connected to a low pressure air line of suf cient volume to gently turn the mass of water within the tank. In sewage treatment tanks the normal air supply will suf ce.
The tank should be lled to 75% capacity with fresh or sea water and the air supply turned on. Approximately 0.5kg of Gamazyme 700FN in 5 to 10 litres of fresh hand hot (35°C) water should be mixed and left for 10-15 minutes before dosing into the tank. Dosing can be either direct or via the nearest toilet. The tank should then be lled and left with the air on for at least 48 hours. The dose rate should be approximately 0.5kg per 500 litres tank capacity with a minimum dose of 5kg. Although Gamazyme 700FN is formulated for use in cold (15°C minimum) sea water, performance will improve with lukewarm (35°C) fresh water or sea water.

Pipe cleaning
Maintenance dosing will keep galley and sewage pipes clean and clear of organic residual wastes.

A liquid solution should be prepared by mixing of 0.5 kg of Gamazyme 700FN in 15 to 20 litres of hand hot (35°C) fresh water. Stir it and, if possible, leave for 15 minutes to reactivate the bacteria. Whilst constantly agitating this solution, 1 litre should be dosed into sinks, scuppers, showers, drains, waste disposal units, etc. each evening until the blockage is cleared. A maintenance dose once or twice a week can then be applied to keep the pipes in clean condition. Harsh toxic cleaners (acids, caustics, disinfectants) should not be used as these will kill off the bacterial action in the pipes. Alternatively, the pipes should be isolated and lled with the solution and left for up to 48 hours before draining. If necessary, further applications should be made until drains run clear.

NOTE: Severly scaled systems should be acid cleaned.

GAMAZYME DPC 4.0 KG

656 587055

Gamazyme DPC is a concentrated biologically active powder formulation containing a blend of patented bacterial strains, speci cally developed to deal with sewage wastes. It is packed as water soluble sachets (Solupac).

Features

- Powder biological formulation for easy use
- Biodegradable
- Overcomes potential safety problems associated with the use of toxic cleaning chemicals

Bene ts

- Clears pipes and systems blocked by organic waste residuals
- Eliminates obnoxious odours from soiled pipe lines
- Cleans fouled pipes and systems, particularly long horizontal runs
- Keeps holding tank organic waste liquid pumpable and odour free
- Cost effective, saves the time, money and manpower of plumbing operations to clear blocked pipe work

Gamazyme DPC is formulated to degrade excess residual organic waste products causing blockage, or slow draining in sinks, showers, scuppers, drains, etc. The specialised bacterial strains and enzymes in Gamazyme DPC will digest grease, fats, starch and other organic compounds.

The bacteria in Gamazyme DPC will colonise the waste soil, which lines the pipe work system, and degrade the waste all the way down to carbon dioxide and water, until the system is clean. On draining to the holding tank or sewage treatment plant, Gamazyme DPC will greatly enhance the biological activity breaking down solids and removing obnoxious odours which can vent back through the systems.

Ordering information

Product Number	Product name
587055	GAMAZYME DPC 4.0 KG

Directions for use

Pipe cleaning
Maintenance dosing will keep sinks, scuppers and waste food disposal units clean, clear and odour free. A liquid solution should be prepared by adding one solupac to 10 litres of hand hot (35°C) fresh water and left for 15 minutes (stirring periodically) for the bacteria to activate. Initial doses of 0.5 litres of this solution should be applied into sinks, scuppers, drains, waste food disposal units, etc. A maintenance dose once or twice a week can then be applied to keep the pipes in clean condition. Harsh toxic cleaners (acids, caustics, disinfectants) should not be used as these will kill off the bacterial action in the pipes. Before plumbing work for pipe modi cation or retro ts, pipes can be cleaned by isolating the system and lling pipes with the solution for up to 48 hours before draining. If necessary, further applications should be made until drains run clean.

Holding tanks
Organic wastes can be kept liquid and pumpable. Tanks can be cleaned without manual entry and without the use of harsh toxic cleaning chemicals.

Prepare a solution of one solupac to ten litres of hand hot (35°C) fresh water and left for 15 minutes (stirring periodically) before dosing into the holding tank once or twice a week. The dose rates should be approximately one solupac per 1000 litre waste in the tank. Tank cleaning should be carried out using Gamazyme 700FN.

NOTE: Severely scaled systems should be acid cleaned.

GAMAZYME MSC 12 X 1 LTR

656 587618

Gamazyme MSC is a unique biologically active liquid formulation containing specialised bacterial strains and biodegradable chemical cleaners.

Features

- Unique liquid biological formulation for easy use
- Biodegradable
- A unique technology to remove odours on surfaces and especially on carpets
- Safe, no special handling requirements

Bene ts

- Replaces harsh cleaners which often require haz-chem labelling and may be hazardous to the user and the environment
- Spot cleaning of carpets, drapes, laundry
- Cleans sinks, showers, decks, tiles and bathrooms
- Removes obnoxious odours from drains and scuppers

On soft surfaces such as carpet, Gamazyme MSC is formulated to spot clean and deodorise the surface by digesting organic substances over time.

Three way action:

- Chemical cleaning action by removing solids from surfaces.
- Immediate odour control by fragrance masking.
- Deep cleaning from biological action for removal of residual organic.

Gamazyme MSC is effective in cleaning or removing organic residues from hard and soft surfaces, such as urine, dog faeces, food, milk, chocolate syrup, tomato sauce, etc.

Ordering information

Product Number	Product name
587618	GAMAZYME MSC 12X1 LTR

Directions for use

Carpets and upholsters, drapes, laundry:
To remove stains of food and other organic wastes: After taking away the solids, spray the carpet with Gamazyme MSC neat, use a wet sponge to brush, scrub and humidify the surface. Let it stand overnight, if possible, then vacuum. The bacterial action will digest deep down soil and stains and remove unpleasant odours. Repeat the operation if necessary.

Hard surfaces:
a) Accommodation and general cleaning: Use from 50 ml up to 500 ml to half a bucket of hand hot water, depending on the surface to clean and the deposition, for cleaning decks, showers, oors, sinks, tiled areas, etc.

b) For carpet machine: To deodorise a large surface use the product as a normal carpet cleaner in carpet shampoo equipment diluted 1:10 with water. For odour control on these surfaces spray diluted 1:2 with hand hot water. Wait as long as possible and rinse.

c) Pipe cleaning and deodorising: A nightly squirt into galley and bathroom sinks will keep drain pipes clean and clear of organic residual wastes and overcome unpleasant drain odours.

GAMAZYME BTC 12 X 1 LTR

656 589945

Gamazyme BTC is a unique biological active liquid formulation containing specialised bacterial strains, biodegradable low foaming chemical cleaners and anti-foam agents.

Features

- Biodegradable
- Suitable for use in all marine sanitary and sewage treatment systems
- Safe, no special handling requirements
- Replaces conventional cleaners potentially harmful to the biological sewage system

Bene ts

- Cleans toilets, sinks, showers, etc.
- Digests faeces, grease, fat, starch and other solid waste materials
- Removes obnoxious odours from the sanitary system
- Easy to use

Gamazyme Biological Toilet Cleaner is speci cally formulated to replace aggressive, toxic toilet cleaners that can disable the sewage treatment plant by killing the naturally occurring bacteria which are essential to its operation. Conventional toilet cleaners may also cause foaming in the vacuum inductor which destroys the vacuum in the sanitary ushing system.

Gamazyme BTC effectively cleans the toilets, dosing millions of selected safe bacteria into the sanitary system. These powerful specialised bacteria colonise the organic waste lining the pipe system and remove the organic deposit. On draining to the sewage treatment plant, the bacteria will enhance the biological activity, reducing solids and odours.

Grease, fats, starch and other organic compounds are digested by Gamazyme BTC. The degradation of paper, protein, waste product residuals and other odorous materials is also enhanced.

Gamazyme BTC cleans more thoroughly and deeply compared to conventional cleaning products. The use of cleaning products containing hazardous chemicals such as acids, caustics, bleaches, disinfectants, etc., can be reduced.

Ordering information

Product Number	Product name
589945	GAMAZYME BTC 12 X 1 LTR

GAMAZYME DIGESTOR 20 LTR BIB

656 624015

Gamazyme Digestor is a patented formulation containing a synergetic blend of highly specialised bacteria. The mix of micro-organisms in this product increases organic degradation performance.

Features

- Water based biological drain cleaner for slow running drains
- Patented, environmentally friendly bioenzymatic formulation designed to restore ow in drain systems containing greasy deposits
- Results in increased bacterial activity in a variety of organic wastes
- Environmentally adapted

Bene ts

- Free of harsh chemical compounds normally associated with acid and caustic drain openers
- Provides penetration, breakdown and degradation of organic drain line deposits and blockages
- Ideal for applications subject to aerobic and anaerobic environments

Utilising active enzymes to eat through biological and organic waste products, Gamazyme Digestor is a safe and non-corrosive product used to restore ow in drains where grease accumulation is a problem. Gamazyme Digestor's biochemical formulation is designed to provide exceptional performance in clogged drain lines, grease traps and oor drains. It restores slow running drains and reduces odours due to organic build-up.

For easier handling of the product is it recommended to also order the product;
Tap for 20 Ltr. "Bag in a Box" with product number 766821.

Ordering information

Product Number	Product name
624015	GAMAZYME DIGESTOR 20 LTR BIB

Directions for use

1. Drain Cleaner
Use 500ml of Gamazyme Digestor per 5cm drain diameter to restore ow in drains and to keep them free owing. Repeat the operation if necessary.
Use regularly, once a day or several times a week to maintain drains free of grease.

2. Cleaning of Pulpers
Flush the whole system at the end of the day including pulpers, pipes, etc. with warm water (maximum 60°C) and Gamazyme Digestor.

Dose the product neat in the economiser tank by using a dosing pump. Use a dosage rate of approximately 2 litre per m^3 water.

GAMAZYME BOE

Gamazyme BOE is a new approach in odour control technology. It provides deep and effective cleaning through microbial activity. After odour elimination, the odour causing compounds are biodegraded by the bacteria strains.

Features

- Water based neutral odour control
- Fast-acting environmentally friendly odour controller with the effectiveness of deep cleaning microbes
- Available in 20 L bag in a box, as well as easy to use 1 L bottles

Bene ts

- Rapidly neutralises and eliminates odours without relying on the use of odour masking or hazardous chemical oxidisers
- Enhances the activity of the natural bacteria, resulting in higher rates of degradation
- Removes odours from garbage and waste collection areas, rest rooms, galleys, etc.
- Rapid and long term effect

Gamazyme BOE provides a powerful combination of a fast-acting neutraliser for immediate odour relief, and adapted bacteria for degradation of organic compounds.

Gamazyme BOE eradicates odours by attacking and degrading the organic source of the odour.

4 way action:

1. Fragrance for rapid action
2. Binding for capturing odour
3. Cleaning action by organic breakdown
4. Accelerated microbial degradation

Gamazyme BOE is a specialised bacterial formulation designed to eliminate odour in garbage and waste collection areas, rest rooms, galleys, etc.

Ordering information

Product Number	Product name
624619	GAMAZYME BOE 12X1 LTR
624077	GAMAZYME BOE 20 LTR BIB

GAMAZYME FC

656 659391

A technologically advanced oor care product that provides deep & effective cleaning through microbial activity. Gamazyme FC is based on patented fatty acid degrading bacteria strains & biodegradable surfactants. Regular use of Gamazyme FC improves safety and hygiene in galley areas.

Features

- Excellent in-depth cleaning properties
- Contains specialized patented bacterial strains forming enzymes that break down fatty acid components of grease
- Safe to use on all surfaces
- Environmentally friendly

Bene ts

- Reduced slippage and improved safety conditions in galley area
- Penetrates porous oor surfaces to degrade accumulated grease and other organic materials
- Eliminates odours that attract insects; the residual organics that feed them are eliminated
- Friendly bacterial strains replace pathogenic bacteria for improved hygiene
- Results in a fresher smelling galley area

Gamazyme FC is a unique oor care product that degrades and eliminates accumulated grease and other organic materials. Patented fatty acid degrading bacteria strains produce enzymes speci c for the breakdown of the harder to degrade fatty acid components of oils and fats used in galley area. Excellent cleaning properties eliminate grease from oor surfaces resulting in reduced slippage and improved safety. Ingredients in Gamazyme FC enable it to penetrate and clean embedded residual organics left in pores, cracks, corners, crevices and microscopic pores in oor surfaces. Regularly use of Gamazyme FC will eliminate odors that attract insects; the residual organics that they feed on will be eliminated.

Ordering information

Product number	Product name
659391	GAMAZYME FC 4X5LTR.

GAMAZYME TDS

656 743146

Gamazyme Toilet Descaler is used for descaling toilet bowls, toilet systems, drains and pipes. One 5 kg carton contains 100 sachets of 50 grams.

Features

- Biological powder descaler
- Formulation based on weak acids, bacterial strains and enzymes

Bene ts

- Removes uric acid and deposits
- Descales both inorganic and organic material
- Immediate action due to its chemical composition
- Digests fat, grease, and oil in toilets, drains and pipes
- Descales toilet bowls, toilet systems, drain and pipes
- Leaves a fresh smell

Gamazyme Toilet Descaler is based on weak acids, bacterial strains and enzymes formulated to dissolve organic materials, uric acid and scale. It is packed in 50 gram water soluble sachets. Acts immediately due to its chemical composition. Secondary action due to its micro-organisms capable of digesting fat, grease and oil found in toilets, drains and pipes. No need for dismantling of drains and pipes when used either on a preventative or on a regular service basis.

Ordering information

Product number	Product name
743146	GAMAZYME TDS 5 KG BLUE SACH W/MINT

Directions for use

Descaling of Toilet Bowl:

1. Add 50 grams (one sachet) to each toilet once a week as a minimum.
2. Let sachet stand for 1 min. for complete dissolution.
3. Brush the bowl and ush water into the toilet.
4. Repeat the treatment if necessary.

Descaling of Drain, Pipes, Toilet Circuits

1. To remove scale in drain, pipes and toilet circuits add 50 grams (one sachet) to each toilet twice a week as a minimum.

EASYCLEAN ACCOMMODATION PACK

642 778870

Solution for cleaning of the accommodation area on the vessel. The package contain the basic products needed to maintain a clean and healthy living quarters. The content is an average volume of the chemical required for a quarter of a year for a vessel carrying up to 25 people on board. Dependent on number of people, the area to be cleaned and individual cleaning instructions, the individual need might wary slightly. If additional volumes are needed they can be ordered on the below individual product numbers.

Features

- Standardized globally available solution for accommodation cleaning
- Concentrated products when possible
- Pictorial instructions on the label for user friendliness

Bene ts

- Safe and correct use of the products through recognition
- Cost ef ciency use of the products and reduced need for storage space
- Easy to use products and equipment

Ordering information

Product Number	Product name
778870	EASYCLEAN ACCOMMODATION PACK
7788700	EASYCLEAN ACCOMMODATION PACK (FOR DELIVERIES IN CHINA)

Ordering information

Package content	Product Number	Product name	Packaging
1 PCS	**778853**	EASYCLEAN LIQUID HAND SOAP	12 X 0,25 Litre
1 Pail	**778843**	EASYCLEAN FLOOR & HARD SURFACE	1 X 10 Litre
1 Pail	**778847**	EASYCLEAN WINDOW & MIRROR	1 X 10 Litre
1 PCS	**778849**	EASYCLEAN SOFT SURFACE & SPOT	6 X 0,6 Litre
1 Pail	**778851**	EASYCLEAN BASIN & TOILET BOWL	1 X 10 Litre

EASYCLEAN GALLEY PACK

642 778872

Solution for cleaning of the galley on the vessel. The package contain the basic products needed to maintain a clean and healthy galley. The content is an average volume of the chemical required for a quarter of a year for a vessel carrying up to 25 people on board. Dependent on number of people, the area to be cleaned and individual cleaning instructions, the individual need might wary slightly. If additional volumes are needed they can be ordered on the below individual product numbers.

Features

- Standardized globally available solution for galley cleaning and sanitation
- Concentrated products when possible
- Pictorial instructions on the label for user friendliness

Bene ts

- Safe and correct use of the products through recognition
- Cost ef ciency use of the products and reduced need for storage space
- Easy to use products and equipment

Ordering information

Product Number	Product name
778872	EASYCLEAN GALLEY PACK
7788722	EASYCLEAN GALLEY PACK (FOR DELIVERIES IN CHINA)
778898	EASYCLEAN GALLEY PACK US ONLY (FOR DELIVERIES IN US)

Ordering information

Package content	Product Number	Product name	Packaging
1 PCS	**778858**	EASYCLEAN LIQUID HAND SOAP D	6 X 2 Litre
1 PCS	**778856**	EASYCLEAN HAND SANITIZER	6 X 2 Litre
1 PCS	**778860**	EASYCLEAN OVEN & GRILL	6 X 0,6 Litre
1 Pail	**778843**	EASYCLEAN FLOOR & HARD SURFACE	1 X 10 Litre
1 Pail (NOT IN US)	**778845**	EASYCLEAN CLEANING & DISINFECTION	1 X 10 Litre
1 Pail (IN US ONLY)	**764128**	SANITE 128 F (CLEANING & DINIFECTION)	1 X 10 Litre
1 PCS	**778864**	EASYCLEAN DISHWASH LIQUID MANUAL	12 X 1 Litre

EASYCLEAN LAUNDRY POWDER PACK

642 778878

Product combination for laundry cleaning of colored clothes based on powder detergent and a liquid conditioner. Both products are cost effective in use and are designed for great effect down to 30 degr. C.

Features

- Laundry solution for colored clothes
- Pleasant perfume added

Bene ts

- Easy to use the correct products
- Leaves the cloths with a pleasant

Ordering information

Product Number	Product name
778878	EASYCLEAN LAUNDRY POWDER PACK

Ordering information

Package content	Product Number	Product name	Packaging
1 PCS	**778873**	EASYCLEAN LAUNDRY CONDITIONER	4 X 5 Litre pail
1 Bag	**778871**	EASYCLEAN LAUNDRY POWDER	1 X 10 Kgs

EASYCLEAN LAUNDRY TABLET PACK

642 778883

Product combination for laundry cleaning of colored clothes based on tablet detergent and a liquid conditioner. Both products are cost effective in use and are designed for great effect down to 30 degr. C.

Features

- Laundry solution for colored clothes
- Pleasant perfume added

Bene ts

- Easy to use the correct products
- Leaves the cloths with a pleasant

Ordering information

Product Number	Product name
778883	EASYCLEAN LAUNDRY TABLET PACK

Ordering information

Package content	Product Number	Product name	Packaging
1 PCS	**778873**	EASYCLEAN LAUNDRY CONDITIONER	4 X 5 Litre
1 PCS	**778869**	EASYCLEAN LAUNDRY TABLETS	12 X 30 tablets

EASYCLEAN EQUIPMENT PACK

422 778874

A package that contains all the equipment and bottles that is needed to have optimum effect of the product galley and accommodation product range. The equipment is easy to install and easy to maintain with not parts that need service, general cleaning is the only maintenance need.

Features

- Easy to install and use
- Completes the solution for optimum cost ef ciency

Bene ts

- Removes the need for lifting and handling the open chemical pails
- Reduces the chemical consumption through correct dosing every time

Ordering information

Product Number	Product name
778874	EASYCLEAN EQUIPMENT PACK

Ordering information

Package content	Product Number	Product name	Packaging
1 PCS	**778844**	UNITOR MIXING STATION 4 - 4	1 Box
1 PCS	**778833**	UNITOR MIXING STATION 4 - 14	1 Box
2 PCS	**778841**	UNITOR HAND CARE DISPENSER 2	1 Box
1 PCS	**778885**	EASYCLEAN RE-USABLE BOTTLE W&M x6	6 X 0,6 Litre empty bottles
1 PCS	**778886**	EASYCLEAN RE-USABLE BOTTLE B&T x6	6 X 0,6 Litre empty bottles
1 PCS	**778889**	EASYCLEAN RE-USABLE BOTTLE C&D x6	6 X 0,6 Litre empty bottles
2 PCS	**778891**	EASYCLEAN RE-USABLE BOTTLE F&HS x6	6 X 0,6 Litre empty bottles

EASYCLEAN SKIN CARE PACK

642 778876

The pack contains of a specially developed creams for skin protection when working on-board on in the yard. The barrier creams are designed to protect against everyday materials from harming or penetration the skin and also from skin dehydration and defatting.

Features

- Easy to apply
- Creates a good barrier
- Low dosage

Bene ts

- Easy to use
- Makes hand cleaning easy without use of dangerous solvent cleaners or excessive scrubbing
- Prevents dehydration and defatting

Ordering information

Product Number	Product name
778876	EASYCLEAN SKIN CARE PACK

Ordering information

Package content	Product Number	Product name	Packaging
1 PCS	**778875**	EASYCLEAN HAND BARRIER CREAM WET	12 X ,25 Litre bottle with pump
1 PCS	**778877**	EASYCLEAN HAND BARRIER CREAM DRY	12 X ,25 Litre bottle with pump
1 PCS	**778879**	EASYCLEAN AFTERWORK LOTION.	12 X ,25 Litre bottle with pump

EASYCLEAN LIQUID HAND SOAP

642 778853

The EASYCLEAN LIQUID HAND SOAP is a mild cleaner containing ingredients originating from vegetable raw materials. EASYCLEAN LIQUID HAND SOAP is mild to the skin and effective for cleaning after oils, fats and general dirt and grime, and contains components that prevent the skin from drying out after repeated hand washing.

Features

- Effective for cleaning after oils, fats and general dirt and grime
- Biodegradable
- Phosphate free

Bene ts

- Mild to the skin
- Prevents hands from drying-up

Ordering information

Product number	Product name	Unit	Packaging
778853	EASYCLEAN LIQUID HAND SOAP	PCS	12 X 0,25 litre bottle with pump

Accessories

Directions for use

1. Wet hands
2. Apply 1-3 ml EASYCLEAN LIQUID HAND SOAP
3. Rub the soap all over the hands, remember nails, wrists and forearm
4. Rinse thoroughly
5. Dry hands with a clean towel, paper towel or blower

Further Technical Data

Form	Liquid
Apperance	Cream, white
Odour	Sweet-smelling
Density	1,0 g/cm3 at 20°C
pH as Conc.	5-6 at 20°C
Viscosity	4000-5000 centipoise at 20°C

EASYCLEAN FLOOR & HARD SURFACE

642 778843

The EASYCLEAN FLOOR & HARD SURFACE is a liquid alkaline cleaner suitable for all hard surfaces in the Galley and Accommodation areas.

Features

- Phosphate free
- Concentrated to improve cost-ef ciency

Bene ts

- Since the product is delivered as a concentrate will the need for available storage space be limited
- Concentration of cleaning solution can be altered based on degree of contamination

EASYCLEAN FLOOR & HARD SURFACE is recommended for use in public areas such as oors, tiles, paint work, furnishes, plastics, vinyl as well as sanitary xtures.

To ensure the concentrated product is made up in the correct concentration is it recommended to use the UNITOR MIXING STATION 4 - 4 or UNITOR MIXING STATION 4 - 14. This will ensure the correct dosage for optimum cost ef ciency and help save the environment - do no not use higher concentration than necessary. Do not mix with other cleaning products, and drain the cleaning solution to the bilge if the wash water after use is considered as environmentally hazardous.

Ordering information

Product number	Product name	Unit	Packaging
778843	EASYCLEAN FLOOR & HARD SURFACE	LTR	10 litre pail

Accessories

Product Number	Product name
778891	EASYCLEAN RE-USABLE BOTTLE F&HS x6
778844	UNITOR MIXING STATION 4 - 4
778833	UNITOR MIXING STATION 4 - 14
778822	UNITOR CLEANING STATION 2

Directions for use

For use with bucket and mop:

1. Dilute the concentrate 1 : 100 (1%) through the UNITOR MIXING STATION 4 - 14
2. Clean oors using a mop, rag or cloth , use plenty of cleaning solution
3. On stubborn spots, rub harder or leave the cleaning solution to work some time
4. To obtain best cleaning effect, collect the water using a Squeegee
5. Mop up the water using a clean mop, rag or sponge. If not leave to air dry

For use with spray bottle and rag:

1. Dilute the concentrate 1 : 200 (0,5%) through the UNITOR MIXING STATION 4 - 4
2. Spray the solution on the hard surfaces that is being cleaned
3. Use a rag or cloth to wipe over the hard surface, rubbing extra on stubborn stains
4. Remove access water
5. Leave to air dry

Further Technical Data

Form	Liquid

Appearance	Light blue
Odour	Perceptible odour
Density	1,03 g/cm3 at 20°C
pH	11-12 at 20°C

EASYCLEAN WINDOW & MIRROR

642 778847

The EASYCLEAN WINDOW & MIRROR is a versatile, extra strength product for cleaning windows, mirrors and other glossy surfaces of the galley and accommodation areas. Dirt, grease, oil, ngerprints and other stubborn deposits are easily cleaned off without leaving any streaks or hazy residue.

Features

- Highly concentrated product
- Leaves a thin lm that gives good shine and protection when used regularly
- Can be used as windscreen washing uid when temp above freezing
- Ammonia and phosphate free

Bene ts

- The concentrated product reduces the need for storage space
- With regular use is it easy to maintain a shiny surface due to the protective lm
- When used on the outside windows will the protective lm ease the removal of the salt deposits from seawater

EASYCLEAN WINDOW & MIRROR is equipped with a component that leaves a good shine and protection when used regularly.

EASYCLEAN WINDOW & MIRROR is completely safe on aluminium and other light metals.

Ordering information

Product number	Product name	Unit	Packaging
778847	EASYCLEAN WINDOW & MIRROR	LTR	10 litre pail

Accessories

Product Number	Product name
778885	EASYCLEAN RE-USABLE BOTTLE W&M x6
778844	UNITOR MIXING STATION 4 - 4
778833	UNITOR MIXING STATION 4 - 14

Directions for use

1. Dilute the concentrate 1 : 100 (1 %) through the UNITOR MIXING STATION 4 - 14 or 1 : 200 (0,5 %) through the UNITOR MIXING STATION 4 - 4
2. Use 1 % solution strength outdoors or if surfaces are very dirty, for the rest use 0,5 % solution
3. Apply cleaning solution with spray or cloth or rag
4. Rub on surface with a cloth or rag to remove stubborn stains
5. Remove cleaning solution / wipe dry with a squeegee and / or dry rag or cloth

Further Technical Data

Form	Liquid
Apperance	off-white, pale yellow
Odour	Sweet-smelling
Density	Density 1,05 - 1,06 g/cm3 at 20°C

EASYCLEAN SOFT SURFACE & SPOT

642 778849

The EASYCLEAN SOFT SURFACE & SPOT is a phosphate free cleaner for cleaning and deodorizing of soft surfaces like carpets, furniture, upholstery etc.

Features

- Biological active ingredients
- Phosphate free
- Ready to use
- Long term effect

Bene ts

- Through the biological active components in the product are organic components broken down over time to water and carbon dioxide
- Since the organic components are broken down and removed, will the long term effect be reduced smell. Initial effect is that the product deodorize and masks the smell.

EASYCLEAN SOFT SURFACE & SPOT is based on specialized bacterial strains and biodegradable surfactants enable to eliminate organic residue like blood, coffee, vine, beer, food, waste, vomit etc. and odour by tree way action:

- Chemical cleaning action by removing solids from surfaces.
- Immediate odour control by fragrance masking
- Deep cleaning from biological action for removal of residual organic matter

These properties make it ideal for removal of residual organic matter specially on carpets, sofas, chairs and upholstery.

Ordering information

Product number	Product name	Unit	Packaging
778849	EASYCLEAN SOFT SURFACE & SPOT	PCS	6 X 0,6 litre spray bottle

Directions for use

1. Spray EASYCLEAN SOFT SURFACE & SPOT on the surface that needs cleaning and brush in with a cloth
2. Humidify the area with some additional water and leave over night
3. Vacuum up the residue when dry
4. Repeat the operation if spot is not fully removed

Further Technical Data

Form	Liquid
Appearance	White, yellow
Odour	Sweet-smelling
Density	1,00 g/cm3 at 20°C
pH in conc.	8-9 at 20°C

EASYCLEAN BASIN & TOILET BOWL

642 778851

The EASYCLEAN BASIN & TOILET BOWL cleaner is a liquid cleaner that safely cleans and removes rust, hard water stains and other deposits from basins and toilet bowls.

Features

- Based on biodegradable ingredients
- Phosphate free
- Highly concentrated product

Bene ts

- The concentrated product reduces the need for available storage space
- Cost effective
- If used in accordance with the instructions will the product not in uence the microbiological activity that is desired in the drains and sewage system

When EASYCLEAN BASIN & TOILET BOWL is used regularly will it leave a shiny protective layer on the cleaned surfaces. This layer will reduce new dirt and stains from sticking to the surfaces.

IMPORTANT! Do not mix with cleaning products containing bleach / Sodium hypochlorite.

Ordering information

Product number	Product name	Unit	Packaging
778851	EASYCLEAN BASIN & TOILET BOWL	LTR	10 litre pail

Accessories

Product Number	Product name
778886	EASYCLEAN RE-USABLE BOTTLE B&T x6
778844	UNITOR MIXING STATION 4 - 4

Directions for use

Basin Cleaning:

1. Dilute the concentrate 1 : 100 (1 %) through the UNITOR MIXING STATION 4 - 4
2. Spray the solution on the surfaces that is to be cleaned
3. Rub on surface with a cloth or rag to remove suborn stains
4. Wipe the surface dry with a cloth to improve shine

Toilet cleaning:

1. Dilute the concentrate 1 : 100 (1 %) through the UNITOR MIXING STATION 4 - 4
2. Raise toilet seat and spray onto the walls and under the rim of the bowl
3. Brush bowl when ushing
4. Clean any spills immediately

Further Technical Data

Form	Liquid
Appearance	Off-white
Odour	Sweet-smelling
Density	1,08 - 1,085 g/cm3 at 20°C
pH in Conc.	1-2 at 20°C

EASYCLEAN LIQUID HAND SOAP D

642 778858

The EASYCLEAN LIQUID HAND SOAP D is a general purpose, solvent-free and fragrance-free clear golden gel hand and skin cleanser.

Features

- Clear golden gel hand and skin cleanser
- Does not contain petroleum or natural solvents
- Designed for general purpose / washroom use

Bene ts

- Excellent removal of medium to heavy soiling
- Excellent cleaning performance yet gentle on the skin
- Easy to pump / dispense
- Leaves hands feeling soft, fresh and clean

EASYCLEAN LIQUID HAND SOAP D is a hand soap slightly more heavy duty compared to a natural hand soap, and is therefore ideal for use in galleys where food, fat, grease and oils are handled. Even with the great performance in removing the grease and fat is the hand soap mild to the skin.

Ordering information

Product number	Product name	Unit	Packaging
778858	EASYCLEAN LIQUID HAND SOAP D	PCS	6 X 2 litre pouch

Accessories

Product Number	Product name
778841	UNITOR HAND CARE DISPENSER 2

Directions for use

1. Wet hands
2. Apply 1-3 ml EASYCLEAN LIQUID HAND SOAP D
3. Rub the soap all over the hands, remember nails, wrists and forearm
4. Rinse thoroughly
5. Dry hands with a clean towel, paper towel or blower

Further Technical Data

Form	Gel
Appearance	Green
Odour	Very small
pH	8,5-9,5 at 20°C

EASYCLEAN HAND SANITIZER

642 778856

The EASYCLEAN HAND SANITIZER is a ready to use Chlorhexidine lotion based alcohol-free hand sanitizer and moisturiser.

Features

- A Chlorhexidine based lotion
- Residual bug killing properties
- BS-EN Conformities

Bene ts

- Chlorhexidine based for broad and safe bug killing properties
- Moistens skin unlike alcohol based sanitizers
- Easily absorbed into the skin - non-greasy
- Can be used in food preparation and healthcare applications
- Keeps killing bugs up to 2 hours after application

The EASYCLEAN HAND SANITIZER is a Chlorhexidine based lotion that creates a barrier on the skin with the added advantage of instant sanitizing and moisturizing. Chlorhexidine is a key ingredient in many pharmaceutical and surgical clinical products and offers excellent wound protection and disinfection. With the added ingredients (waxes etc) in EASYCLEAN HAND SANITIZER the Clorhexidine will stay on the skin for an extended period enabling the Chlorhexidine to work for up to 2 hours. Chlorhexidine has what is known as “long lasting broad spectrum activity” with a broader kill potential than alcohol and if you combine this with waxes and moisturizers you have a much more powerful solution to hand sanitizing and protection.

Ordering information

Product number	Product name	Unit	Packaging
778856	EASYCLEAN HAND SANITIZER	PCS	6 X 2 litre pouch

Accessories

Product Number	Product name
778841	UNITOR HAND CARE DISPENSER 2

Directions for use

1. Clean and Dry hands prior to sanitizing
2. Apply 2 - 3 ml EasyClean Hand Sanitizer
3. Rub the sanitizer all over the hands, remember under the nails, wrists and between ngers
4. Rub hands together until dry
5. After work wash hands in the normal way

Further Technical Data

Form	Viscous cream
Appaerance	White
Odour	Odourless
Density	0,9 - 1 g/cm3 at 20°C

EASYCLEAN OVEN & GRILL

642 778860

EASYCLEAN OVEN & GRILL is a strong heavy duty alkaline cleaner for oven and grill cleaning in the galley area. The product is designed to penetrate and break down tough burnt-on carbon deposits.

Features

- Highly concentrated ready-to-use solution
- Highly effective on burnt-on carbon deposits
- Phosphate free

Bene ts

- Easy to use, just spray on and leave to work
- The concentrated product improves ef ciency and saves time on the cleaning process
- Regular carbon-deposit removal reduces the risk for excessive smoke generation, unwanted taste on food as well as reduces the risk for res

The heavy duty cleaning power of EASYCLEAN OVEN & GRILL secures fast and easy cleaning by loosening the bond between the deposits and the surface. The surfactant system used will further break down the deposits to be dispersed into the wash water for easy removal.

Regular use of EASYCLEAN OVEN & GRILL will remove the deposits that can lead to potential kitchen res. If the deposits are not removed, they will also lead to excessive smoke and unwanted taste to the food.

Ordering information

Product number	Product name	Unit	Packaging
778860	EASYCLEAN OVEN & GRILL	PCS	6 X 0,6 litre spray bottle

Accessories

Product Number	Product name
576843	CHEMICAL RESIST CLOTHING

Directions for use

1. Scrape off large quantities of deposits and remove loose particles
2. Spray on the EASYCLEAN OVEN & GRILL neat on the COLD surfaces
3. Leave the product working for 15 to 60 minutes depending on amount of residue
4. Rinse off with plenty of water or remove with a wet rag or sponge

Always use suitable personal protective equipment (PPE), like goggles and chemical resistant gloves, when handling EASYCLEAN OVEN & GRILL.

Avoid contact with paint, enamels and light metals like Aluminium, Tine and their alloys.

Further Technical Data

Form	Liquid
Appearance	Off-white
Odour	Odourless
Density	1,20 g/cm3 at 20°C
pH in Conc.	13-14 at 20°C
Non Compatibility	Paint, enamels and metals like aluminium, zinc, tin and their alloys

EASYCLEAN CLEANING & DISINFECTION

642 778845

The EASYCLEAN CLEANING & DISINFECTION is a highly ef cient combined cleaning and disinfection product with outstanding bactericidal performance. EASYCLEAN CLEANING & DISINFECTION is recommended for use in the galley and accommodation areas including refrigeration rooms to eliminate and avoid transmission of bacteria, fungi and viruses.

Features

- Easy to use cleaning and disinfection product
- Can be used on most hard surfaces

Bene ts

- Bactericidal, Yeasticidal, Virucidal against Vaccinia, Tuberculocidal, In uenza and BVDV viruses
- VAH, tested according to VAH requirements (German Society for Hygiene and Microbiology, now VAH)
- DVG, Tested according to DVG requirements (8th list, food sector)

IMPORTANT!

EASYCLEAN CLEANING & DISINFECTION is biodegradable when diluted in water, this means that a fresh solution must be made before every cleaning and disinfection process.

The fact that the EASYCLEAN CLEANING & DISINFECTION is biodegradable means that it will not give a long term negative effect on the desired microbiological effect produced by the Gamazyme cleaning and treatment products in the drain pipes, tanks or ef uent treatment system.

Ordering information

EasyClean Cleaning & Disinfection cannot be delivered in US & Canada , for deliveries in US please contact the local Customer Service Organisation. For more information on alternative product delivered in US, please see Product Data Sheet for Sanite 128 F.

Product number	Product name	Unit	Packaging
778845	EASYCLEAN CLEANING & DISINFECTION	LTR	10 litre pail
764128	SANITE 128 F (US ONLY)	LTR	10 litre pail

Accessories

Product Number	Product name
778889	EASYCLEAN RE-USABLE BOTTLE C&D x6
778844	UNITOR MIXING STATION 4 - 4
778833	UNITOR MIXING STATION 4 - 14
778822	UNITOR CLEANING STATION 2

Directions for use

1. Clean heavy soiled areas with EASYCLEAN FLOOR & HARD SURFACE prior to disinfection
2. Dilute the concentrate of EASYCLEAN CLEANING & DISINFECTION to the correct concentration prior to use through the UNITOR MIXING STATION 4 - 14 OR UNITOR MIXING STATION 4 - 4;
   1 : 100 (1,0 %) for galley and other areas and
   1,5 : 100 (1,5 %) for hospital
3. The product is biodegradable and will have reduced effect over time
4. Apply the cleaning solution with cloth, mop, sponger or by soaking. Allow to work for 15 min for galley and 30 min for hospital
5. Rinse off or allow to air dry. Areas that can come in contact with food and oors if they are being vaxed or polished must be rinsed off with fresh water

Further Technical Data

Form	Liquid
Odour	Amine odour
Density	1,022 g/cm3 at 20 deg C
pH	10 at 20°C

SANITE 128 F

SANITE 128 F is a highly effective Cleaning and Disinfection product for deliveries in US. The product is recommended for use in the galley and accommodation areas including refrigeration rooms to eliminate and avoid transmission of bacteria, fungi and viruses.

Features

- Easy to use cleaning and disinfection product
- Can be used on most hard surfaces

Bene ts

- Kills all the most normal bacteria, yeasts and viruses

Ordering information

Sanite 128 F cannot be delivered outside of the US. For deliveries outside of the US please contact the local Customer Service Organisation. For more information on alternative product delivered outside of the US and Canada, please see Product Data Sheet for EasyClean Cleaning & Disinfection.

Product Number	Product name	Unit	Packaging
764128	SANITE 128 F (US ONLY)	LTR	10 Litre pail
778845	EASYCLEAN CLEANING & DISINFECTION	LTR	10 Litre Pail

Accessories

Product Number	Product name
778889	EASYCLEAN RE-USABLE BOTTLE C&D x6
778844	UNITOR MIXING STATION 4 - 4
778833	UNITOR MIXING STATION 4 - 14
778822	UNITOR CLEANING STATION 2
778845	EASYCLEAN CLEANING & DISINFECTION

EASYCLEAN DISHWASH LIQUID MANUAL

642 778864

The EASYCLEAN DISHWASH LIQUID MANUAL is a mild detergent cleaner intended for manual dish washing. The product contains ingredients originating from vegetable raw materials, is pH neutral and mild to the skin.

Features

- pH neutral
- Contains powerful grease cutting agents
- Based on biodegradable ingredients
- Phosphate free product

Bene ts

- The neutral pH makes the product mild to the skin
- Effectively removing stubborn substances
- Highly effective and economical in use

EASYCLEAN DISHWASH LIQUID MANUAL cannot be used in automatic dishwashers as it will produce too much foam.

Ordering information

Product number	Product name	Unit	Packaing
778864	EASYCLEAN DISHWASH LIQUID MANUAL	PCS	12 X 1 litre bottle

Directions for use

1. Dose about 7 ml per 10 Litre of EASYCLEAN DISHWASH LIQUID MANUAL to the sink and add warm water
2. Ensure that there is a foam layer on top of the water phase, this assists in keeping the grease and fat off the dish washing when removing it from the water
3. When foam layer or if water looks dirty, replace the cleaning water with a new solution
4. Rinse off the dish washing and let air dry or wipe dry with a clean and dry dish towel

Further Technical Data

Form	Liquid
Appearance	Clear, green
Odour	Slight smell of lemon
Density	1,025 - 1,035 g/cm3 at20°C
pH in conc.	7-8 at 20°C

EASYCLEAN LAUNDRY CONDITIONER

642 778873

The EASYCLEAN LAUNDRY CONDITIONER works by coating the surface of the cloth bers with a thin layer that prevents build up of static electricity and makes the bers smoother and softer.

Features

- Concentrated product
- Prevents static cling and build up of static electricity
- Reduce wrinkling

Bene ts

- Leaves the laundry with a clean, fresh scent
- Clothes feel smoother and more comfortable to use
- Makes ironing easier

EASYCLEAN LAUNDRY CONDITIONER should be dosed manually or added to the washing machines dispenser for fabric softeners and dosed automatically in the nal rinse,

Ordering information

Product number	Product name	Unit	Packaging
778873	EASYCLEAN LAUNDRY CONDITIONER	PCS	4 X 5 litre pail

Directions for use

1. EASYCLEAN LAUNDRY CONDITIONER should be do dosed manually into the dosing chamber of the washing machine or automatically to the nal rinse of the program
2. Dose 10 ml of EASYCLEAN LAUNDRY CONDITIONER per wash
3. If clothes feels stiff or if it builds up static electricity, then add up to 10 mls extra

Further Technical Data

Form	Viscous liquid
Appearance	Light yellow
Odour	Sweet-smelling
Density	1,0 g/cm3 at 20°C
pH	3 at 20°C

EASYCLEAN LAUNDRY POWDER

642 778871

The EASYCLEAN LAUNDRY POWDER is a concentrated washing detergent without bleaching agent. The powder is designed for coloured clothes at all wash programs from 30°C up to 90°C.

Features

- Effective from 30°C
- White powder with perfume added

Bene ts

- Leaves the clothes with a nice smell
- Can be used for both machine and hand wash

If the EASYCLEAN LAUNDRY POWDER should be used for manual hand cleaning, dissolve 35 ml of the powder in 10 liter of warm water.

It is not recommended to use more powder than needed, as it might be dif cult to rinse out all the detergent. This can again lead to rash or skin irritations.

Ordering information

Product number	Product name	Unit	Packaging
778871	EASYCLEAN LAUNDRY POWDER	KG	10 kgs bag

Directions for use

1. Add 50 ml EasyClean Laundry Powder per 3 - 5 kgs cloths into the dosing chamber of the washing machine. If cloths are very dirty or if the water is bunkered and has a high hardness, add up to 30 ml extra
2. Run normal program according to the machine settings
3. On regular basis run the machine at 60°C with a cleaning detergent that contains a bleaching agent
4. After each clean, if possible, leave the machine door open.

Further Technical Data

Form	Powder
Appearance	White water soluble
Odour	Characteristic odour
Density	0,71 g/cm3 at 20°C
pH	11 at 20°C

EASYCLEAN LAUNDRY TABLETS

642 778869

EASYCLEAN LAUNDRY TABLETS are easy to dose laundry tablets without bleaching agent. The tablets are designed for coloured clothes at all wash programs from 30°C up to 90°C.

Features

- Easy to dose
- Suitable for all wash temperatures
- Disintegrates quickly

Bene ts

- Reduced waste
- Removes tough everyday stains

If the EASYCLEAN LAUNDRY TABLET should be used for manual hand cleaning, dissolve 1 tablet in 10 liter of water. It is not recommended to use more tablets than needed, as it might be dif cult to rinse out all the detergent. This can again lead to rash or skin irritations.

Ordering information

Product Number	Product name	Unit	Packaging
778869	EASYCLEAN LAUNDRY TABLETS	PCS	12 X 30 tablets

Further Technical Data

Form	Tablet
Apoerarance	White
Odour	Odourless

UNITOR HAND CARE DISPENSER 2

422 778841

The Unitor Hand soap dispenser is ideal for Unitor Easyclean hand soap and hand sanitizer.

The dispenser is designed to t the Easy Clean Hand Soap D and Easyclean Hand Sanitizer 2 ltr bags.

The dispenser is supplied with wall bracket.

Technical data

Dispenser capacity	2 l

UNITOR MIXING STATION 4 - 4

422 778844

One push operating mixing station. Can mix up to 4 different chemicals - easy to choose by using the selector wheel.

Suction from up to 4 canisters of chemicals with up to 4 different mixing ratios.

Unitor Mixing Station 4 - 4 is ideal for lling smaller sprayers when low foaming is required.

For lling of larger volume, the the 4 - 14 is recommended.

Features

- Flow rates: 4 LPM
- Automatically and accurately dilutes chemical concentrates.
- Matches Unitor Easyclean series

Bene ts

- Controls your chemical consumption
- Improved health and safety handling - reduced risk of spilling
- Standardized and correct dosing
- Easy to install, supplied with installation manual
- Low maintenance - no pump or electrical connection

Technical data

Flow Capacity, max	4 l/min
Working pressure	1.8 - 6 bar
Inlet Temperature	45 C (max)
Standard mixing ration	3:1 - 125:1 (low ow) / 3:1 - 350:1 (high ow)

UNITOR MIXING STATION 4 - 14

422 778833

One push operating mixing station. Can mix up to 4 different chemicals - easy to choose by using the selector wheel.

Suction from up to 4 canisters of chemicals with up to 4 different mixing ratios.

Unitor Mixing Station 4 - 14 is ideal for lling buckets, sprayers or oor cleaning equipment.

For lling of smaller bottles the 4 -4 is recommended.

Features

- Flow rates: 14 LPM
- Automatically and accurately dilutes chemical concentrates.
- Matches Unitor Easyclean series

Bene ts

- Controls your chemical consumption
- Improved health and safety handling - reduced risk of spilling
- Standardized and correct dosing
- Easy to install, supplied with installation manual
- Low maintenance - no pump or electrical connection

Technical data

Flow Capacity, max	14 l/min
Working pressure	1.8 - 6 bar
Max working temp	45 C
Standard mixing ratio	3:1 - 125:1 (low ow) / 3:1 - 350:1 (high ow)

Approvals

Complies with European water regulations EN1717

UNITOR CLEANING STATION 2

422 778822

The Unitor Cleaning station allows mixing of up to two different chemicals into ready to use dilution.

The Unitor Cleaning station is ideal for xed installation in galley, engine room, spa, pool or shower areas or other areas that require frequent cleaning with accurate mixing. When the station is installed, time is saved during every cleaning as preparation time is effectively reduced.

The color coded Tips that are included let you choose the correct mixing of water and chemicals. The tips is easy to put in place.

You can also apply only water for cleaning / rinsing. Supplied with a 15 meter food graded hose and a solid spray gun.

The operator can choose from only water (no chemicals) or chemical 1 or chemical 2.

Features

- Two - way chemical dosing or only ushing with water
- Easy to understand selector wheel
- Hose with solid gun
- Easy installation - guide included.

Bene ts

- Accurate dosing - consumes less chemicals
- Safe handling of chemicals
- Easy and convenient way of cleaning and applying ready to use dilution

Technical data

Feed water pressure	Min 1,5 bar inlet pressure
Max inlet pressure	5 bar
Working temp	5 - 55 C
Suction heigth	2 m
Inlet / outlet connections	3/4" G M
Mixing ratio	0,5 % - 16 %
Selctor	PVDF
Gaskets	Dutral
Spring	Hastelloy

Cleaning station complete for one or two products. Flow rate 13 LPM @ 3 bar.

Accessories

Product Number	Product name
778825	TIPS FOR UNITOR DILUTION

EASYCLEAN HAND BARRIER CREAM WET

642 778875

The EASYCLEAN HAND BARRIER CREAM WET is a specially developed wet work barrier cream designed to give protection against everyday materials such as neat and soluble cutting oils, dilute alkali and acids, detergents, coolants and other water or water/oil based materials.

Features

- Easy to apply cream based on clay, petroleum jelly and paraf n wax
- Water repellent
- Low dosage, 1 - 2 mls per treatment
- Can be used in combination with gloves to prevent dehydration / de-fatting and for maximum protection in hazardous environments

Bene ts

- Gives protection against water based materials and contaminants
- Facilitates soil removal from skin
- Helps prevent ingress of contaminants and sensitisers into the skin
- Prevents skin dehydration and defatting

Ordering information

Product number	Product name	Unit	Packaging
778875	EASYCLEAN HAND BARRIER CREAM WET	PCS	12 X 0,25 Litre bottle with pump

Directions for use

1. Clean hands properly with EASYCLEAN LIQUID HAND SOAP (D)
2. Apply 1 - 2 mls of EASYCLEAN HAND BARRIER CREAM WET and massage well into the skin, especially around nails and cuticles before working with water or water based products
3. If hands are washed, re-apply before continuing to work. Also recommended for use under gloves.

Further Technical Data

Form	Viscous liquid
Appearance	White cream
Odour	Odourless
Density	1,15 g/cm3 at 20°C
pH	9,5 at 20°C

EASYCLEAN HAND BARRIER CREAM DRY

642 778877

The EASYCLEAN HAND BARRIER CREAM DRY is a specially developed cream to protect the skin against mineral oil or solvent based materials, dust, grease, solvent based adhesives, laquers, vanish, rubber, diesel oils, dyes, stains, lubrication compounds, polishes, paints, bitumens etc. Also when handling dry cargo will the EASYCLEAN HAND BARRIER CREAM DRY protect the skin from drying out.

Features

- Easy to apply water-based cream
- Low dosage, 1 - 2 mls per treatment

Bene ts

- Gives protection against solvent and oil based contaminants
- Facilitates soil removal from skin
- Helps prevent ingress of contaminants and sensitisers into the skin
- Prevents skin dehydration and defatting

Ordering information

Product number	Product name	Unit	Packaging
778877	EASYCLEAN HAND BARRIER CREAM DRY	PCS	12 X 0,25 litre bottle with pump

Directions for use

1. Clean hands properly with EASYCLEAN LIQUID HAND SOAP (D)
2. Apply 1 - 2 mls of EASYCLEAN HAND BARRIER CREAM DRY and massage well into the skin, especially around nails and cuticles before working with Oil, grease or non water based products
3. If hands are washed, re-apply before continuing to work

Further Technical Data

Form	Liquid
Appearance	Pink
Odour	Odourless
Density	1,15 g/cm3 at 20°C
pH	9.8-10.8 at 20°C

EASYCLEAN AFTERWORK LOTION

642 778879

EASYCLEAN AFTERWORK LOTION is a high quality reconditioning cream that enables the skin to re-hydrate and replenish natural oils lost during the day. Use after skin cleansing or after work to leave the skin moisturized and supple.

Features

- Highly effective emollient.
- Non-colored and Non-perfumed
- A combination of paraf n wax, emulsifying wax, glycerine and Isopropyl myristate.

Bene ts

- Prevents dry and cracked skin – a key cause of dermatitis
- Especially suitable for sensitive skin.
- Easily absorbed and non-greasy
- Keeps hands supple and exible for safer and more ef cient handling of tools and machines.
- Leaves skin soft and smooth.

Ordering information

Product Number	Product name	Unit	Packaging
778879	EASYCLEAN AFTERWORK LOTION.	PCS	12 X 0,25 litre bottle with pump

Directions for use

1. Clean hands properly with EASYCLEAN LIQUID HAND SOAP (D)
2. Apply 3 - 5 mls of EASYCLEAN AFTER WORK LOTION and massage well into the skin, especially around nails and cuticles

Further Technical Data

Form	Viscous,liquid
Appearance	Cream white
Odour	Sweet-smelling
pH	6 at 10 % concentration

OXYGEN SCAVENGER PLUS 25 L

655 698712

Oxygen Scavenger Plus is a catalysed, liquid solution of Diethylhydroxylamine (DEHA). Its volatile properties ensure distribution throughout the boiler and condensate system, and hence protects against oxygen corrosion in all parts of the system. The product also provides the required conditions for the establishment of a passivating layer of magnetite on all metal surfaces. Oxygen Scavenger Plus is a low toxicity product, suitable for high, medium and low pressure boiler systems.

Features

- Fast acting, volatile, liquid oxygen scavenger
- Neutralises acids occurring in condensate system
- Safe and easy to use, low toxicity
- Organic product, no dissolved solids added
- Simple test to determine treatment level

Bene ts

- Economical in use
- Reduces corrosion of iron and copper, increasing system life and reliability
- Protects system metals throughout the boiler system

Ordering information

Product Number	Product name
698712	OXYGEN SCAVENGER PLUS 25 LTR

Accessories

Test Kits for DEHA, P Alkalinity, Chloride and pH.

Product Number	Product name	Description
698746	SPECTRAPAK 313	DEHA
739490	SPECTRAPAK 315	P Alkalinity, Chloride and pH

Directions for use

Oxygen Scavenger Plus can be used in any boiler system, and in conjunction with mechanical deaeration systems. Removal of dissolved oxygen is vital for prevention of corrosion and especially pitting corrosion in boilers. When dosed into a boiler system, Oxygen Scavenger Plus will react with dissolved oxygen and form non corrosive compounds. The product is volatile and will evaporate and assist protection of the steam and condensate system. No solid materials are produced when using Oxygen Scavenger Plus.

Dosing method

Wilhelmsen Ships Service recommends continuously dosing into the boiler feed line using an automatic dosing unit.

Dosage and control

Dosing should be controlled so that the DEHA residual in the condensate is between 0.08-0,30 ppm. The consumption will depend on feed water temperature and the amount of water fed into the boiler. For more information about initial dosage and dose rate please consult your nearest Customer Centre.

Test Result Condensate PPM DEHA		
0.00 - 0.08	0.08 - 0.30	+0.30

Increase dose by 25%	Maintain dose	Decrease dose by 25%

Sampling and testing

A representative sample of Condensate should be drawn for analysis daily. The sample should always be taken from the same sampling point, cooled and tested immediately. Follow the WSS test kit instructions and log the results in Waterproof. The results should be sent to WSS as stated in the Waterproof instructions.
It is important that regular testing is carried out, to ensure the correct level of treatment is maintained.

OXYGEN CONTROL 25 L

655 571315

Oxygen Control is a catalysed liquid hydrazine oxygen scavenger for boiler corrosion protection. Oxygen Control provides the required conditions for the establishment of a passivating layer (magnetite) in the boiler.

Features

- Oxygen Control is a liquid product, easy to feed
- Does not contribute to conductivity
- Protects boiler, steam lines, condensate lines and feed water lines from corrosion
- Fast action due to catalyst
- Assists mechanical deaeration
- Simple test to determine level of treatment
- Oxygen control can be used to condition the water used for laying up the boiler in a wet condition.

Ordering information

Product Number	Product name
571315	OXYGEN CONTROL 25 LTR

Accessories

Test Kits for Hydrazine, P Alkalinity, Chloride and pH.

Product Number	Product name	Description
739490	SPECTRAPAK 315	P Alkalinity, Chloride and pH
555490	SPECTRAPAK 312	Hydrazine

Directions for use

Oxygen Control can be used in all boiler systems, from low to high pressures and in conjunction with mechanical deaeration systems. The treatment combines with dissolved oxygen to form water and inert nitrogen gas, thus effectively removing O2 from the water. No solid materials are produced, so there is no contribution to the increase in total dissolved solids -a critical factor in high pressure boilers. The removal of dissolved oxygen is vital for preventing oxygen pitting and corrosion in boilers. Oxygen Control reacts with ferrous and non-ferrous oxides to prevent general corrosion.Ferric oxide (red rust, Fe2O3) is converted to magnetite (black iron oxide, Fe3O4), which is a tough corrosion resistant oxide which protects the metal surface. The term for this is 'passivating' the surfaces, so that they are protected from further corrosion.

Dosing method

For optimum protection, Oxygen Control should be fed continuously into the boiler feed line, after the feed pump recirculating valve, using an automatic dosing systems. For steam turbine systems, Oxygen Control can be dosed into the cross over between the H.P. and L.P. turbines or the storage section of the deaerator for full protection.

Dosage and control

The objective is to maintain a hydrazine residual between 0.05-1.0 ppm depending on operating pressure and boiler design. Actual consumption is determined under operating conditions.

HYDRAZINE TEST RESULT ppm						
Boiler Pressure	**Control Range**	**0-0.05ppm**	**0.05-0.10**	**0.10-0-.50**	**0.50-1.00**	**1.00-1.50**
<18 to 31 bar	0.1-1.0ppm	Increase dose 25%	Increase dose 25%	Satisfactory Maintain dose	Satisfactory Maintain dose	Decrease dose 25%
31 to 42 bar	0.1-0.5ppm	Increase dose 25%	Increase dose 25%	Satisfactory Maintain dose	Decrease dose 25%	Decrease dose 25%

Recommended Control Limits in ppm. These are typical values. Follow boiler manufacturers guidelines where required.

Wet lay-up

When wet lay-up of the boiler is required then a minimum dosage of 1.25 litres/tonne of boiler water is required.

Sampling and testing

A representative sample of boiler water should be drawn for analysis daily. The sample should always be taken from the same point after blowdown, cooled and tested immediately. Follow the WSS Test Kit instructions and log the results in Waterproof. The results should be sent to WSS as stated in the Waterproof instructions.
It is important that regular testing is carried out to ensure levels of treatment are correct.

OXYGEN SCAVENGER 9-035 25 L

655 777705

Oxygen Scavenger 9-035 is an aqueous solution of hydrazine, developed to prevent corrosion in boilers and heating systems by reacting with dissolved oxygen to form harmless nitrogen and water.

Features

- Catalysed hydrazine product for rapid reaction with dissolved oxygen and prevention of corrosion in marine boilers
- Removes dissolved oxygen from boiler feedwater without increasing dissolved solids, resulting in reduced blowdown and fuel costs
- Maintains a protective surface layer of magnetite on the waterside of boiler metals
- Protects steam and condensate lines from aggressive oxygen attack- Used in conjunction with Condensate Treatment

Ordering information

Product Number	Product name
777705	OXYGEN SCAVENGER 9-035 25 LTR

Accessories

Test Kits for Hydrazine, P Alkalinity, Chloride and pH.

Product Number	Product name	Description
739490	SPECTRAPAK 315	P Alkalinity, Chloride and pH
555490	SPECTRAPAK 312	Hydrazine

Directions for use

Neither, Oxygen Scavenger 9-035 or its decomposition products are acidic. Decomposition at boiler temperatures gives ammonia, which by dissolving in the condensate water raises its pH and reduces corrosion in both the condensate and the feed systems. Oxygen Scavenger 9-035 will react with the oxide lm on steel surfaces in a boiler system to form a magnetite (Fe3O4) layer which gives boiler protection. This "passivation" technique is also useful for pre-treatment of new boiler plant and for protection of boilers during standby and storage periods. Oxygen Scavenger 9-035 may be used with boilers of all sizes and pressures, with or without mechanical de-aerators.

Dosing and Control
Oxygen Scavenger 9-035 must be fed continuously by chemical feed pump to the earliest point possible in the feedwater system. Any interruption in feed will result in corrosion of the pre-boiler and boiler system and possible tube failure. Oxygen Scavenger 9-035 can be fed neat or diluted. Closed systems should be used for dosing and for transfer from one container to another. To prepare a dilute solution (usually between 1:10 and 1:100) use condensate or de-mineralised water at temperatures between 10 and 37.8°C to avoid odour formation. Mild agitation is required only while preparing the solution. A oating "doughnut" type cover is recommended to minimise reaction with air. Preferred feed points include the feedwater pump suction, storage section of the de-aerator, condenser hot well and for systems with condensing turbines, condensate extraction pumps and deaerator storage area. Polyethylene and stainless steel are preferred materials for solution tanks and pumps. Mild steel may be used for dilute solutions. Do not use copper, copper alloys, nickel, zinc or lead. Closed feed systems are highly recommended to reduce operator exposure to hydrazine vapours.

Dosage Calculation
The Oxygen Scavenger 9-035 dosage will be the sum of the requirements for reaction with dissolved oxygen plus the desired residual.

Oxygen scavenger 9-035 dosage (ppm)
= feedwater ppm O2 x 2.85 + 0.5. Sampling and Testing Oxygen Scavenger 9-035 programmes should be monitored and controlled using: a suitable Hydrazine test method.. Testing for Oxygen Scavenger 9-035 residual should be done at least daily.

HYDRAZINE TEST RESULT ppm						
Boiler Pressure	**Control Range**	**0-0.05ppm**	**0.05-0.10**	**0.10-0-.50**	**0.50-1.00**	**1.00-1.50**
<18 to 31 bar	0.1-1.0ppm	Increase dose 25%	Increase dose 25%	Satisfactory Maintain dose	Satisfactory Maintain dose	Decrease dose 25%
31 to 42 bar	0.1-0.5ppm	Increase dose 25%	Increase dose 25%	Satisfactory Maintain dose	Decrease dose 25%	Decrease dose 25%

OXYGEN SCAVENGER 9-002 25 L

655 777712

Oxygen scavenger 9-002 is a liquid oxgen scavenger based on Carbohydrazide.

Features

- Safe form of hydrazine speci cally formulated to reduce handling problems associated with hydrazine solutions
- Volatile oxygen scavenger in liquid form which does not add dissolved solids to the treated water
- Does not require special feeding equipment for safe application
- Maintains a protective surface layer of magnetite

Ordering information

Product Number	Product name
777712	OXYGEN SCAVENGER 9-002 25 LTR

Accessories

Test Kits for Hydrazine, P Alkalinity, Chloride and pH.

Product Number	Product name	Description
739490	SPECTRAPAK 315	P Alkalinity, Chloride and pH
555490	SPECTRAPAK 312	Hydrazine

Directions for use

Oxygen Scavenger 9-002 is used in feedwater and condensate systems to scavenge oxygen and maintain passive metal surfaces. It reacts with the oxide lm on steel surfaces in a boiler system to form a magnetite layer which gives metal protection. This “passivation” technique is useful for pretreatment of new boiler plant and for protection of boilers during idle and storage periods.

Dosing Method
Oxygen Scavenger 9-002 must be added continuously by means of a chemical pump at the earliest practicable point in the feed system e.g. the deaerator storage or condenser extraction pump discharge.

Sampling and Testing
Oxygen Scavenger 9-002 may be used in all types of boilers operating at pressures up to 2700 psig but is particularly suitable for use at high pressure where oxygen corrosion becomes rapid and where the deposition of metallic corrosion products can quickly lead to overheating and failure of generating tubes.

Dosing and Control
Oxygen Scavenger 9-002 can be fed neat or in any convenient dilution. Dilution should be carried out using condensate or de-aerated water. Polyethylene and stainless steel (type 304 & 316) are compatible materials for solution tanks and it is recommended that one or more layers of “Allplas” balls be used to minimise the reaction of Oxygen Scavenger 9-002 with air.

CARBOHYDRAZIDE (HYDRAZINE) TEST RESULT ppm				
Boiler Pressure	**Control Range**	**0-0.05ppm**	**0.05-0.20**	**0.20-0-.50**
<18 to 31 bar	0.05-0.2 ppm	Increase dose 25%	Satisfactory Maintain dose	Decrease dose 25%
31 to 42 bar	0.05-0.2 ppm	Increase dose 25%	Satisfactory Maintain dose	Decrease dose 25%

CAT SULPHITE L (CSL)

655 575662

CSL is a sodium sulphite based product in ready to use liquid form. The catalyst ensures rapid elimination of oxygen in the boiler system. CSL should be used in conjunction with other Unitor boiler water treatment products. Oxygen is highly corrosive in the boiler system, even in small amounts. Elevated temperature operation of the hotwell is a good practice to remove gases like oxygen. Even so, the feed water contains oxygen which can create severe corrosion, shown as deep and local pitting. This will quickly cause failure of the boiler metal. CSL reacts with oxygen to form inert sodium sulphate, thus preventing oxygen attack.

Features

- Concentrated liquid product
- Catalysed product for very rapid removal of oxygen
- Reacts at low temperature
- Simple control test
- CSL should be dosed seperately from other boiler water treatments

Bene ts

- Protects the boiler from oxygen corrosion
- Approved for use where steam can contact food

Ordering information

Product number	Product name
575662	CAT. SULPHITE L 25 LTR

Accessories

Test Kits for Sulphite, P Alkalinity, Chloride and pH.

Product Number	Product name	Description
739490	SPECTRAPAK 315	P Alkalinity, Chloride and pH
574913	SULPHITE TEST KIT	Sulphite

Directions for use

Cat. Sulphite L (CSL) is a fast acting oxygen scavenger for use in ships boiler system in conjunction with other Unitor boiler water treatment products. High feedwater temperature should be maintained for optimum product performance, reduced product consumption and optimum system protection.

Dosing method

For optional results CSL should be dosed continuously by means of a metering pump into the feed line, after the recirculation valve. CSL can be fed using Unitor's BWT dosing system. Slug dosing into the hotwell as well as low hotwell temperatures will strongly reduce the ef ciency of this treatment. CSL should be dosed seperately from other boiler water treatments.

Dosage and control

The quantity of CSL required depends on the operation of the boiler system. As a guide 10 ppm sulphite is required to react with 1 ppm oxygen. Please refer to the table below for control limits with respect to boiler operating pressure.

SULPHITE TEST RESULT ppm						
Boiler Pressure	Control Range	0-20ppm	20-50ppm	50-70ppm	70-100ppm	100-120ppm

<18 bar	50 - 100ppm	Increase dose 25%	Increase dose 25%	Satisfactory Maintain dose	Satisfactory Maintain dose	Decrease dose 25%
18 to 31 bar	30 - 70ppm	Increase dose 25%	Increase dose 25%	Satisfactory Maintain dose	Decrease dose 25%	Decrease dose 25%
31 to 42 bar	20 - 50ppm	Increase dose 25%	Satisfactory Maintain dose	Decrease dose 25%	Decrease dose 25%	Decrease dose 50%

Sampling and testing

A representative sample of boiler water should be drawn for analysis daily. Samples should be taken after blowdown, cooled and tested immediately. Samples should always be taken from the same location. Follow the test kit instructions and log the results in Waterproof. The results should be sent to WSS as stated in the Waterproof instructions.
It is important that regular testing is carried out to ensure that treatment levels are maintained within correct chemical limits.

AUTOTREAT 25 L

655 698720

AUTOTREAT is a multifunctional, liquid boiler water treatment, formulated with alkaline compounds, scale inhibitor, dispersant, and volatile amines for the protection of the feed, boiler and condensate systems.
The product combines well-known phosphate treatment with new polymer technology. This ensures that precipitates are kept soft and
non-adherent for easy removal by blowdown.

Features

- Liquid boiler water treatment chemical for simpli ed dosing and handling
- Suitable for all boilers, up to 30 bar pressure
- Contains volatile amines to neutralise acids occurring in condensate system
- Dispersant action suspends sludge and sediment particles for ef cient removal by blowdown
- Keeps boiler tube surfaces clean, promoting the best heat transfer conditions
- Simple testing to determine treatment level

Bene ts

- Multifunctional boiler water treatment
- Prevents scaling and corrosion, increasing system life and reliability

Ordering information

Product Number	Product name
698720	AUTOTREAT - 25 LTR

Accessories

Product Number	Product name	Description
739490	SPECTRAPAK 315	P Alkalinity, Chloride and pH
Supplementary Test Kits		
698746	SPECTRAPAK 313	DEHA
555490	SPECTRAPAK 312	Hydrazine
574913	SULPHITE TEST KIT	Sulphite

Directions for use

Autotreat is a boiler water conditioner designed for optimum protection of ships boiler systems when used in conjunction with an oxygen scavenger. The product combines well known phosphate treatment with new polymer technology. This ensures that precipitates are kept soft and nonadherent for easy removal by blowdown. The product should always be used in conjunction with an oxygen scavenger, preferably Oxygen Scavenger Plus. Note that this product is formulated for use in conjunction with good quality feed water.

Dosing method

The product should preferably be dosed continuously with an automatic dosing unit. Alternatively the product can be fed into the feed line by means of a by-pass pot feeder.

Dosage and control

Initial ll dosage is 2.4 litres of Autotreat/ton of boiler capacity to reach a P-Alkalinity level of approx. 200 ppm. For an untreated system it is recommended to initially bring the treatment up to a suitable level of 200 ppm p-Alkalinity. The dosage chart given below is for convenience to determine the amount of product required to elevate P-Alkalinity. Note that the table is based on reaching 200 ppm.

P-Alkalinity	0	50	100	150	200	250	300	350
Dose in l/ton	2.4	1.8	1.2	0.6	0	0	0	Blow Down

P-Alkalinity as ppm CaCO3.

These are recommended values based on experience, and are in no way intended to replace the boiler manufacturers speci cations, or company regulations. Typical control limits are: * P-Alkalinity: 150-300 ppm as CaCO3. * Chlorides: 200 ppm Cl max. * Condensate pH 8.3-9.0. Excessive Chlorides are removed by blowdown.

Sampling and testing

A representative sample of boiler water should be drawn for analysis daily. The sample should always be taken from the same point after blowdown, cooled and tested immediately. Follow the WSS Test Kit instructions and log the results in Waterproof. The results should be sent to WSS as stated in the Waterproof instructions.

It is important that regular testing is carried out to ensure that treatment levels are correct.

LIQUITREAT 25 L

655 571273

Liquitreat is a liquid blend of alkaline compounds, scale and corrosion inhibitors, oxygen scavenger and sludge conditioner.

Features

- Liquid multi-functional treatment for simpli ed dosing and handling
- Suitable for use with auxiliary boilers and waste heat units
- Contains sulphite oxygen scavenger

Bene ts

- Combined with good control of feed water temperature will ensure effective oxygen removal
- Heating surfaces are maintained at optimum thermal ef ciency
- Smoke and water tube boilers maintained at peak level ef ciency; up to 18 bar pressure

Ordering information

Product Number	Product name
571273	LIQUITREAT 25 LTR

Accessories

Test Kits for Sulphite, P Alkalinity, Chloride and pH.

Product Number	Product name	Description
574913	SULPHITE TEST KIT	Sulphite
739474	SPECTRAPAK 310	P Alkalinity, Chloride and pH

Approvals

Approved by the Norwegian National Institute of the Public Health for the use in systems where steam is used for drinking water production

Directions for use

The main attributes of Liquitreat fall into the following categories:

- Control of alkalinity: The correct level of alkalinity ensures that optimum conditions exist for: Precipitation of hardness salts in conjunction with phosphate.
- Neutralisation of acid conditions. Avoidance of caustic corrosion. Control of magnesium and calcium salts.
- Control of hardness: Liquitreat provides a phosphate reserve to effectively react with and precipitate the hardness salts introduced with the feedwater.
- Conditioning of sludge: Boiler sludge can only be removed by blowdown if it is free owing. Liquitreat will ensure this by preventing the sludge from adhering to metal surfaces. The resulting sludge is composed of small particles owing towards the bottom of the boiler for removal by routine blowdown.
- Control of oxygen: Oxygen scavenging becomes more important with the increase in boiler pressure. The oxygen scavenger will effectively react with dissolved oxygen even at lower temperatures.

Typical control limits are: P-Alkalinity: 150-300 ppm CaCO3, Sulphite: 50-100 ppm Na2SO3, Chlorides: 200 ppm Cl max, Conductivity <2250us, Condensate pH 8.5-9.2

Dosing method

Liquitreat is best continuously fed into the boiler feed line with a WSS boiler water dosing unit. The amount required for initial dosage can be obtained from the dosage chart. Consult your WSS representative for speci c dosing instructions.

Dosage and control

Wilhelmsen Ships Service strongly recommends the use of Condensate Control in conjunction with Liquitreat. Condensate Control is a volatile amine that neutralizes carbonic acid in the condensate return. For optimum protection against oxygen corrosion, we recommend to maintain a minimum temperature of 85°C in the hotwell.

Note: Where feed water temeperatures and or steam rates are variable you should dose a seperate oxygen scavenger to acheive the right balance of alkalinity and oxygen scavenger for best corrosion protection. Liquitreat is formulated for use in conjunction with good quality feed water.

Litres of Liqutreat per ton boiler volume to achieve 200 ppm P-Alkalinity as ppm CaCO3								
P-Alkalinity*	0	50	100	150	200	250	300	350
Dose/ton**	2,4	1,8	1,2	0,6	0	0	0	Blowdown

Sampling and testing

A representative sample of boiler water should be drawn for analysis daily. The sample should always be taken from the same point after blowdown, cooled and tested immediately. Follow the WSS Test Kit instructions and log the results in Waterproof. The results should be sent to WSS as stated in the Waterproof instructions.

It is important that regular testing is carried out to ensure that treatment levels are correct.

HARDNESS CONTROL 25 KG

655 571299

Hardness Control is a highly soluble, dry powder product used for the reduction of hardness in boilers. It will precipitate calcium hardness as a non-adherent sludge.

Features

- Highly active phosphate based compound
- Easily dissolved in water for dosing
- Scale problems due to calcium are eliminated
- Maintains sludge in a non-adherent state for removal by blow down
- Simple test to determine level of treatment
- Can be used for boilers of all pressures
- Unitor Hardness Control does not in uence the alkalinity in the system

Ordering information

Product Number	Product name
571299	HARDNESS CONTROL 25 KG

Approvals

Approved by the Norwegian National Institute of Public Health for the use in systems where steam is used for drinking water production.

Directions for use

Hardness Control is formulated to form a precipitate with calcium ions which will not adhere to metal surfaces but are in a form suitable for blowdown.

Dosing and control

For optimum results dose Hardness Control direct to the boiler via the bypass pot-feeder. The dry powder should be dissolved in hot water (50°C) at a ratio of 1 part powder to twenty parts condensate (e.g. 500 grams/10 litres). Ensure that treatment is fully dissolved before dosing.

Phosphate test result ppm PO4							
Pressure	**Control range**	**0-20**	**20-30**	**30-40**	**40-50**	**50-70**	**>70**
<18bar	30-70ppm	Increase dose by 25%	Increase dose by 25%	Satisfactory	Satisfactory	Satisfactory	Reduce dose by 25%
18 to 31bar	30-70ppm	Increase dose by 25%	Increase dose by 25%	Satisfactory	Satisfactory	Satisfactory	Reduce dose by 25%
31 to 42 bar	20-50ppm	Increase dose by 25%	Satisfactory	Satisfactory	Satisfactory	Reduce dose by 25%	Reduce dose by 25%

Select row on left hand side for applicable pressure range. Compare test result with comment in table and adjust dose rate accordingly.

These are recommended values based on experience and are in no way intended to replace the boiler manufacturer's speci cations or company regulations.

Sampling and testing

A representative sample of boiler water should be drawn for analysis daily. The sample should always be taken from the same point after blowdown, cooled and tested immediately. Follow the WSS Test Kit instructions and log the results in Waterproof. The results should be sent to WSS as stated in the Waterproof instructions.

It is important that regular testing is carried out to ensure levels of treatment are correct.

HARDNESS TREATMENT 7208 25 L

655 777706

Hardness Treatment 7208 is an alkaline liquid phosphate formulation for the prevention of scale in both high and low pressure boilers. Hardness Treatment 7208 is an Alkaline Liquid phosphate liquid with a Na:PO4 ratio of 2.6:1 that can be used in both coordinated and alkaline phosphate boiler water treatment programmes.

Features

- Application can easily be automated using Naltrak automation equipment
- Simple test kit is available

Bene ts

- Provides phosphate scale control in both high and low pressure boilers
- May be used as part of a coordinated phosphate programme
- Easy to apply liquid formulation

Directions for use

Hardness Treatment 7208 should be fed continuously in order to properly protect the boiler. Hardness Treatment 7208 can be fed neat or in any convenient dilution made up in soft water or cooled condensate. Hardness Treatment 7208 must not be mixed with oxygen scavengers or condensate system corrosion inhibitors.

Sampling and Testing

Hardness Treatment 7208 is normally used in conjunction with Alkalinity Control treatment in a conventional alkaline phosphate treatment programme for HP boilers, where independent control of phosphate and alkalinity control is required.

Dosing and Control

The dosage of Hardness Treatment 7208 depends on a number of operational factors such as feed-water quality, boiler design and steam rate. Control of Hardness Treatment 7208 is by a simple test to give the required level of phosphate (as PO4) in the boiler water. A simple Hardness Treatment test kit is available for this purpose. NOTE: Dependent on water quality, Hardness Treatment 7208 dosed at 0.25 liters/ton will increase the phosphate reserve by the order of 10mg/l.

BWT LIQUID PLUS 25 L

655 777701

BWT Liquid Plus is a blend of phosphate, alkalinity and polymer dispersants designed for the control of scaling and corrosion in the boiler. BWT Liquid Plus can be used as a phosphate treatment for low hardness feed waters in boilers operating at pressures up to 40 bar.

Features

- Minimises scale formulation, corrosion and sludge accumulation
- Simple to Control
- Complies with FDA regulations where steam can contact food
- Effective iron dispersant

Ordering information

Product Number	Product name
777701	BWT LIQUID PLUS 25 LTR

Directions for use

Dosing Method
BWT Liquid Plus is best applied neat or diluted with condensate or evaporated water to any convenient strength and applied on a continuous basis using a suitable chemical dosing pump.

Sampling and Testing
Control is by simple boiler water tests for alkalinity.

Dosing and Control
The dosage rate of BWT Liquid Plus suf cient to produce a P alkalinity in the boiler water of 100ppm is 0.4 liters/ 1,000 liters of water. BWT Liquid Plus is strongly alkaline. Tanks and feeding equipment should be constructed of suitably resistant material such as polypropylene, PVC, polyethylene, mild steel, cast iron or stainless steel. Avoid the use of brass or light alloys.

ALKALINITY CONTROL 25 L

655 571307

Concentrated liquid alkaline product for corrosion and scale control in boilers.

Features

- Convenient liquid treatment which provides the basic alkalinity for optimum corrosion and scale control.
- Assists in precipitation and blowdown of magnesium and calcium salts
- Will assist in keeping silica in suspension
- Simple testing to determine level of treatment
- Can be used in boilers of all pressures
- Can be used as a neutraliser after acid cleaning operations in different systems

Bene ts

- Allows ef ciency to be maintained, and reduces maintenance

Ordering information

Product Number	Product name
571307	ALKALINITY CONTROL 25 LTR

Approvals

Approved by the Norwegian National Institute of the Public Health for the use as neutraliser after acid cleaning operations in fresh water generators

Directions for use

Alkalinity Control provides alkaline conditions in the boiler water for optimum control of corrosion and scale deposition and should be used as part of a multi-product treatment programme.

Dosing method

For optimum results dose Alkalinity Control direct to the boiler with an automatic dosing unit, or via the bypass pot-feeder installed in the boiler feed line.

Dosage and control

A proper level of treatment is maintained by testing for p-Alkalinity. The level is determined by the pressure and type of boiler. Refer to the dosage table below for correct dose rates. The normal method of raising the alkalinity level is by adding the required quantity of Alkalinity Control after testing for p-Alkalinity. 225 ml/ton will raise the p-Alkalinity by 100 ppm.

USING THE TABLE: Select the section corresponding to the pressure of the boiler to be treated and read across the table to obtain the level of treatment required.

Dosage of Alkalinity Control in ml/ton boiler volume

** P-Alkalinity Test Result PPM CaCO3**

Pressure Range	0-50	50-100	100-150	150-300	>300	Standard Range P-Alkalinity	Initial Dose Ml/Tonne
<18 bar	340ml	225ml	110ml	Satisfactory	Reduce dose rate	150 to 300	450
18 to 31 bar	340ml	225ml	110ml	Satisfactory	Reduce dose rate	150 to 300	450
31 to 42 bar	225ml	110ml	Satisfactory	Reduce dose rate	Reduce dose rate	100 to150	340
42 to 60 bar	110ml	Satisfactory	Reduce dose rate	Reduce dose rate	Reduce dose rate	50 to 100	170

Proper treatment should normally give a pH between 9.5 and 11. These are recommended values based on experience and are in no way intended to replace the boiler manufacturer's speci cations or company regulations.

Sampling and testing

A representative sample of boiler water should be drawn for analysis daily. The sample should always be taken from the same point after blowdown, cooled and tested immediately. Follow the WSS Test Kit instructions and log the results in Waterproof. The results should be sent to WSS as stated in the Waterproof instructions.
It is important that regular testing is carried out to ensure levels of treatment are correct.

BOILER COAGULANT 25 L

655 571331

Liquid sludge conditioner designed to prevent deposits.

Features

- Liquid product, easy to feed
- Prevents the formation of adherent deposits and sludges in boilers
- Used in conjunction with Wilhelmsen Ships Service Chemical Service's standard range of boiler water treatments
- Used to coagulate small amounts of oil which have contaminated the boiler water

Bene ts

- Keeps boilers clean and extends boiler operational time between cleaning
- Keeps sludge dispersed for ef cient removal by blowdown

Ordering information

Product Number	Product name
571331	BOILER COAGULANT 25 LTR

Directions for use

Boiler Coagulant prevents the formation of deposits on boiler internal surfaces. Sludge is kept dispersed in small particles and conditioned to be removed by normal blowdown. In this way tube overheating due to deposits is avoided. The treatment is primarily used in conjunction with Hardness Control, but also with other Unitor chemical treatments. Boiler Coagulant can also be used where minor oil contamination has been experienced, the oil being required to be coagulated for removal by blowdown. However, it must be noted that if oil contamination is continuous and excessive, off-line cleaning will be required. The source of oil contamination must be stopped immediately.

Dosing method

For optimum results dose Boiler Coagulant directly to the boiler via the bypass pot-feeder. Boiler Coagulant is compatible with any Unitor Boiler Water Treatment and dosing can be combined.

Dosage and control

The initial dosage is 20 ml of treatment daily for every ton of boiler capacity. Daily bottom blowdown is required when using Boiler Coagulant.

COMBITREAT 25 KG

655 571265

Combitreat is a dry powder containing alkalinity builders, phosphates and sludge conditioners.

Features

- Combined conditioning treatment for simpli ed dosing and handling
- Suitable for use with all auxiliary boilers, waste heat units, economisers, package boilers, smoke and water tube boilers, up to 16 bar pressure
- Dispersant action suspends sludge and sediment particles

Bene ts

- Boiler kept at peak level ef ciency
- Heating surfaces maintained at optimum thermal conditions

Ordering information

Product Number	Product name
571265	COMBITREAT 25 KG

Approvals

Approved by the Norwegian National Institute of the Public Health for the use in system where steam is used for drinking water production

Directions for use

The main attributes of Combitreat fall into the following categories:

Control of alkalinity:

The correct level of alkalinity ensures that optimum conditions exist for:

- Precipitation of hardness salts in conjunction with phosphate.
- Neutralisation of acidic conditions.
- Avoidance of caustic corrosion.
- Control of magnesium and calcium salts.
- Control of hardness: Combitreat provides a phosphate reserve to effectively react with and precipitate the hardness salts introduced with the feedwater.
- Conditioning of sludge: Boiler sludge can only be removed by blowdown if it is free owing, Combitreat will ensure this by preventing the sludge from adhering to metal surfaces. The resulting sludge is composed of small particles owing towards the bottom of the boiler.

Wilhelmsen Ships Service strongly recommends the use of Condensate Control and an oxygen scavenger in conjunction with Combitreat. Condensate Control is a volatile amine that neutralizes carbonic acid in the condensate return. To prevent oxygen corrosion, the temperature of the hotwell at a minimum of 80°C in addition to use of an ef cient oxygen scavenger.

Dosing method

Combitreat is best dosed by means of a bypass pot feeder directly into the boiler feed line.

Dosage and control

Initial dosage for an untreated system is 400 grams Combitreat/1000 litres of boiler capacity. This will bring the treatment up to a suitable level of 200 ppm p-Alkalinity. The dosage chart given below is for convenience in calculating the amount of Combitreat required to bring the level to the point between the minimum and maximum (mid point: 200 ppm. p. Alkalinity.)

P-Alkalinity*	0	50	100	150	200	250	300	350
Dosage Kg/ton	0,4	0,3	0,2	0,1	0	0	0	Blowdown

*P. Alkalinity as ppm CaCO3

Our recommended control limits are: P-Alkalinity: 150-300 ppm CaCO3, Chlorides: 200 ppm Cl max. Condensate pH 8.3-9.0

These are recommended values based on experience, and are in no way intended to replace the boiler manufacturers speci cations, or company regulations.

Excessive Chlorides are removed by blowdown.

Sampling and testing

A representative sample of boiler water should be drawn for analysis daily. The sample should always be taken from the same point after blowdown, cooled and tested immediately. Follow the WSS Test Kit instructions and log the results in Waterproof. The results should be sent to WSS as stated in the Waterproof instructions.

It is important that regular testing is carried out to ensure that treatment levels are correct

CONDENSATE CONTROL 25 LTR

655 774828

Concentrated liquid neutralising agent for corrosion control in condensate and feed water systems

Features

- Easy to use liquid treatment
- Neutralises the acids occurring in the condensate system
- Volatilizes and carries over with the steam and so it is recycled
- Simple test to determine level of treatment
- Used for protection of condensate and feed water systems in boiler systems of all pressures

Bene ts

- Dosage is economical and ef cient
- Less maintenance required
- Lower operating costs and increased reliability

Ordering information

Product Number	Product name
774828	CONDENSATE CONTROL 25 LTR

Directions for use

Dosage and Control

The condensate is tested for pH to determine the dosage level. The pH limits are 8.5-9.2. For an average system e.g. 10 m3, the dosage is approximately 0.65 ltr/day

Dosing Method

Condensate Control is best dosed continuously using an automatic dosing unit. The treatment can be dosed together with the oxygen scavenger.

Suitable dosage points are:

- Boiler feed line after recirculation valve
- Condensate pump discharge Condensate Control can be fed using an automatic dosing system. Consult your WSS representative for speci c dosing instructions.

Sampling and Testing

A representative sample of condensate should be drawn for analysis daily. The sample should always be taken from the same point, cooled and tested immediately. Follow the test kit instructions and log the results in Waterproof. The results should be sent to WSS as stated in the Waterproof instructions.

Condensate Control Dosing Parameters

	< 8,5	8,5 - 9,2	9,2	Standard pH Range
All Boiler Groups	Increase Dosage by 25% for 72 hrs and retest.	Satisfactiry. Maintain dosage.	Decrease dosage by 25% for 72 hrs and retest.	8,5-9,2

These are recommended values based on experience and are in no way intended to replace the boiler manufacturer's speci cations or company regulations.

It is important that regular testing is carried out to ensure levels of treatment are correct. Use dosage chart to maintain condensate pH between 8.5-9.2.

CONDENSATE TREATMENT 9-150 25 L

655 777702

Condensate Treatment 9-150 is a liquid blend of neutralising amines applied for the protection of steam and condensate pipework.

Features

- Provides effective protection of steam & condensate systems against corrosive attack by carbon dioxide & other acidic gases
- Reduces pickup of iron and copper in condensate as a result of corrosion suppression reliability

Bene ts

- Extends the life of steam and condensate systems giving reducing maintenance costs and less down time
- Using it with an oxygen scavenger gives a balanced control programme for increased plant reliability

Ordering information

Product Number	Product name
777702	CONDENSATE TREATMENT 9-150 25 LTR

Directions for use

Condensate Treatment 9-150 is a neutralising type corrosion inhibitor for the use in steam and steam condensate systems. Nal eet Condensate Treatment can be used at boiler operating pressures up to 165 bar.

Dosing Method
Condensate Treatment 9-150 should be injected on a continuous basis. For continuous addition (advisable when used in conjunction with an oxygen scavenger), a suitable chemical proportioning pump is required.

Sampling and Testing
A representative sample of condensate should be drawn for analysis daily. The sample should always be taken from the same point, cooled and tested immediately. Follow the test kit instructions and log the results in Waterproof. The results should be sent to WSS as stated in the Waterproof instructions.

Dosing and Control
The dosage of Condensate Treatment 9-150 required for regular treatment will depend primarily upon the carbon dioxide content of the condensate. Typical dose rate is 10mls/tone steam. It should be injected on a continuous basis to maintain the pH of the condensate at the main condensate pump discharge of 8.5 – 9.2 or to maintain a “p” alkalinity of 4-8ppm. Condensate treatment 9-150 may be dosed neat or diluted with cooled condensate or distilled water. It should never be fed to the surface of hot water in a boiler feed tank, but should be fed below the surface.

OXYTREAT 25 L

655 777713

A blend of selected tannins for corrosion protection in low to medium pressure steam boilers

Features

- Iron/tannate lm protects metal surface
- Removes oxygen, protecting boiler and steam lines
- Low toxicity
- Protects feed tank and feed lines

Ordering information

Product Number	Product name
777713	OXYTREAT 25 LTR

Accessories

Test Kits for Tannin, P Alkalinity, Chloride and Nitrite

Product Number	Product name	Description
777100	BOILER PLUS TEST KIT MO380.	P Alkalinity, Chloride, Tannin, Nitrite

Directions for use

Oxytreat is formulated to provide corrosion protection for the feed and boiler system and when used in conjunction with Multi-plus provides a total treatment programme.

Dosing Method
Oxytreat is best applied by continuous injection to the boiler feed tank using a suitable chemical metering pump to maintain the target reserve in the boiler. Oxytreat is normally dosed at around 15mls per ton of steam to provide 120-160 ppm of tannin in the boiler water,

Sampling and Testing
Oxytreat is best applied neat or diluted with condensate or evaporated water to any convenient strength using a suitable chemical dosing pump. The product should be applied to the boiler feed tank or feed line to ensure adequate mixing.

MULTIPLUS 25 L

655 777709

Multiplus is a multi-functional boiler water treatment formulated to be used in conjunction with Oxytreat to provide a complete treatment programme for low to medium pressure steam boilers with low hardness feed-water.

Features

- Utilises advanced polymer technology
- Contains a neutralising amine for condensate corrosion control
- Easy to apply and control

Bene ts

- Minimises scale-formation, corrosion and sludge accumulation
- Effective iron dispersant

Ordering information

Product Number	Product name
777709	MULTIPLUS 25 LTR

PH DECREASER (4 X 3.62KG)

657 624841

A granular product for slowly lowering the pH of pool water. Safer to handle, use and store than liquid acids.

Features

- Safely lowers pH.
- Prevents scale buildup on equipment, piping and pool surfaces.

Further Technical Data

AQUABROME TABLETS 2X5 KG

657 720243

A highly compacted 20 gram bromine tablet suitable for use in a brominator. Slow dissolving and ideal for continuous dosage programmes.

Features

- Slow dissolving tablet
- Bromine based disinfectant
- Signi cant decrease in surface area – less product required for same results

Bene ts

- Totally soluble
- Effective at wide range of temperatures
- Easy to apply

Ordering information

Product Number	Product name
720243	AQUABROME TABLETS 2X5KG

POOL SURFACE CLEANER

657 766436

For removal of scum (bath tub ring) along the water line. Quickly eliminates oils, greases, light scale and fresh stains.

Features

- For pools, spas and hot tubs
- Prevents staining and controls scale build-up

Bene ts

- Removes oils, grease and other deposits from pool surfaces
- Cleans and maintains pool surfaces

This product removes most stubborn scale, grease and common dirt. Clings to vertical surfaces for easy cleaning. May be used on plastic, vinyl, breglass, ceramic, stainless steel, aluminium and painted surfaces. Unlike many cleaners, Pool Surface Cleaner is completely compatible with swimming pool water.

Ordering information

Product number	Product name
766436	POOL SURFACE CLEANER 1LTR

HYDROCHLORIC ACID 33-35% POTABLE GRADE

657 773408

Potable grade Hydrochloric Acid (Muriatic Acid) for pH reduction in Pool and Spa waters and Drinking water. **CAUTION:** Always add Hydrochloric Acid slowly to water. When water is added to Hydrochloric Acid heat is produced that can cause a hazardous situation.
Application methods: Preferably by dosing pump.

Features

- Liquid solution
- Potable Water Grade

Bene ts

- Fast pH reduction

Ordering information

Product Number	Product name
773408	HYDROCHLORIC ACID 33-35% POTABLE GR

POOL POWER MULTIACTION TABLETS 25KG

657 775395

A multi-action treatment in tablet form. Used to control bacteria & algae in swimming pools and also acts to clarify pool water. Will also reduce loss of chlorine to sunlight and lowers pH levels. Active constituent: trichloroisocyanuric acid & copper sulphate pentahydrate. Approximately 125 tablets per drum. (200g/tablet).

Features

- Tablet form
- Slow dissolving

Bene ts

- Controlled chlorine release for improved control
- Good shelf life

Ordering information

POOLPOWER 90 25KG

657 778902

Poolpower 90 is a tablet form of Trichloroisocyanuric Acid (TCCA) used to control the growth of bacteria & algae in swimming pools and spas. Will also reduce loss of chlorine to sunlight and lowers pH levels. Approximately 125 tablets per drum. (200g/tablet).

Features

- Tablet form
- Slow dissolving

Bene ts

- Controlled chlorine release
- Long shelf life

Ordering information

Product Number	Product name
778902	POOLPOWER 90 25KG

Directions for use

Each tablet weighs 200g and has 90% available chlorine release agent which in turn is 45% available chlorine = 80g.

Start by adding 1 tablet per 5m3 of system volume, wait a couple of hours then test for free chlorine. Repeat until the required free chlorine level is achieved. Typically 1 - 2mg/l Free Chlorine.

PH INCREASER

657 766537

A convenient and safe Sodium Carbonate, granular product for raising the pH of pool water with minimal effect on overall alkalinity.

Features

- Convenient granular product
- 100% active
- Safe for all types of pools
- Protects pool surfaces and equipment from corrosion due to low pH
- Reduces maintenance costs
- Quickly and easily raises pH
- Makes water more comfortable for bathers

This product is used to raise the pH of pool water. Proper pH control is essential to eliminate problems caused by pH being too low or too high. If pH is too low then corrosion and staining may occur.

Ordering information

Product number	Product name
766537	pH INCREASER 25KG

POOL AND SPA HARDNESS

657 766538

Raises calcium hardness of pool and spa water to assist in the prevention of corrosion, etched plaster and other problems resulting from low calcium levels.

Features

- For Pool, spas and hot tubs
- Raises calcium hardness level
- Helps prevent etching and staining
- 100% active

Bene ts

- Multi-use product

This product is used to raise the calcium hardness in pool water. Low calcium hardness may cause pool water to be corrosive which may result in staining, etching or distorting of all types of pool surfaces. Surface etching by low calcium hardness will become more abrasive and uncomfortable for bathers. Rough surfaces also increase problems with algae and makes cleaning more dif cult.

Ordering information

Product number	Product name
766538	POOL AND SPA HARDNESS 18KG

POOL CLARIFIER

657 766539

Highly concentrated product based on specially formulated polymers that quickly clears cloudy water.

Features

- Concentrated formula
- Contains specially formulated polymers
- Easy to use - no premixing
- Does not affect pH

Bene ts

- Clears cloudy water quickly
- Helps reduce chlorine usage
- Makes water sparkle

Pool Clari er restores sparkling clear water by binding small particles into larger masses that can be easily removed by the lter. This product works while the lter is in operation, requires no premixing, contains no alum and does not affect the pH.

Ordering information

Product number	Product name
766539	POOL CLARIFIER 1LTR

SPA DEFOAMER

657 766540

Eliminates unsightly foam from spa water, hot tubs and other water features by soaps, suntan lotion and detergents.

Features

- Control and prevent foaming
- Quickly eliminates foam from spas, hot tubs and other water features
- Easy to use

Ordering information

Product Number	Product name
766540	SPA DEFOAMER

ROCOR NB LIQUID

653 571356

Rocor NB Liquid is a liquid, nitrite/borate based compound with organic corrosion inhibitors for use in closed cooling water systems.

Features

- Liquid product, easy to use
- By forming an oxide lm on the metal surfaces electrolytic corrosion is prevented
- Effective against cavitation and erosion
- Compatible with hoses, gaskets and seals
- Compatible with glycol used for frost protection
- Simple control tests

The product can be used for corrosion inhibition in many types of closed recirculation systems such as:

- Diesel engine cooling water systems
- Compressor cooling water systems
- Centralised cooling systems
- Hot water heating systems
- Auxiliary machinery cooling systems

Ordering information

Product number	Product name
571356	ROCOR NB LIQUID 25 LTR

Accessories

Test Kit for Nitrite, Chloride and pH.

Product Number	Product name
739466	SPECTRAPAK 309

Approvals

- Approved by all major engine manufacturers
- Approved by the Norwegian National Institute of Public Health for the use in systems where cooling water is used for heating purpose in evaporators

Directions for use

Rocor NB Liquid is a highly effective corrosion inhibitor for the common ferrous and non-ferrous metals in cooling water systems. The stable oxide lm that is formed prevents corrosion caused by electrolytic action between dissimilar metals used in the system. Rocor NB Liquid has been eld tested and found to have no detrimental effects on non metallic substances such as seals, glands, packing, hoses, gaskets etc., normally used in these systems. The compound is alkaline and so will suppress acid corrosion, which would otherwise result in corrosion damage such as pitting. However, the alkalinity control is such that even if the product is accidentally overdosed, the pH of the water will remain within limits. The metals which would be affected by extremes of alkalinity or acidity are protected. In cases where systems are contaminated with oil and/or scale they should be cleaned before starting to apply Rocor NB Liquid. There are suitable WSS products to carry out the cleaning.

Degreasing should be carried out using Seaclean Plus and descaling by using Descalex. Refer to Water Treatment handbook. The use of antifreeze is sometimes required if the vessel is to be laid up in cold areas and so Rocor NB Liquid can be used in conjunction with antifreeze products. If the system contains zinc galvanized parts, it is advisory to clean the system with Descalex prior to commencing the treatment.

Rocor NB is not suitable for use in cooling systems containing aluminium components.

Dosing method

Rocor NB Liquid should be dosed to a suitable point in the system. If the expansion tank is used then adequate circulation must be assured.

Sampling and testing

The Spectrapak Test Kit provides the necessary equipment to carry out the control tests. Obtain a representative sample of the cooling water. Carry out the tests immediately after sampling (following the instructions given in the Test Kit) and log the results in Waterproof. The results should be sent to WSS as stated in the Waterproof instructions. Use the dosage chart overleaf to adjust treatment to obtain the optimum level. It is important that testing is carried out at least once per week, to ensure levels of treatment are correct.

Dosage and Control

Initial dosage for an untreated system is 9 litres of Rocor NB Liquid/1000 litres of untreated distilled water. This will bring the treatment up to the minimum level of 1000 ppm nitrite. The dosage chart given below is for convenience in calculating the amount of Rocor NB Liquid required to bring the treatment level to the suitable point between the minimum and maximum - this being 1440 ppm nitrite.

Normal nitrite limits: 1000-2400 ppm nitrite (NO2)

Nitrite (as PPM NO2)	0	180	360	540	720	900	1080	1260	1440 - 2400
Rocor NB Liquid/1000 ltr	13,0	11,3	9,7	8,1	6,5	4,9	3,3	1,7	0

N.B.Buffering agents in Rocor NB Liquid maintain pH values within suitable limits when the product is dosed as recommended. Normal pH should be maintained between 8.3 and 10 by the treatment. The engine manufacturer's recommendations for water quality should always be complied with.

Chloride levels should always be as low as possible. Most engine manufacturers recommend a maximum of 50 ppm chlorides. For this reason, Wilhelmsen Ships Service recommends the use of distilled water as make-up.

ENGINE WATER TREATMENT 9-108 25 L

653 777703

A balanced mixture of corrosion inhibitors, formulated to give a high nitrite furnish which is becoming a more frequent requirement for the new generation of high ef ciency diesel engines. Use Motor Ship Test Kit 777066 to test and control Nitrite, Chloride and P Alkalinity of the engine cooling water.

Features

- Contains dispersant for cleaner and more ef cient cooling systems
- Does not affect gaskets or hoses
- Compatible with anti-freeze solutions

Ordering information

Product Number	Product name
777703	ENGINE WATER TREATMENT 9-108 25 LTR

Accessories

Test Kit for Nitrite, Chloride and P Alkalinity.

Product Number	Product name
777066	MOTOR SHIP TEST KIT M0246A.

Approvals

- Approved by major diesel engine manufacturers
- Approved by the UK Dept. of Transport for use in diesel cooling systems where heat from the cooling water is used for distilling sea water for domestic purposes in evaporators on board
- Gold approval by CEFAS for use in the UK and Netherlands offshore petroleum industries.

Directions for use

Engine Water Treatment 9-108 is effective in hot and cold water and it is compatible with Glycol when used with anti-freeze. It contains an anti-scalant to minimise scale formation on heat transfer surfaces. It will protect all metals commonly found in engine cooling water systems including cast iron, mild steel, copper, copper alloys, lead and solder.

Dosing Method

Before start up of treatment the system should be ushed to remove all sludge and particulate matter and where necessary cleaned with an oil remover, such as 624932 Commissioning Cleaner to remove oil and grease deposits.

Engine Water Treatment 9-108 should be dosed directly to the cooling system.

Sampling and Testing

The WSS Test Kit provides the necessary equipment to carry out the control tests. Obtain a representative sample of the cooling water. Carry out the tests immediately after sampling (following the instructions given in the Test Kit) and log the results in Waterproof. The results should be sent to WSS as stated in the Waterproof instructions. It is important that testing is carried out at least once per week, to ensure levels of treatment are correct.

Dosing and Control

Dosing should be carried out at the rate of 2.25 liters per ton of water to give the correct product reserve. It is recommended that EWT 9-108 is controlled at 700 to 1000pp Nitrite (1000 to 1500ppm Sodium Nitrite). Control by a simple test for nitrite and pH. Refer to table below for dosing guide.

Nitrite ppm	0	250	500	750	1000
Sodium Nitrite ppm	0	375	750	1125	1500
EWT 9-108 ltr/m3	2.25	1.7	1.2	0.6	0

NALFLEET 2000 25 L

653 777710

Nal eet 2000 combines lm forming corrosion inhibitors with a scale suppressant in liquid form for ease of application. Nal eet 2000 is soluble in water in all proportions and does not contain chromates.

Features

- Protects all common metals in cooling systems from corrosive attack
- Protects against cavitation erosion
- Compatible with anti-freeze solutions
- Simple to control
- Safe to apply and handle

Bene ts

- Minimises sludge and scale deposits
- Approved by major diesel engine manufacturers

Ordering information

Product Number	Product name
777710	NALFLEET 2000 25 LTR

Accessories

Test Kit for Nitrite, Chloride and P Alkalinity.

Product Number	Product name
777066	MOTOR SHIP TEST KIT M0246A.

Directions for use

Nal eet 2000 has been designed for use in all common types of engine cooling water systems. Nal eet 2000 will protect ferrous metals, copper and copper alloys and all other metals including aluminium components. Nal eet 2000 will not affect rubber gaskets or other non-metallic components within the cooling system.

Sampling and Testing
The WSS Nitrite Test Kit (777067) provides the necessary equipment to carry out the control tests. Obtain a representative sample of the cooling water. Carry out the tests immediately after sampling (following the instructions given in the Test Kit) and log the results in Waterproof. The results should be sent to WSS as stated in the Waterproof instructions. It is important that testing is carried out at least once per week, to ensure levels of treatment are correct.

Dosing and Control
Engine cooling systems should be drained, ushed and if necessary, chemically cleaned, to remove old rust and scale deposits before treatment with Nal eet 2000 can begin.

Nal eet 2000 is easy to apply as received, and is fully compatible with water in ethylene glycol solutions. It contains an anti-scalant which helps to keep engine systems clean and free from corrosion and scale formation. Nal eet 2000 maintains design heat transfer ef ciencies and extends the life of the engine.

Cases of unusual coolant loss should be checked and remedial action taken. Nal eet 2000 should be introduced during circulation of the cooling water. Nal eet 2000 is best added by means of a feeder installed on a by-pass to the circulating system or in smaller systems, it can be added directly to the header tank. Initial treatment is at a rate of 32 liters of Nal eet 2000 per 1m3 of coolant to give a control level of 700 to 1000ppm nitrite (1000 to 1500ppm as sodium nitrite). Overdosing with Nal eet 2000 is not harmful to the system. Control by a simple test for nitrite and pH. Refer to table below for guide to dosing.

Nitrite ppm	0	250	500	750	1000
Sodium Nitrite ppm	0	375	750	1125	1500
Nal eet 2000 ltr/m3	32	24	16	0	0

BIOGUARD PLUS 25 LTR

653 778846

Bioguard Plus is an effective anti-foulant and corrosion inhibitor for use in sea water systems. Bioguard Plus has been specially developed to prevent sea water (cooling) systems from being fouled by aquatic life forms such as mussels, barnacles and algae. Because of its lming properties, the product also acts as a corrosion inhibitor and can be used in sea water cooling systems, intakes, lter boxes, static ballast tanks, stability trimming tanks and oil rig sea legs.

Features

- Liquid treatment which is easy to use
- Extremely effective in the control of sea water fouling organisms
- Maintains heat transfer in systems and extends the periods between cleaning
- Biodegradable
- Suitable for all types of systems using sea water, both static and owing

Bene ts

- Multi-system use
- Many applications covered by one product
- Reduces maintenance and down time
- Economic in use

Ordering information

Bioguard Plus **cannot be delivered in US & Canada** , for deliveries in US & Canada please contact the local Customer Service Organisation. For more information on alternative product delivered in US & Canada, please see order no. for Nalco 73551 and look under the Documentation tab for further information.

Product Number	Product name
778846	BIOGUARD PLUS 25 LTR
L73551.11U	NALCO 73551 (19 LTR)

Accessories

Product Number	Product name
767925	SEA WATER DOSING STATION

Directions for use

Bioguard Plus has been specially developed to prevent sea water (cooling) system from being fouled by lower aquatic life forms like mussels, barnacles and algae. The dispersant in the product inhibits the colonisation of such organisms on metal surfaces. The lming characteristics will also provide anti corrosion properties. Bioguard Plus can be used in both static and owing systems. Some application examples are: sea water systems, including seawater intakes; lter boxes and piping; static ballast tanks; stability trimming tanks and oil rig sea legs.

Dosage and control

For **Sea Water Cooling Systems** Dose 0.6 litre of Bioguard Plus for every 100 tons of sea water owing through the system per hour. The system throughput is either to be determined from the rating of the pump(s) or from the system speci cations. Treatment is necessary in coastal waters and should commence three days before entering these waters and continue for three days after leaving coastal waters. The calculated dose should be dosed over a one hour period and repeated every 48 hours. For **Static Ballast Tanks** Dose 1 litre of Bioguard Plus per 10 tons of water prior to ballasting, followed by a monthly dose of 2 litres per 100 tons. For **Trim Tanks, Oil Rig Sea Legs** and similar systems Dose 25 litres of Bioguard Plus per 100 tons of water and add the same for make up water.

Dosing Method The diagram attached shows a typical dosage layout. This can be modi ed to suit a particular situation. A chemical dosing pump, with or without alarm to be used. Although the product will gradually clean fouled systems, treatment should preferably be started with a clean system. The product can be dosed neat or if necessary diluted into fresh water to accommodate the dosing equipment. When changing over from any other product to Bioguard Plus, ush the entire dosing system thoroughly with fresh water.

Further Technical Data

Form	Liquid
Appearance	Pale yellow
Density	0.97 kg/m3
Flash Point	Above 100 C
Odour	Ammoniacal
pH	>7

BIOGUARD 25L

653 777851

Bioguard is a very effective, amine based dispersant of marine growth such as algae, shell sh and micro-organisms to prevent fouling of sea water (cooling) systems. Because of its lming properties, the product also acts as a corrosion inhibitor.

Features

- Liquid treatment which is easy to use
- Extremely effective in the control of sea water fouling organisms
- Maintains heat transfer in systems and extends the periods between cleaning
- Biodegradable
- Suitable for all types of systems using sea water, both static and owing

Bene ts

- Multi-system use
- Many applications covered by one product
- Reduces maintenance and down time
- Economic in use

Ordering information

Bioguard **cannot be delivered in US & Canada** , for deliveries in US & Canada please contact the local Customer Service Organisation. For more information on alternative product delivered in US & Canada, please see order no. for Nalco 73551 and look under the Documentation tab for further information.

Product Number	Product name
777851	BIOGUARD 25L
L73551	Nalco 73551 25LTR (for USA and Canada only)

Accessories

Product Number	Product name
767925	SEA WATER DOSING STATION

Approvals

- Approved by the U.K. Department of the Environment as a marine antifoulant in the inlet of evaporators producing potable water

Directions for use

This bio-dispersant has been specially developed to prevent sea water (cooling) system from getting fouled by lower aquatic life forms like mussels, barnacles and algae. The dispersant in the product prevents bacteria to colonise the metal surface, making it unsuitable for settling of bacteria and therefore less favourable for larger fouling organisms. The lming characteristics will also provide anti corrosion properties. Bioguard can be used in both static and owing systems. Some application examples are: sea water systems, including seawater intakes; lter boxes and piping; static ballast tanks; stability trimming tanks and oil rig sea legs.

Dosage and control

For **Sea Water Cooling Systems** Dose 0.6 litre of Bioguard for every 100 tons of sea water owing through the system per hour. The system throughput is either to be determined from the rating of the pump(s) or from the system speci cations. Treatment is necessary in coastal waters and should commence three days before entering these waters and continue for three days after leaving coastal waters. The calculated dose should be dosed over a one hour period and repeated every 48 hours. For **Static Ballast Tanks** Dose 1 litre of Bioguard per 10 tons of water prior to ballasting, followed by a monthly dose of 2 litres per 100 tons. For **Trim Tanks, Oil Rig Sea Legs** and similar systems Dose 25 litres of Bioguard per 100 tons of water and add the same for make up water.

Dosing Method The diagram above shows a typical dosage layout. This can be modi ed to suit a particular situation. A chemical dosing pump, with or without alarm to be used. Although the product will gradually clean fouled systems, treatment should preferably be started with a clean system. The product can be dosed neat or if necessary diluted into fresh water to accommodate the dosing equipment. When changing over from any other product to Bioguard, ush the entire dosing system thoroughly with fresh water.

NALFLEET 2000 5 LTR

653 778640

Nal eet 2000 combines lm forming corrosion inhibitors with a scale suppressant in liquid form for ease of application. Nal eet 2000 is soluble in water in all proportions and does not contain chromates.

Features

- Protects all common metals in cooling systems from corrosive attack
- Protects against cavitation erosion
- Compatible with anti-freeze solutions
- Simple to control
- Safe to apply and handle

Accessories

Test Kit for Nitrite, Chloride and P Alkalinity.

Product Number	Product name
777066	MOTOR SHIP TEST KIT M0246A.

Directions for use

Nal eet 2000 has been designed for use in all common types of engine cooling water systems. Nal eet 2000 will protect ferrous metals, copper and copper alloys and all other metals including aluminium components. Nal eet 2000 will not affect rubber gaskets or other non-metallic components within the cooling system.

Sampling and Testing

The WSS Nitrite Test Kit (777067) provides the necessary equipment to carry out the control tests. Obtain a representative sample of the cooling water. Carry out the tests immediately after sampling (following the instructions given in the Test Kit) and log the results in Waterproof. The results should be sent to WSS as stated in the Waterproof instructions. It is important that testing is carried out at least once per week, to ensure levels of treatment are correct.

Dosing and Control

Engine cooling systems should be drained, ushed and if necessary, chemically cleaned, to remove old rust and scale deposits before treatment with Nal eet 2000 can begin.

Nal eet 2000 is easy to apply as received, and is fully compatible with water in ethylene glycol solutions. It contains an anti-scalant which helps to keep engine systems clean and free from corrosion and scale formation. Nal eet 2000 maintains design heat transfer ef ciencies and extends the life of the engine.

Cases of unusual coolant loss should be checked and remedial action taken. Nal eet 2000 should be introduced during circulation of the cooling water. Nal eet 2000 is best added by means of a feeder installed on a by-pass to the circulating system or in smaller systems, it can be added directly to the header tank. Initial treatment is at a rate of 32 liters of Nal eet 2000 per 1m3 of coolant to give a control level of 700 to 1000ppm nitrite (1000 to 1500ppm as sodium nitrite). Overdosing with Nal eet 2000 is not harmful to the system. Control by a simple test for nitrite and pH. Refer to table below for guide to dosing.

Nitrite ppm	0	250	500	750	1000
Sodium Nitrite ppm	0	375	750	1125	1500
Nal eet 2000 lit/m3	32	24	16	0	0

NALFLEET 2000 210 LTR

653 777711

Nal eet 2000 combines lm forming corrosion inhibitors with a scale suppressant in liquid form, for ease. Nal eet 2000 is soluble in water in all proportions. Nal eet 2000 does not contain chromates.

Features

- Protects all common metals in cooling systems from corrosive attack
- Protects against cavitation erosion
- Minimises sludge and scale deposits
- Compatible with anti-freeze solutions
- Safe and simple to apply and handle
- Approved by major diesel engine manufacturers

Ordering information

Product Number	Product name
777711	NALFLEET 2000 210 LTR

Accessories

Test Kit for Nitrite, Chloride and P Alkalinity.

Product Number	Product name
777066	MOTOR SHIP TEST KIT M0246A.

Directions for use

Nal eet 2000 has been designed for use in all common types of engine cooling water systems. Nal eet 2000 will protect ferrous metals, copper and copper alloys and all other metals including aluminium components. Nal eet 2000 will not affect rubber gaskets or other non-metallic components within the cooling system.

Sampling and Testing
The WSS Nitrite Test Ki (777067) provides the necessary equipment to carry out the control tests. Obtain a representative sample of the cooling water. Carry out the tests immediately after sampling (following the instructions given in the Test Kit) and log the results in Waterproof. The results should be sent to WSS as stated in the Waterproof instructions. It is important that testing is carried out at least once per week, to ensure levels of treatment are correct.

Dosing and Control
Engine cooling systems should be drained, ushed and if necessary, chemically cleaned, to remove old rust and scale deposits before treatment with Nal eet 2000 can begin.

Nal eet 2000 is easy to apply as received, and is fully compatible with water in ethylene glycol solutions. It contains an anti-scalant which helps to keep engine systems clean and free from corrosion and scale formation. Nal eet 2000 maintains design heat transfer ef ciencies and extends the life of the engine.

Cases of unusual coolant loss should be checked and remedial action taken. Nal eet 2000 should be introduced during circulation of the cooling water. Nal eet 2000 is best added by means of a feeder installed on a by-pass to the circulating system or in smaller systems, it can be added directly to the header tank.

Initial treatment is at a rate of 32 liters of Nal eet 2000 per 1m3 of coolant to give a control level of 700 to 1000ppm nitrite (1000 to 1500ppm as sodium nitrite). Overdosing with Nal eet 2000 is not harmful to the system. Control by a simple test for nitrite and pH. Refer to table below for guide to dosing.

Nitrite ppm	0	250	500	750	1000
Sodium Nitrite ppm	0	375	750	1125	1500
Nal eet 2000 ltr/m3	32	24	16	0	0

COOLTREAT AL 25 L

653 680843

Cooltreat AL is an organic liquid corrosion inhibitor with extended life for use in closed cooling water systems. This product offers protection for all commonly used materials in engine cooling water systems, including aluminium. Unlike other coolants, Cooltreat AL does not contain components subject to rapid depletion i.e. Nitrite and Silicate. Based on aliphatic acid technology Cooltreat AL is stable and hence the test frequency can be reduced. Cooltreat AL is fully organic and biodegradable.

Features

- Liquid product, easy to use
- Environmentally friendly, fully organic product, low toxicity
- Effective against cavitation and erosion. Superior heat transfer properties
- Compatible with hoses, gaskets and seals
- Compatible with glycols for frost protection
- Stable product-non depleting

Bene ts

- The product can be used for corrosion inhibition in many types of closed re-circulation system such as:
    - Diesel engine cooling water systems
    - Compressor cooling water systems
    - Centralised cooling systems
    - Hot water heating systems
    - Auxiliary machinery cooling systems
- Approved by major engine manufacturers

Ordering information

Product Number	Product name
680843	COOLTREAT AL 25 LTR

Accessories

Test Kit for Cooltreat AL, Chloride and pH.

Product Number	Product name
758904	TEST KIT FOR COOLTREAT AL...

Directions for use

Cooltreat AL is an organic liquid corrosion inhibitor with extended life for use in closed cooling water systems. This product offers protection for all commonly used materials in engine cooling water systems, including aluminium. Unlike other coolants, Cooltreat AL does not contain components subject to rapid depletion i.e. Nitrite and Silicate. Based on aliphatic acid technology Cooltreat AL is stable and hence the test frequency can be reduced. Cooltreat AL is fully organic and biodegradable.

Directions for Use Cooltreat AL is a highly effective corrosion inhibitor for all common metals in cooling water systems. Testing has shown no detrimental effects on non metallic substances such as seals, glands, packing, hoses, gaskets etc., normally used in these systems. Where most traditional inhibitors react with the metal surface and form oxides that prevent further corrosion, Cooltreat AL applies a thin and durable layer of protective molecules to the metal surfaces. This technology prevents the continuous build-up of insulating layers on heat transfer surfaces. For new builds, Wilhelmsen Ships Service recommends cleaning of the water system before commercing service. The system will always contain small amounts of oil and iron oxides, and this can be removed in one operation with Unitor Commissioning Cleaner. If the system is corroded or is more heavily contaminated,

degreasing with i.e. Unitor Seaclean Plus followed by acid cleaning, with i.e. Unitor Descalex for removal of metal oxides or scale is recommended. For systems previously treated with other products, Wilhelmsen Ships Service recommend to drain and ush the system before re lling with distilled water and Cooltreat AL. The system should be clean and free from scale and corrosion products when starting the treatment. The use of antifreeze is sometimes required if the vessel is to be laid up in cold areas, Cooltreat AL can be used in conjunction with glycols for frost protection. If used in conjunction with glycols, It is recommended to increase the product concentration to 8%.*

Dosing method

Cooltreat AL should be dosed to a suitable point in the system. If the expansion tank is used, adequate circulation must be assured.

Sampling and testing

The Spectrapak Test Kit provides the necessary equipment to carry out the control tests. Obtain a representative sample of the cooling water. Carry out the tests immediately after sampling (following the instructions given in the Test Kit) and log the results in Waterproof. The results should be sent to WSS as stated in the Waterproof instructions. Use the dosage chart overleaf to adjust treatment to obtain the optimum level. It is important that testing is carried out at least once per week, to ensure levels of treatment are correct.

Dosage and Control

Initial dosage for an untreated system is 60 litres of Cooltreat AL/ton of untreated distilled water (6%). This will provide suf cient protection of the system for a period of two to ve years under normal conditions.

Cooltreat AL (in %)	**0**	**1**	**2**	**3**	**4**	**5**	**6**
Cooltreat AL/1000 ltr	60	50	40	30	20	10	0

6% Cooltreat AL should also be dosed in all make up water added to the system to compensate for lost coolant. The engine manufacturer's recommendations for water quality should always be complied with. Chloride levels should always be as low as possible. Most engine manufacturers recommend a maximum of 50 ppm chlorides. For this reason, Wilhelmsen Ships Service recommends the use of distilled water as make-up. pH should be controlled between 7.0 and 9.0.

ENGINE WATER TREATMENT 9-111AL 25 L

653 777704

Engine Water Treatment 9-111AL contains a balanced mixture of corrosion inhibitors in liquid form, together with an antiscalant. EWT 9-111AL is formulated to protect systems containing aluminium components.

Features

- Protects all metals (including aluminium) in engine cooling systems from corrosion attack
- Does not affect gaskets or hoses
- Compatible with antifreeze solutions

Bene ts

- Keeps systems free from sludge and scale deposits

Ordering information

Product Number	Product name
777704	ENGINE WATER TREATMENT AL 9-111 25L

Accessories

Test Kit for Nitrite, Chloride and P Alkalinity.

Product Number	Product name
777066	MOTOR SHIP TEST KIT M0246A.

Approvals

- Approved by major diesel engine manufacturers
- UK Department of Trade approved

Directions for use

Dosing Method

Engine Water Treatment 9-111 AL may be drawn directly from the drum but because of the alkalinity of the neat product, plastic taps should be used for dispensing. Sampling and Testing Engine Water Treatment 9-111 AL is particularly effective in preventing corrosion in engine cooling systems. Engine Water Treatment 9-111 AL will protect ferrous metals, copper and copper alloys , lead , solder and aluminium. It will not affect rubber gaskets or hoses. Engine Water Treatment 9-111 AL is effective in hot and cold fresh water, and is fully compatible with glycol/water mixtures.
Engine Water Treatment 9-111 AL also contains an anti-scalant to prevent deposition on hot surfaces and keep waterways in radiators clear. Engine Water Treatment 9-111 AL has been approved by the Department of Trade and Industry for use in an engine cooling system circulating as the heating medium for generators producing fresh water for drinking and culinary purposes provided the recommended dosage rates are adhered to.

Sampling and testing

The WSS Test Kit provides the necessary equipment to carry out the control tests. Obtain a representative sample of the cooling water. Carry out the tests immediately after sampling (following the instructions given in the Test Kit) and log the results in Waterproof. The results should be sent to WSS as stated in the Waterproof instructions. Use the dosage chart overleaf to adjust treatment to obtain the optimum level. It is important that testing is carried out at least once per week, to ensure levels of treatment are correct.

Dosing and Control

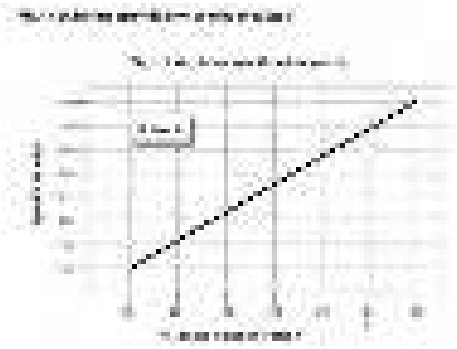
Engine Water Treatment 9-111 AL should be dosed directly to the cooling system at the rate of 8 liters per m3 of water to give the correct product reserve of 700 to 1000ppm Nitrite (1000 to 1500ppm as Sodium Nitrite) and a pH of 9.5 to 10.5. Engine Water Treatment 9-111 AL should be introduced after circulation of the cooling water has begun and is best added by means of a feeder installed on a bypass to the circulating system, or connected to a suitable dosing pump and storage tank. Ref. Dosing chart below:

Nitrite ppm	0	250	500	750	1000
Sodium Nitrite ppm	0	375	750	1125	1500
EWT 9-111 AL ltr/m3	8	6	4	2	0

BRINE CORROSION INHIBITOR 25 LITRE

653 777044

Brine Corrosion Inhibitor is a borate-organic corrosion inhibitor especially designed for use in chloride brine closed re-circulating cooling systems. Brine Corrosion Inhibitor provides effective corrosion protection for steel and most other metals in both low and high temperature systems and is formulated to perform without additional supplements. It can be used in chromate containing systems without causing precipitation.



Features

- Formulated for brine cooling systems
- Liquid
- Multi metal corrosion protection

Bene ts

- Can be used to replace chromate technology

Ordering information

Product Number	Product name
777044	BRINE CORROSION INHIBITOR 25 LITRE

Directions for use

The recommended dosage for Brine Corrosion Inhibitor is 17.5 litres per tonne of brine in the system. Brine Corrosion Inhibitor may be added directly to the system either neat or in a water dilution. Dilutions should be made with evaporated water. If a chemical dosing pump is used then pump and lines should be mild steel, stainless steel, Te on, polyethylene, PVC, polypropylene or rubber.

Conversion from chromate Brine corrosion inhibitor is compatible with chromate. Systems with chromate need not be ushed before adding the product. Let chromate deplete naturally and maintain boron level at a minimum of 70ppm. Brine Corrosion Inhibitor should be fed slowly. Start feeding 5 to 10% of the total dosage at a time and watch for foaming. Gradually increase the feed rate. Brine Corrosion Inhibitor does not induce foaming at normal dose rates, but if it is fed too much too soon, foaming may occur. Feed lines and pumps should be mild steel, stainless steel, Te on, polyethylene, PVC polypropylene or rubber.

Testing and Control Control Brine Corrosion Inhibitor as Boron at 70 - 100 ppm Note: Because the speci c gravity of the brine varies with concentration, the resulting level of boron should be calculated as follows:

mg/L Boron/S.G. Brine* = ppm Boron ref. attached table

ANTIFOULANT 9-321 25 L

653 777700

Antifoulant 9-321 has been developed for the control of fouling by shell sh, micro-organisms and fungal growth in marine seawater cooling systems.

Features

- Very effective for the control of mussels, micro-organisms and biological growths in sea water cooling systems
- No danger to marine life when used as recommended

Ordering information

Antifoulant 9-321 **cannot be delivered in US & Canada** , for deliveries in US & Canada please contact the local Customer Service Organisation. For more information on alternative product delivered in US & Canada, please see order no. for Nalco 73551 and look under the Documentation tab for further information.

Product Number	Product name
777700	ANTIFOULANT 9-321 25 LTR
L73551.11U	NALCO 73551 (19 LTR)

Approvals

- Approved by the Norwegian Institute for Public Hygiene and health for the same application
- Approved by the UK Department of Trade for use in systems where water is drawn from that system for the production of potable water by evaporators

Directions for use

Antifoulant 9-321 has been developed for the control of fouling by shell sh, micro-organisms and fungal growth in marine seawater cooling systems. It's use will discourage the settling of free- swimming larval form of the mollusc. Because of it's molecular lm- forming properties, Antifoulant 9-321 will discourage corrosion of metal in the sea water system.

Sampling and Testing
The treatment should preferably be started on a clean system since it is formulated to prevent growths rather than remove existing growths. Unitor Descalex powder can be used to remove existing growths in badly fouled systems.

Dosing and Control
Antifoulant 9-321 is non-corrosive to ordinary metals used in feeding devices. It may be fed directly from the drum, using a chemical pump or other feeding device. The product disperses readily into seawater at normal temperatures. The dosage point should be completely submerged, as foam can be produced if the mixing is carried out in an open vessel. The estimate dosage rates will be as follows; For a once through condenser cooling system, continuous application of 2 to 5 ml/m3 for one hour in every 24 hours is recommended to prevent growth of fouling organisms. The treatment should be applied daily when the vessel is on estuarine or coastal waters. Normally the treatment is not required when sailing deep sea. In port, when conditions permit, the condenser should be lled with
A solution of 200 ml/m3 of Antifoulant 9-321 and allowed to stand for 24 hours.

Important Note:
Where Antifoulant 9-321 is applied to Engine Cooling Systems for the control of Nitrogen cycle bacteria do not exceed a dose rate of 200ml/m3 (200 ppm). For speci c application advise it is important to consult your Wilhelmsen Representative.

DIESELGUARD NB 25 KG

653 571349

A dry powder, nitrite/borate based compound with organic corrosion inhibitors for use in cooling water systems.

Features

- By creating an oxide lm on the metal surfaces, electrolytic corrosion is prevented
- Effective against cavitation and erosion
- Compatible with non-metals such as hoses, gaskets and seals
- Compatible with glycol used for frost protection
- Simple control tests
- The product can be used for corrosion inhibition in many types of closed recirculation systems such as:
    - Diesel engine cooling water systems
    - Compressor cooling water systems
    - Centralised cooling systems
    - Hot water heating systems
    - Auxiliary machinery cooling systems

Ordering information

Product Number	Product name
571349	DIESELGUARD NB 25 KG

Accessories

Test Kit for Nitrite, Chloride and pH.

Product Number	Product name
739466	SPECTRAPAK 309

Approvals

- Approved by the Norwegian National Institute of Public Health for the use in systems where cooling water is used for heating purpose in evaporators
- Approved by numerous engine manufacturers

Directions for use

Dosing method

Dieselguard NB should be dosed into a suitable point in the cooling water system, after it has been thoroughly mixed with water. If the expansion tank is used then adequate circulation must be assured.

Sampling and testing

The WSS Test Kit provides the necessary equipment to carry out the control tests. Obtain a representative sample of the cooling water. Carry out the tests immediately after sampling (following the instructions given in the Test Kit) and log the results in Waterproof. The results should be sent to WSS as stated in the Waterproof instructions. Use the dosage chart overleaf to adjust treatment to obtain the optimum level. It is important that testing is carried out at least once per week, to ensure levels of treatment are correct.

Dosing and Control

Initial dosage for an untreated system is 2 kg/1000 litres of untreated distilled water. This will bring the treatment up to the minimum level of 1000 ppm. The dosage chart given below is for convenience in calculating the amount of Dieselguard required to bring the treament level to the suitable point between the minimum and maximum - this being 1440 ppm nitrite.

Normal nitrite limits: 1000-2400 ppm nitrite (NO2)

After a short period of use the operator will be able to easily determine the dosage required to maintain a proper treatment level.

Nitrite (as PPM NO2)	0	180	360	540	720	900	1080	1260	1440	1620 - 2400
Dieselguard NB kg/1000 ltr	2,88	2,52	2,16	1,80	1,44	1,08	0,72	0,36	0	0

N.B. Buffering agents in Dieselguard NB maintain pH values within suitable limits when the product is dosed as recommended.

The pH should be maintained between 8.3 and 10.0 by the treatment.

The engine manufacturer's recommendations for water quality should always be complied with. Chloride levels should be as low as possible. Most engine manufacturers recommend a maximum of 50 ppm chlorides.

For this reason, Wilhelmsen Ships Service recommends to use distilled water as make-up.

Dieselguard NB is very water soluble. One kilogram of Dieselguard NB should be dissolved in 10 litres of hot water before adding it to the system.

MAR-71 3X5 L

653 735977

MAR-71 is a very effective biocide, used to prevent and combat microbiological growth in closed cooling water systems as well as in lubricating oil systems. Bacteria are the cause of many corrosion problems, as while they grow, they produce a variety of acids and in some cases slimy layers on metal surfaces which results in reduced heat transfer and corrosion in bearings. Nitrites, Phosphates and emulsifying oils are good nutrient media for bacteria. MAR-71 has proven to be a very effective disinfectant. Lower dosages of MAR-71 can also be used to prevent infection.

Features

- Kills micro-organisms in closed cooling water systems and lubrication oil systems
- Prevents corrosion caused by microarganisms
- No cases have been reported where bacteria have become immune to MAR-71
- Biodegradable, does not accumulate in the environment
- HOCNF registered for use in the North Sea Offshore sector, yellow/gold classi cation

Bene ts

- One product, two different applications

Ordering information

MAR 71 **cannot be delivered in US & Canada** , for deliveries in US & Canada please contact the local Customer Service Organisation. For more information on alternative product delivered in US & Canada, please see order no. for Spectrus NX 1100 and look under the Documentation tab for further information.

Product number	Product name
735977	MAR-71 BIOCIDE 3X5L NOT IN USA&CAN
661991	SPECTRUS NX 1100 25LTR (for USA and Canada only)

Directions for use

Closed cooling water circuits Especially when berthing for a longer period in harbours in warmer climates, the risk of infection of the cooling water systems with microorganisms is considerable. When this happens, acids are formed and at the same time, the corrosion inhibitors present in the system will be eaten away by the bacteria creating corrosive conditions. Regular testing for the presence of bacteria in the cooling water by the use of "dip slides" is therefore strongly recommended. Between 0.5 and 1.5 litres/ton. MAR-71 should be added to contaminated systems. The system should be circulated for three days after which the complete contents of the cooling system is dumped. Before re lling the system with (distilled) water and the initial dosage of Dieselguard or Rocor NB Liquid, the system should be thoroughly ushed with fresh water. It is recommended to re-test for the presence of bacteria after the system has been in operation for 24 hours. The described procedure is to be repeated if necessary. For heavily contaminated systems and systems contaminated with scale/oil, it is recommended to acid clean and/or degrease the system prior to disinfecting

Caution: During disinfecting, evaporators and other equipment which use cooling water and which are used in connection with the production of drinking water are not to be used.

Lubricating oils The presence of water in lubricating oil, either caused by condensation or by leakage of cooling water, provides excellent growing conditions for micro-organisms in lube oil systems. The presence of bacteria will cause changes in lube oil characteristics, cause corrosion, water emulsion and clogging of lters. Regular control and necessary action to combat bacteriological contamination can avoid above mentioned problems. The recommended decontamination procedure is as follows: 1. Transfer 80-90% of the lubricating oil into a renovation tank and heat till 85-95% °C while separating for 12 hours. Continue heating for another 12 hours without separating. 2. To the remaining oil in the sump-tank, between 0.5 and 1 litres/ton MAR-71 is added. Circulate the contents of the sump-tank for 12-24 hours. Note that during circulation, lters may get clogged by dead microorganisms. Special observation of lters, and if

necessary, cleaning of same, is therefore required. 3. Empty and clean the sump-tank. 4. Transfer the circulating oil from the renovation tank back into the sump-tank and ll with fresh oil. As an alternative to the above procedure, increase of the bacteriological contamination can be stopped by adding 0.3 - 0.5 litres/ton MAR-71 to the lubrication oil. At a later stage, proper disinfecting must follow.

Note: Please check with the lubrication oil manufacturer regarding dosage rates for your brand of oil. In case bacteriological contamination occurs and has already caused corrosion, the lubrication oil must be fully exchanged. Consult lubrication oil manufacturer. Before re lling the system, it is highly recommended to rinse the system for 24 hours with ushing oil to which 0.5 - 1 litres/ton MAR-71 is added. This procedure and the addition of 0.1 - 0.5 litres/ton MAR-71 to the new oil will prevent re-infection of the lubricating oil.

VAPTREAT 25 LTR

654 571364

A concentrated liquid blend of polymer and antifoam agents for controlling scale and foam in evaporators. Vaptreat is Approved by the Norwegian National Institute of Public Health for application in evaporator systems that are used to produce potable water.

Features

- Ensures that the evaporator works at maximum ef ciency by keeping heat transfer surfaces free of scale
- The antifoaming properties ensure that distillate quality is high as carry over is eliminated
- Will gradually remove existing scale when dosed at twice the normal rate
- Concentrated, safe liquid, easy and economical dosing

Bene ts

- Reduces downtime and maintenance

Ordering information

Product Number	Product name
571364	VAPTREAT 25LTR

Directions for use

The specially selected polymers in Vaptreat combined with the potential scale forming salts in the brine to prevent them from adhering to heat transfer surfaces. These solids are held in suspension and removed with the evaporator brine.

The operating ef ciency of the plant is maintained for maximum water production. The intervals between cleaning are greatly increased.

The product to use for acid cleaning is Descalex, which will remove old scale prior to treatment with Vaptreat.

Evaporators have a tendency to produce foam while operating - the defoaming properties of Vaptreat will stop this foaming and carry-over will be eliminated. Distilled water quality is maintained.

Dosing method
The standard dosage, applicable to the majority of systems, is 15-30 ml of Vaptreat per ton of distillate produced. This is based on the rated production capacity of the evaporator.

Example: In a 25 ton/day evaporator. Treatment used = 25 x 30 ml = 750 ml of Vaptreat per day.

Setting the Flow Rate
The treatment is added to the dosage tank and mixed with water. Example: With the 0.75 litres of Vaptreat add suf cient water to make up 50 litres of liquid.

Flow rate calculation:
Flowrate = 50 Litres/24 x 60= 35 ml/min setting This will last 24 hours.

A metering pump can also be supplied for use with Vaptreat if required.

N.B. The brine density should not exceed 1.038 g/cm3. The scaling potential increases rapidly over this level. An increase in the amount of Vaptreat used will assist in retaining potential scale forming salts in suspension.

For example: If the density rises to 1.050 g/cm3 the dosage should be 60 ml/ton of rated capacity.

MULTIVAP 25 LTR

654 759340

MultiVap is a concentrated liquid blend of antiscalant and antifoam agents for controlling scale and foam in seawater evaporators. MultiVap has been formulated for optimum ef ciency when used in large evaporators with high distillate production.

Features

- Highly concentrated, economical and space saving for large evaporator units
- Ensures optimum ef ciency by keeping heat transfer surfaces clean and free of scale
- Contains antifoam to give high distillate quality and prevent carry over

Bene ts

- Reduces downtime and maintenance

Ordering information

Product Number	Product name
759340	MULTIVAP 25LTR

Directions for use

The specially selected polymers in MultiVap prevent scale formation by salts in the brine and will ef ciently prevent build up of deposit on heat transfer surfaces. The solids are held in suspension and removed with the brine outlet.

MultiVap will maintain optimum operating ef ciency of the plant and hence maximize water production at minimum energy consumption. The intervals between cleaning are signi cantly increased.

Use Unitor Descalex for acid cleaning to remove old scale prior to treatment with MultiVap.

Seawater evaporators have variable tendency to produce foam during operation. Foam formation may vary with operating conditions, i.e. seawater temperature. MultiVap is formulated with antifoam to prevent foaming problems and eliminate carry-over. If foaming should still occur, Unitor Evaporator Defoamer can be added in a premix with water and Multivap for additional foam prevention.

Dosing method
Multivap should always be dosed on continuous basis. This can be done with a dosing pump or by gravity based dosing unit controlling dosage with a ow meter. MultiVap may be diluted in water for easier controlling dosing and ow rate.

Dosage and control
Required dosage may vary slightly depending on type of evaporator in use; however 10-15ml of MultiVap per ton of distillate produced is recommended as initial dosage. The dosage recommendation is based on the rated production capacity of the evaporator.

Example: In a 500 ton/day evaporator.

Treatment used = 500 x 15ml = 7,5 l of MultiVap per day.

POTABLE WATER STABILISER LIQUID 25 L

659 777714

Potable Water Stabiliser Liquid is a combination of polyphosphates, having stabilising properties. The product effectively and economically provides scale and corrosion control in potable water and other shipboard once-through water systems.

Features

- Prevents “Red Water” in the ship's potable water systems
- Controls corrosion and scaling in pipelines and other equipment handling softened or evaporated water
- Supplied in convenient to use liquid form

Bene ts

- Increases system life and reduces maintenance costs

Ordering information

Product Number	Product name
777714	POTABLE WATER STABILISER LIQUID 25L

Directions for use

Dosing and Control
Potable Water Stabiliser Liquid is non corrosive to ordinary metals used in feeding equipment and may be fed with a simple by-pass feeder or suitable chemical dosing pump. Typical dosage rate is 15 to 25mls/m3 water.

Sampling and Testing
Potable Water Stabiliser Liquid meets the requirements of the UK Department of Trade and Industry for use in potable water.
Storage temperature should not exceed 40 degrees c.

CAL. HYPOCHLORITE GRANULATE 5KG

657 766402

Calcium Hypochlorite Granulate is a potable grade chlorine release agent that can be used to chlorinate and control bacterial growth in Potable Water, Swimming Pools and Spas and for Grey Water Sterilisation.

Features

- Contains a high level of available chlorine
- Convenient, fast dissolving granulate

Bene ts

- Extended shelf life
- Easy to test (free chlorine)

Ordering information

Product Number	Product name
766402	CAL. HYPOCHLORITE GRANULATE 4 X 5KG

Accessories

Product Number	Product name
778419	POTABLE WATER TEST KIT

Further Technical Data

CAS No.	7778-54-3
Molecular Wt.	143
Appearance	White solid granules
Density	1.0g/cm3
Available chlorine	min. 70%
pH	11.6 (1% aqueous solution)
Solubility	20g per 100g water at 20C
Water content	12.5%
Decomposition temp.	175C

Packaging, Handling, First Aid and Storage

Calcium Hypochlorite Granulate is highly corrosive and a strong oxidising agent. Avoid contact with eyes, skin and inhalation of vapours. Ensure ample ventilation at point of use. Wear impervious clothing, rubber gloves and goggles or face shield. Do not take internally. Wash contaminated skin with fresh water for at least 15 minutes and obtain medical aid. Flush eyes with clean water for at least 15 minutes and obtain medical aid. If swallowed do not induce vomiting, give plenty of water to drink and obtain medical aid immediately.
If inhaled remove person to fresh air. Remove contaminated clothing and wash before re-use. Note: Do not give an unconscious person anything to drink.

Keep product dry in tightly closed containers when not in use. Store in a cool, dry, well ventilated area, away from heat or open ame.

BALLAST TANK INHIBITOR 9-933 25 L

652 777013

Ballast Tank Inhibitor 9-933 is a liquid lm-forming corrosion inhibitor. For use in ballast tanks, bilges, voids, cofferdams and barges.
Ballast Tank Inhibitor 9-933 is a blend of organic and inorganic inhibitors. It contains no chromates and is completely soluble in sea water.

Features

- Effective for use in ballast tanks, cofferdams, barges and voids
- Forms tightly bonded protective lm on all metal surfaces below water level
- Protective lm is stable over a wide pH and temperature range
- Formulated to give reduced pollution problems if accidentally discharged to sea
- Ideally suited for ballast and other tank protection during ship lay-up periods

Ordering information

Product Number	Product name
777013	BALLAST TANK INHIBITOR 9-933 25 L

Directions for use

Ballast Tank Inhibitor 9-933 is best fed neat from the drum continuously to the water used to ll the tank or system. Strict proportioning is not required, so long as the turbulence on lling is suf cient to provide effective distribution throughout the system.
Where the system to be treated is already full and draining and re lling is impractical, distribution of the Ballast Tank Inhibitor 9-933 treatment in an open vessel can be achieved by air-agitation or pump circulation. Ballast Tank Inhibitor 9-933 is recommended for systems in which dissolved oxygen is present and the use of air to encourage mixing will not impair corrosion protection.

Dosing an Control

The recommended initial dosage of Ballast Tank Inhibitor 9-933 is 100mls.ton of water. This will provide 2 to 4ppm zinc in the water system. For Ballast tanks or systems which are frequently emptied and re lled, the initial charge of 100ml per ton of water should be supplemented by a dosage of 50ml per ton each time the system is re lled.

EVAPORATOR DEFOAMER

654 638676

Concentrated antifoam for prevention of foaming problems in seawater evaporators.

Features

- Antifoam properties that ensure distillate quality is high and carry over is eliminated
- Concentrated, safe liquid, easy and economical dosing
- Listed by NSF in accordance with Standard 60

Ordering information

Product Number	Product name
638676	EVAPORATOR DEFOAMER

Directions for use

Evaporator defoamer is used in conjunction with Vaptreat antiscalant when foaming problems occur in the evaporator. Foaming problems can occur with certain design of evaporators and under certain conditions like elevated sea water temperature. Evaporator defoamer is used to combat such problems and prevent foaming and carry-over. Vaptreat is formulated with a defoamer in the product, however under certain conditions additional defoamer is required to maintain maximum operating ef ciency
of the plant.

Dosing Instructions

The standard dosage is 1% of the descalant dose. for example, if the daily consumption of Vaptreat is 10 L, the recommended dose of Evaporator Defoamer is 0.1L. The maximum dosage of defoamer should not exceed 1 PPM based on rated output of the evaporator.

Dosing Method

Evaporator defoamer has limited solubility in water. The best dosing method is to mix the product with the antiscalant and water in a dosing tank. The amount of defoamer in the mixture should not exceed 1% of the water added.

MAXI-VAP PLUS 25 L

654 777707

Maxi-Vap Plus is a concentrated solution of an organic poly-electrolytes speci cally developed for the control of scale deposition in sea water evaporators. It is miscible with water in all proportions.

Features

- Maintains design output and ef ciency of evaporators for extended periods
- Improves distillate quality by controlling foaming and carry over

Bene ts

- Reduces downtime and maintenance costs
- Economical in use

Ordering information

Product Number	Product name
777707	MAXI-VAP PLUS 25 LTR

Approvals

- Approved by the UK Department of Trade Marine Safety Agency.

Directions for use

Although best results will be obtained by starting the treatment with a clean evaporator, Maxi-Vap Plus Liquid will improve performance of an evaporator which has not been de-scaled.

Dosing Method

The daily requirement of Maxi-Vap Plus should be mixed with evaporated water or condensate and diluted to the normal working level of the mixing tank. The solution can then be applied continuously via a ow meter to the evaporator shell or into the salt water feed line to the evaporator.

Dosing and Control

The ow rate should be adjusted to empty the tank over a 24 hour period. WSS can supply a suitable dosing tank and pump for this purpose. The Marine Safety Agency of the Department of Trade and Industry has agreed that Maxi-Vap Plus Liquid can be used as a scale inhibitor in the feed water evaporators producing fresh water for drinking and culinary purposes. Typical dose rate is 10mls per ton of evaporator output.

POTABLE WATER STABILISER

659 624916

Potable Water Stabiliser is a concentrated, highly soluble polyphosphate in powder form.

Features

- Prevents “Red Water” in potable water systems
- Provides scale and corrosion control in hot water heaters, coolers and water tanks
- Controls corrosion in pipelines and other equipment handling softened or evaporated water
- Effective at temperatures up to 60°C (140°F)
- No restrictions on use of the treated water as feed water to boilers or engine cooling systems

Bene ts

- Increases system life and reduces maintenance costs

Ordering information

Product Number	Product name
624916	POTABLE WATER STAB 25 KG

Approvals

- Approved by Norwegian National Institute of Public Health as an additive to drinking water.
- Approved by NSF according to Standard 60

Directions for use

Potable Water Stabiliser effectively and economically provides scale and corrosion control in potable water systems and other shipboard once-through water systems.

Dosage varies between 4 – 8mg/ltr for ordinary water treatment. For drinking water, dosage should always be kept at or below 9mg/ltr (9g/ton).

The powder product should not be dosed directly to water system. A water solution should be made prior to dosing.

Dosing method
Potable Water Stabiliser should be dosed to a suitable point in the system. If the expansion tank is used, adequate circulation must be assured.

Dosage and control
Make a 5% solution in fresh water by adding the powder slowly to the water while stirring. The solution should preferably be portioned to maintain desired dosage, either by means of a simple bypass feeder, or with Unitor Dosage System for Water Treatment.

The product can be injected into the discharge line of the fresh water generator or directly into the fresh water pumps’ suction manifold. If a high percentage of shore water is used the solution must be “slug” dosed into the tanks prior to taking water.

Inject a 5% solution at a rate of 0.12 litres per m^3 of water to obtain a 6 mg/ltr concentration.

Example

For 20 m^3 per day: Dose 0.1 ltr/hour = 2.4 ltr/day of the solution.

For 100 m^3 per day: Dose 0.5 ltr/hour = 12 ltr/day of the solution.

For larger systems, stronger solutions up to 20% can be made. The dosage rate may then be reduced proportionally, which will extend the time period between each lling of the dosing tank. However, production of stronger solutions may require improved stirring equipment.

RO SCALE CONTROL 25 L

659 777716

RO Scale Control is a broad spectrum scale inhibitor for Reverse Osmosis systems. Scaling and iron fouling of the RO membranes will reduce system performance and lead to premature membrane replacement. Precipitation of scale and deposits build up on the RO membrane, which leads to poor permeate quality, low permeate production, unscheduled downtime, increased water consumption and increased energy costs.

Features

- Effective on a broad range of scale forming compounds
- Cost effective dose rate
- Compatible with wide range of RO membranes
- Liquid formulation

Ordering information

Product Number	Product name
777716	RO SCALE CONTROL 25 LTR

Directions for use

RO Scale Control shows excellent performance against the following scale forming compounds: - calcium carbonate- calcium sulphate - barium sulphate - strontium sulphate - calcium uoride - silica and iron. RO Scale Control is used when the silica level in the brine is less than 185 mg/l at a brine pH of 7.5 and temperature 25C (77F). RO Scale Control conforms to the requirements of NSF/ANSI Standard 60 - Drinking Water Treatment Chemicals -Health Effects.

Dosing and Control

Typical dose rate is 5 to 15mls/m3 ow rate. RO Scale Control should be fed continuously to minimize precipitation of scale and fouling of RO and nano- ltration membranes. It is recommended to operate the dosing pump with the highest possible frequency and to adjust the dosage by adjusting the pump stroke to ensure membrane protection. The feed point location should be as close to the RO membrane as practical but one that ensures good mixing with the feedwater prior to entering the RO system. Typically, this is before the cartridge lters. It is preferred to feed RO Scale Control neat via a closed feed system to prevent contamination from foreign material (a closed feed system being de ned as a system in which uid is moved from a closed storage vessel into a treated media without exposure to the atmosphere, except through normal venting or pressure relief devices). RO Scale Control can be diluted using RO permeate (only) following these guidelines: 1. Use RO permeate for dilution. 2. Prepare a fresh antiscalant solution every 3-5 days. 3. Inspect the antiscalant day tank before adding the new solution. If needed, the antiscalant tank should be cleaned prior to lling. 4. Dilution rates up to a factor 10 are typically applied. Dilution factors higher than 10 will require more attention with respect to the condition of the antiscalant tank (cleaning) and preparation of a new solution (every 1-3 days). 5. NaOH can be added to the dilution to increase the pH to 10-11. This is especially recommended for warm environments to prevent bio-growth. RO Scale Control dosage is dependent on feedwater chemistry, membrane type, and system operating parameters (e.g. recovery, temperature and pressure).

RO ALKALINE CLEANER 25 L (PC33)

659 777718

RO Alkaline Cleaner is a membrane cleaner developed to support the cleaning of acid in soluble sulfates of calcium, barium and strontium as well as calcium uoride.

Features

- Mild alkaline formulation
- Compatible with wide range of RO membranes
- Liquid formulation

RO Alkaline Cleaner is also effective in removing iron oxides and hydroxides as well as calcium carbonate, though RO Mild Acid Cleaner is preferred for these foulants. RO Alkaline Cleaner is highly effective when used in combination with high pH detergent cleaners such as RO Surfactant Cleaner to help remove organic substances and microbial slimes.

During normal operation, RO membranes can become fouled, which greatly reduces the ef ciency of the system. Deposits build up on the membrane until they cause a reduction in permeate ow and loss in salt rejection. The effects of fouling can lead to poor water quality, loss in production, unscheduled downtime and membrane replacement. A regular maintenance and cleaning program can provide return on investment (ROI) results ranging from 100 to 250% by maintaining low pump output pressures and extending the membrane's life. Elements should be cleaned whenever the normalized permeate ow rate or salt rejection decreases by 10-15% or the differential pressure increases by 10-15% from the original baseline data.

Ordering information

Product Number	Product name
777718	RO ALKALINE CLEANER 25 LTR

Accessories

Product Number	Product name
737189	CHEM. CLEAN. UNIT W/HEATING, COATED

Directions for use

RO Alkaline Cleaner should be fed via a closed feed system. A closed feed system is de ned as a system in which uid is moved from a closed storage vessel into a treated media without exposure to the atmosphere except through normal venting or pressure relief devices.

Cleaning solutions should be made up with chlorine-free water to give a 2.0 - 2.5% solution of RO Alkaline Cleaner. It is sometimes possible to monitor the progress of membrane cleaning by the "pick-up" of hardness salts in the cleaning solution.

RO BISULPHITE 25 L LIQUID 38-40%

659 777852

RO Bisulphite is a solution of sodium hydrogen sulphite (sodium bisulphite) used in the preservation of RO membranes and as a de-chlorinating agent.

Features

- Food frade product
- Suitable for preservation and dechlorination

Ordering information

Product Number	Product name
777852	RO.BISULPHITE 25 LTR LIQUID 38-40%

Accessories

Product Number	Product name
737189	CHEM. CLEAN. UNIT W/HEATING, COATED

Directions for use

Procedures

A. De Chlorination

If the feed water to the RO system contains free chlorine it must be removed otherwise it can breakdown the RO membrane. RO Bisulphite is a 40% solution of Sodium Bisulphite (NaHSO3) It undergoes the following reaction with free chlorine:

NaHSO3 + HOCl ? NaHSO4 + HCl

Dosing and Control

A dose rate of 3.66ml/m3 of RO Bisulphite should be applied for each 1ppm of free chlorine in the feed water. Use a suitable free chlorine test kit to monitor reduction in free chlorine levels. For continuous applications a suitable storage tank and chemical dosing pump should be used.

The solution should be dosed as close to the RO system as possible (to keep as much of the pre-treatment as possible in contact with chlorine â€“ e.g. after the cartridge lters). However, if the free chlorine level is high, the solution should be dosed prior to the antiscalant injection point (or antiscalant dosage adjusted to compensate for chlorine attack, as some antiscalants are attacked by free chlorine). The antiscalant and RO Bisulphite dosing point should be far enough apart to prevent neat product mixing.

B. Lay up and preservation of Reverse Osmosis and Nano-Filtration membranes and systems. (Polyamide, TFC, CPA membranes)

It is necessary to preserve membranes when the RO or NF system is taken out of production for more than 24 hours. Failure to do so may allow bio lms to form on the surface of the membranes which will cause operational problems upon restarting the system.Prior to shutdown, the RO needs to be cleaned in-line with operational guidelines and MUST be ushed with RO permeate. After ushing with permeate, the preservation solution can be pumped into the RO system. Note: It has to be veri ed that the plastic materials (including pressure vessels) used in the membrane plant are resistant to sodium bisulphite. Otherwise cracks might occur in the plastic materials. 1. Prepare a solution of 2.5 % RO Bisulphite 2. Fill the entire system to be preserved with the solution 3. It is recommended to measure the pH regularly. A fresh solution is needed when the pH < 3 A fresh solution is also needed when the liquid becomes turbid or changes colour. Regular inspections (weekly) are recommended.

RO Bisulphite conforms to the requirements of NSF/ANSI Standard 60 - Drinking Water Treatment Chemicals - Health Effects.

RO MILD ACID CLEANER 25 L

659 777715

RO Mild Acid Cleaner is a membrane cleaner speci cally designed to remove iron fouling. It also is effective against light calcium carbonate scaling. The ef cacy of RO Mild Acid Cleaner can be enhanced by the addition of RO Alkaline Cleaner to the cleaning solution although some minor pH correction may be necessary.

Features

- Mild acid formulation
- Compatible with wide range of RO membranes
- Liquid formulation

Ordering information

Product Number	Product name
777715	RO MILD ACID CLEANER 25 LTR

Accessories

Product Number	Product name
737189	CHEM. CLEAN. UNIT W/HEATING, COATED

Directions for use

RO Mild Acid Cleaner is a membrane cleaner speci cally designed to remove iron fouling. It also is effective against light calcium carbonate scaling. The ef cacy of RO Mild Acid Cleaner can be enhanced by the addition of RO Alkaline Cleaner to the cleaning solution although some minor pH correction may be necessary.

RO Mild Acid Cleaner should always be used as recommended by the membrane manufacturer or equipment supplier, in respect to cleaning pH and temperature.

During normal operation, RO membranes can become fouled, which greatly reduces the ef ciency of the system. Deposits build up on the membrane until they cause a reduction in permeate ow and loss in salt rejection. The effects of fouling can lead to poor water quality, loss in production, unscheduled downtime and membrane replacement. A regular maintenance and cleaning program can provide return on investment (ROI) results ranging from 100 to 250% by maintaining low pump output pressures and extending the membrane's life. Elements should be cleaned whenever the normalised permeate ow rate or salt rejection decreases by 10-15% or the differential pressure increases by 10-15% from the original baseline data.

RO Mild Acid Cleaner conforms to the requirements of NSF/ANSI Standard 60 - Drinking Water Treatment Chemicals - Health Effects.

Sampling and Testing
There is no direct test for RO Mild Acid Cleaner concentration available.

Dosing and Control
RO Mild Acid Cleaner should be fed via a closed feed system. A closed feed system is de ned as a system in which uid is moved from a closed storage vessel into a treated media without exposure to the atmosphere except through normal venting or pressure relief devices.

Cleaning solutions should be prepared with chlorine-free product water to give a 4% (by weight) solution, or 1 kg of RO Mild Acid Cleaner to every 25 kg of water. As RO MILD Acid Cleaner is buffered, the cleaning solution will stabilize at pH 3.6.

The cleaning time depends on the amount of fouling present but is usually completed within two to three hours. If the cleaning solution becomes red/brown in color, it must be changed as it has become exhausted. The RO Mild Acid Cleaner cleaning solution should always be neutralized with alkali and discarded after use.

Before returning the system to service, the operator must ensure that any residual cleaning product is removed from the membrane surfaces by thorough ushing. This may be done by monitoring the pH of the concentration until it returns to the same pH as the in uent water.

Success Factors
Membrane fouling via deposit results in decreased

production, unscheduled shutdowns, poor product water quality, and premature equipment failure. Cleaning an RO system when required by the membrane manufacturer's operating guidelines, will make it easier to restore membrane performance and maximize its life. Allowing a membrane system to excessively foul or scale often results in the premature replacement of the membrane elements. Heavy foulant layers or scale formations can block ow channels within the elements, making it nearly impossible to get a cleaning solution to penetrate the bulk of the foulant/scale. This can result in a dramatic increase in the amount of time required for a successful cleaning, assuming it is even possible

RO SURFACTANT CLEANER 25 L

659 777201

RO Surfactant Cleaner has been developed for the cleaning of reverse osmosis (RO), nano- ltration (NF) and ultra- ltration (UF) membranes. RO Surfactant Cleaner is a formulation based on an anionic surfactant and is highly effective in removing colloidal and other organic matter.

Features

- Effective surfactant formulation
- Compatible with wide range of RO membranes
- Liquid formulation

Accessories

Product Number	Product name
737189	CHEM. CLEAN. UNIT W/HEATING, COATED

Directions for use

During normal operation, RO membranes can become fouled, which greatly reduces the ef ciency of the system. Deposits build up on the membrane until they cause a reduction in permeate ow and loss in salt rejection. The effects of fouling can lead to poor water quality, loss in production, unscheduled down time and membrane replacement. A regular maintenance and cleaning program can provide return on investment (ROI) results ranging from 100 to 250% by maintaining low pump output pressures and extending the membrane's life.

Elements should be cleaned whenever the normalized permeate ow rate or salt rejection decreases by 10-15% or the differential pressure increases by 10-15% from the original baseline data.

RO Surfactant Cleaner conforms to the requirements of NSF/ANSI Standard 60 - Drinking Water Treatment Chemicals - Health Effects.

Dosing and Control

RO Surfactant Cleaner should be fed via a closed feed system. A closed feed system is de ned as a system in which uid is moved from a closed storage vessel into a treated media without exposure to the atmosphere except through normal venting or pressure relief devices. RO Surfactant Cleaner cleaning solutions are made at 1.0 - 2.0% (by weight) with chlorine-free product water and sodium hydroxide addition to give a pH of 10.5 - 11.0.

CALCIUM HYPOCHLORITE POTABLE GRADE

648 909004

This is the speci cation for Potable Water Grade Calcium Hypochlorite. Any product supplied under this speci cation must meet the properties described and meet with local drinking water approvals, such as NSF, UK DWI, US EPA. The chemical must be properly labeled in compliance with the present national and international laws and regulations concerning transport, health, safety and environment. A Safety Data Sheet must be provided by the manufacturer.

Calcium Hypochlorite granulate or tablets are potable grade, chlorine release agents that can be used to chlorinate and control bacterial growth in Potable Water, Swimming Pools and Spas and for Grey Water Sterilisation.

Features

- Rapid dissolution
- Easy test method (free chlorine)
- Controls bacteria growth in drinking water

Accessories

Product Number	Product name
778419	POTABLE WATER TEST KIT

Directions for use

Calcium Hypochlorite granulate or tablets contains 70% available chlorine.
Calcium Hypochlorite may be applied directly to the water system at any point where there is suf cient time and turbulence to facilitate dissolution. The product should be applied and controlled to achieve the target free chlorine residual which is system dependent. Each system has a chlorine demand which has to be satis ed before free chlorine residual is obtained. The chlorine demand is dependent upon system design and water cleanliness.

Dosage of Calcium Hypochlorite :

- Potable water typically requires 2g per m^3
- Pools and Spas typically require 4 to 6g/m3
- Grey water typically requires 5-10g per m^3

These are nominal dose rates and should be adjusted depending on measured free chlorine results. Test kits can be selected from the Potable Water Test Kit range.

SODIUM HYPOCHLORITE POTABLE GRADE 25LTR

648 909001

This is the speci cation for Potable Water Grade Sodium Hypochlorite. Any product supplied under this speci cation must meet the properties described and meet with local drinking water approvals, such as NSF, UK DWI, US EPA. The chemical must be properly labeled in compliance with the present national and international laws and regulations concerning transport, health, safety and environment. A Safety Data Sheet must be provided by the manufacturer.

Sodium Hypochlorite solution is a potable grade, chlorine release agent that can be used to chlorinate and control bacterial growth in Potable Water, Swimming Pools and Spas and for Grey Water Sterilisation.

Features

- Liquid formulation
- Easy test method (free chlorine)
- Controls bacteria growth in drinking wa

Ordering information

Product Number	Product name
909001	SODIUM HYPOCHLORITE POTABLE GRADE

Accessories

Product Number	Product name
778419	POTABLE WATER TEST KIT

Directions for use

Sodium Hypochlorite solution typically contains 10 - 15% available chlorine.
Sodium Hypochlorite may be applied directly to the water system at any point where there is suf cient time and turbulence to facilitate dissolution. The product should be applied and controlled to achieve the target free chlorine residual which is system dependent. Each system has a chlorine demand which has to be satis ed before free chlorine residual is obtained. The chlorine demand is dependent upon system design and water cleanliness.

Dosage of Sodium Hypochlorite :

- Potable water typically requires 15mls per m^3
- Pools and Spas typically require 30 to 50mls/m3
- Grey water typically requires 40 to 100mls/m^3

These are nominal dose rates and should be adjusted depending on measured free chlorine results. Test kits can be selected from the Potable Water Test Kit range.

Further Technical Data

CAS No.	7681-52-9
Appearance	Green/yellow liquid
Specific Gravity	1.16 to 1.17 g/cm3
Odour	Chlorine
Iron	Max 1.0ppm
Available Chlorine	100 to 150 g/lit
Total Alkalinity as NaOH	Min 1.2%
Freezing Point	-15 to -18 C

DIESELPOWER ENHANCER 25 LTR

650 777190

DieselPower Enhancer is a multifunctional distillate fuel oil additive.

Features

- Improves fuel lubricity
- Reduces wear of fuel pumps and fuel injection equipment
- Proven by independent tests – HFRR and Bosch
- Maintains long term storage and thermal stability of marine distillate fuels
- Protects against corrosion
- Protects against fuel injection fouling and fuel lter plugging

DieselPower Enhancer is used to improve lubricity, as well as help maintain colour and stability to control the formation of organic sludge and to inhibit corrosion.

DieselPower Enhancer also disperses accumulated deposits, and reduces lter clogging, injector sticking, and corrosion of bunkers and fuel lines.

Ordering information

Product Number	Product name
777190	DIESELPOWER ENHANCER 25 LTR

Directions for use

DieselPower Enhancer may be applied directly to bunkers or storage tanks but for best mixing should be applied to feed lines during lling.

DieselPower Enhancer has been tested for compatibility with materials of construction and may be used with copper, aluminium, brass, mild steel, 304 and 316 stainless steel, PFTE, Buna-N, polypropylene and polyurethane. DieselPower Enhancer should not be used with rubber, neoprene, PVC Hypalon, Viton, or ethylene/ propylene rubbers.

Application usage	1 ton fuel bunkered	10 ton fuel bunkered	50 ton fuel bunkered	100 ton fuel bunkered
As a lubricity improver	Dose 0,25 ltr	Dose 2,5 ltr	Dose 12,5 ltr	Dose 25 ltr
As a stability improver and to maintain color	Dose 5-35 ml	Dose 50-350 ml	Dose 0,25-1,75 ltr	Dose 0,5-3,5 ltr
Inhibit and disperse sludge	Dose 40-80 ml	Dose 0,4-0,8 ltr	Dose 2-4 ltr	Dose 4-8 ltr

Used as a lubricity improver and stabiliser

To get the full bene t of the lubricity protection a dosage of 1 liter of DieselPower Enhancer should be added to 4 tonnes of fuel.

Used to stabilise and maintain distillate colour

To stabilise and maintain distillate colour, the dosage level will normally lie in the range of 5 to 35 mg/l and dosage may vary depending on the fuel used. The correct dosage can be determined by laboratory test.

Used to inhibit sludge formation, disperse existing sludge and control lter plugging

To inhibit sludging formation, disperse existing sludge and control lter plugging the dosage level will normally lie in the region 40 to 80 mg/l.

If organic contamination is heavy, treatment at a rate of 1 to 2 litres per 5,000 litres fuel oil is recommended to all systems. Treat next bunkers at a reduced dosage of 1 to 2 litres per 10,000litres of fuel oil. Thereafter, assuming tests show satisfactory conditions, maintenance dosage of the order of 0.4 to 0.8 litres per 10,000 litres of fuel oil should be applied.

Note: If the tank being lled already contains some fuel, ensure that this fuel is also dosed at the same ratio.

Note: If microorganism contamination is suspected test the fuel using Unitor Bacteria Test Kit and if contamination is found DieselPower MAR 71 can be used to sanitise the fuel.

DIESELPOWER MAR 71 25 LTR

650 571257

DieselPower Mar 71 is a specially designed liquid biocide against micro organisms contaminating fuel storage tanks and systems.

Features

- Kills micro organisms in fuel oil
- Keeps lters and nozzles free from clogging
- Prevents corrosion in fuel systems and doesn't form any corrosive combustion products
- Safe for use on all materials, including metal and synthetic rubber

Bene ts

- You can be sure that DieselPower MAR 71 will kill all microorganisms
- There have been no reported cases of bacteria becoming immune to this liquid
- With lters and nozzles clean and free from bacteria remnants, you can run a trouble free operation

It's essential to have adequate storage for marine fuel. But microorganisms can corrode fuel storage tanks and systems, leading to clogged lters and nozzles, and degraded fuel. DieselPower MAR 71 is a specially designed liquid that protects fuel against micoorganisms.

Ordering information

DieselPower MAR 71 **cannot be delivered in US & Canada** , for deliveries in US & Canada please contact the local Customer Service Organisation. For more information on alternative product delivered in US & Canada, please see order nr for Spectrus NX 1100 and look under the Documentation tab for further information.

Product Number	Product name
571257	DIESELPOWER MAR 71 25 LTR
661991	SPECTRUS NX 1100 (For US & Canada Only)

Directions for use

Marine Diesel Oil and Gas Oil

DieselPower MAR 71 is self dispersing and can therefore be added directly to the fuel tank.

The recommended dosage rates are:

Preventive treatment: 0.20 litres/ton continuously (meaning that all new oil charged to the fuel tank is treated with 0.20 litres/ton) or
0.6 litres/ton in periodic dosing to the tank every 2 months, independent of how much fuel that has passed through the tank.

Decontamination of contaminated oil: 0.8 litres/ton

Shock dosing: 3 litres/ton (biomass can be seen, lter blockage)

The tank or system layout to treat has an impact on how fast the kill rate is, for Shock treatment we recommend at least 24 hrs treatment time.

The best ways to provide good distribution of the biocide in the fuel is:

- By pumping the fuel with DieselPower MAR 71 from one tank to another (and back).
- By adding DieselPower MAR 71 when the tank is one third full and then ll up the tank with fuel. This creates turbulence in the tank and also provides good mixing of the biocide.
- By pre-diluting DieselPower MAR 71 in fuel and then add it to the tank. (Not very practical when larger tanks has to be treated. Also concerns with safety of workers when manually handling the fuel)

DIESELPOWER LUBRICITY

650 777195

DieselPower Lubricity is formulated to enhance the lubricity of diesel fuels.

Features

- Improves the lubricity of low sulphur diesel fuels
- Can be used as a stand-alone product or component in diesel packages
- Effective at 50-150 ppm range in meeting the HFRR requirement for lubricity speci cations
- Does not interact with the fuel

Bene ts

- Protects your engine from wear so you can avoid unscheduled and expensive maintenance
- Quality is ensured so you can rest easy with good engine protection
- You can safely use the product in all types of fuels

DieselPower Lubricity has been found to be particularly effective in ultra low sulphur diesel fuels and gas oils that are blended to meet governmental regulations on fuel sulphur content.

DieselPower Lubricity also provides excellent performance as a lubricity improver component in diesel detergent packages and does not affect the water emulsi cation tendency of a fuel as measured by ASTMD-1094.

Ordering information

Product Number	Product name
777195	DIESELPOWER LUBRICITY 25 LTR

Directions for use

Dosing Method
Preferable application of DieselPower Lubricity is directly into the transfer pump suction to ensure proper mixing. Product may be added to storage or blending tanks with adequate mixing. Dosage of DieselPower Lubricity may vary depending on the fuel quality.

Sampling and Testing
DieselPower Lubricity also provides excellent performance as a lubricity improver component in diesel detergent packages and does not affect the water emulsi cation tendency of a fuel as measured by ASTMD-1094.

Dosing and Control
The normal dosage of DieselPower Lubricity is between 100 and 200 ppm (100 to 200 mls per m3 fuel). Independent testing has shown that an application of around 125ppm can improve the HFRR wear scar performance of ULSD to below the speci cation level of 460um. DieselPower Lubricity may be blended with other components into diesel detergent packages for ultra low sulphur diesel fuel and has no known adverse interaction with common components such as detergents, pour point improvers, cetane improvers or antifoams.

FUELPOWER DEMULSIFIER

650 778791

FuelPower Demulsi er rapidly breaks water-in-oil emulsions in all grades of fuel. It assists water removal in the settling tank and fuel centrifuges.

Features

- Rapidly breaks water-in-oil emulsions
- Improves separator ef ciency
- Prevents sludge formation in tanks and lines

Bene ts

- Helps you to keep your fuel as water free as possible
- Reduction in sludge reduces your maintenance requirements

FuelPower Demulsi er breaks water-in-oil emulsions by lowering the surface tension between the two phases. It is insoluble in water and remains effective even after the water has been removed. Powerful dispersants combat existing sludge formations while homogenising the fuel to prevent new sludge from being formed. Centrifugal separation of catalyst nes is improved, reducing abrasion damage. The homogenising action of FuelPower Demulsi er keeps heavy fuel particles in suspension, therefore fuel lters block less frequently, tanks and lines remain cleaner, and in general, fuel systems maintenance is minimised. Consequently, a greater proportion of supplied fuel is available for combustion.

Ordering information

Product number	Product name
778791	FUEL POWER DEMULSIFIER 25 LTR

Directions for use

Dosage and control Dose into the bunker tank prior to, or during bunkering. Allow the product to mix well with the fuel. If fuel analysis is available, the dosage should be based on the water content, as per the following table:

Water %Vol	0.5-1.0	1.0-2.0	Above 2.0
Dosage	1:6000	1:3000	1:2000 to 1:500

If no analysis is available either from a laboratory or Unitor water-in-oil test kit, use an initial dose rate of 1:6000 and adjust according to the results obtained.

FUELPOWER CONDITIONER

650 778785

Fuel stability and compatibility is an increasing problem with modern marine heavy fuels, especially with blending of low sulfur fuels. The solution for handling these unstable and incompatible fuels is FuelPower Conditioner, it stabilizes and stops sludge formation in fuel tanks. FuelPower Conditioner also improves separation reducing the amount of sludge wasted keeping the fuel homogeneous through the whole fuel system delivering a stable fuel ready for combustion.

Features

- Stabilizes fuel blends, reducing compatibility problems
- Disperses and prevents sludge formation
- Reduces the amount of sludge wasted in the centrifugal separator

Bene ts

- The conditioning properties of FuelPower Conditioner ensures your fuel is stable and that a minimum of sludge is wasted in tanks and centrifugal separators
- With puri er working ef ciently, Iters clean and fuel system in good shape you can focus on the important things

Ordering information

Product Number	Product name
778785	FUEL POWER CONDITIONER 25 LTR

Directions for use

Dosage and control
Ideally, FuelPower Conditioner should be dosed directly into the bunker tank prior to bunkering. However, it can be introduced to the settling tank or during transfer from storage. Dosage rates are best determined from the results of fuel analysis, i.e. sediment content or compatibility test which is easily performed on board using the Compatibility Test Kit.

ASTM SPOT	1	2	3	4	5
SEDIMENT%	0.05 OR LESS	0.05	0.1	0.2*	0.5 OR OVER*
DOSE RATE	**1:20 000	1:10 000	1:5000	1:2500	1:1000

* Avoid using this fuel if possible.

** Fully compatible blends, with a sediment percentage of less than 0.05, should not require treatment for incompatibility. Marginal number 1 spots may cause sludging if the fuel is not handled carefully, so some treatment may be necessary, especially if other problems such as water content or corrosion are apparent.

If test results are not available, an initial dose of 1:15 000 is recommended, and adjustments made as necessary.

FUELPOWER CATALYST 25 LTR

650 778787

The environment has a high focus on today's marine market. The need to improve emissions from combustion of hydrocarbons is ever present.
FuelPower Catalyst has been formulated to help improve combustion while at the same time make sure the fuel is stable and homogeneous. The combustion catalysts in FuelPower Catalyst reacts with soot particles during combustion reducing them by improving the oxidation of the soot particles.

Features

- Improves combustion by reducing the burn out temperature for the soot
- Reduces carbon/ash deposits
- Limits soot formation and smoke emissions

Bene ts

- You will see an overall improvement in fuel combustion and a reduction in the soot emissions
- Helps you to keep the fuel system in god shape and to make sure the fuel is stable and ready for combustion

The fuel ignition temperature is reduced, resulting in increased combustion ef ciency with less carbon left to form smoke and soot. Engine and exhaust systems are kept cleaner with longer service life and less maintenance.

Anti-polymerisation agents inhibit sludge formation, while dispersants stabilise the fuel. This results in a cleaner fuel system and better fuel ow, giving improved fuel atomisation and greater combustion ef ciency.

Sulphuric acid corrosion caused by condensing exhaust gases may be seen in any of the cooler parts of the boiler or engine system. Typical problem areas are cylinder liners (clover-leaf corrosion), valve stems and funnel uptakes. FuelPower Catayst catalytically inhibits the formation of acid gases. This reduces the amount of acid present, thereby reducing acid corrosion.

Directions for use

Dosage and control
FuelPower Catalyst is completely oil-soluble and should be added via a metering pump into the suction side of the booster pump. Alternatively, it can be added into the settling tank. If so, the dose rate should be increased by 10%. As a general guide, the average dosage should be 1:15 000. Alterations can then be made according to operating experience and results obtained. Where fuel analysis for Micro Carbon Residue, (MCR) is available, dose according to the table below:

MCR%	10	12	14	16	18
Dosage Rate	1:15 000	1:12 000	1:10 000	1:7 500	1:4 000
CCAI	835	840	845	850	850+
Dosage Rate	1:15 000	1:12 000	1:10 000	1:7 500	1:4 000

FuelPower Catalyst can be dosed using Fuel Oil Treatment Dosing Unit, product No 664 619353.

FUELPOWER ASHFREE 25 LTR

650 778789

In today's market it is essential to have an ef cient and reliable operation. FuelPower AshFree is especially formulated to protect against the build up of deposits on sensitive engine parts like exhaust valves and turbo chargers. FuelPower AshFree also includes a combustion catalyst to ensure good combustion to avoid additional build up of insulating soot deposits.

Features

- Raises the melting point of corrosive ashes
- Reduces the high temperature corrosion on sensitive surfaces
- Keeps exhaust valves and turbochargers clean

Bene ts

- You can rely on FuelPower AshFree to keep your sensitive engine parts free from corrosive deposits
- Reduction of deposits and corrosion ensures your engine operates more ef ciently

FuelPower AshFree physically modi es fuel ash, raising the sinter and melting points of the ash above the normal engine operating temperatures. Modi ed ash particles are solid, small and non-adhesive and are ejected with the exhaust gas stream. Valve seatings remain intact as ash deposits on valve seats are reduced. Guttering is minimised and valve cone and seat lives are extended, allowing for greater time between overhauls. Turbocharger and exhaust system fouling is controlled as the ash particles in the gas stream are less adhesive. Exhaust systems remain cleaner and any ash that is formed is friable and easily removed by conventional methods such as brushing.

Another advantage found with FuelPower AshFress is acid reduction. Vanadium in the fuel has a catalytic action, increasing the conversion from sulphur dioxide to sulphur trioxide during combustion. The sulphur trioxide then reacts with steam in the exhaust system, increasing the dew point to form sulphuric acid. FuelPower AshFree keeps the complex vanadium and sodium ash compounds in a solid, non-molten state, inhibiting fused salt corrosion.

The combustion catalyst improves combustion by reducing the energy needed to oxidise the soot, resulting in increased combustion ef ciency with less carbon left to form smoke and soot. Engine and exhaust systems are kept cleaner with longer service life and less maintenance.

Directions for use

Dosage and control
FuelPower AshFree should be dosed either directly into the service tank or by automatic metering into the suction side of the booster pumps. Typical dose rates vary between 1:2000 and 1:6000 depending on the nature and severity of the problem. Use the table below for optimum dosage.

Sodium ppm	Vanadium 50ppm	Vanadium 100ppm	Vanadium 150ppm	Vanadium 200ppm	Vanadium 300ppm	Vanadium 400ppm	Vanadium 500ppm
				Tons of fuel			
25	6	8	5	4	3	2,5	2,5
35	4	8	5	4	3	2,5	2,5
50	4	4	5	4	3	2,5	2,5
65	3	4	4	4	3	2,5	2,5
75	3	4	3	4	3	2,5	2,5
85	3	4	3	4	3	2,5	2,5
100	3	4	3	4	3	2,5	2,5
				Dosage based	on MCR		
MCR%	10	12	14	16	18		
Dose	1:6000	1:4000	1:3000	1:2000	1:1000		

Example: A fuel contains 50ppm Sodium and 150ppm Vanadium. The dose rate should therefore be: 1 ltr FuelPower AshFree per 5 tons of fuel (1:5000)

FUELPOWER STABILISER 25 LTR

650 778793

FuelPower Stabiliser is a concentrated organic fuel stabiliser. It contains no metals and can be used in diesel engines and boilers.
FuelPower Stabiliser indirectly promote a better combustion by improving fuel stability that leads to better atomisation and improved burnout of the fuel. FuelPower Stabiliser will also minimize sludge in fuel tanks and fuel system.

Features

- Indirectly improves combustion
- Stabilises heavy fuels
- Very low dosage

Bene ts

- Helps you to keep your fuel system in good condition and to minimize sludge formation in tanks

Sludge formation is inhibited through the action of anti-polymerization agents. Fuel stability is improved through the action of solvents and dispersants. The result is improved combustion ef ciency through a better fuel atomisation.

Directions for use

Dosage and control
FuelPower Stabiliser is completely oil soluble. The initial dosage rate is one litre to twenty ve tons of fuel (1:25 000). Actual dosage rates will be dependent on fuel quality and operating experience. FuelPower Stabiliser should be added via a metering pump. If no metering pump is available, use the suction manometer on the transfer pump as the dosage point. For diesel engines and boilers, FuelPower Stabiliser should be dosed during transfer from storage to the settling tank.

FuelPower Stabiliser can be dosed using Fuel Oil Treatment Dosing Unit, product No 664 767924.

Directions for use

Where fuel analysis for Micro Carbon Residue (MCR) is available, or where CCAI values are known, dose according to the following table:

MCR%	8	9	10	12
Dose rate	1:30 000	1:25 000	1:22 000	1:20 000
CCAI	835	840	845	850
Dose Rate	1:30 000	1:25 000	1:22 000	1:20 000

FUELPOWER SLOWSTEAMING

650 765042

Slow Steaming is becoming a more and more common practice in the marine transport market. The main bene t of slow steaming is clearly the saving of fuel consumption.
The main disadvantage is the increase in particulate emission from poor combustion during low load operations. Fuel Power SlowSteaming has been formulated to help manage these problems by reducing the particle emissions avoiding ef ciency loss and the risk of res in exhaust gas recovery systems. FuelPower SlowSteaming is a combustion catalyst blend especially formulated for slow steaming operations.

Features

- Contains combustion improvers to help reduce particulate matter
- Reduces the carbon/ash deposits in the engine and exhaust gas heat recovery systems

Bene ts

- You can be sure that FuelPower SlowSteaming will help you to reduce the particulate matter problem from slow steaming
- FuelPower SlowSteaming will help you reduce the deposits in the combustion chamber and limit the ef ciency loss from the engine and turbo charger
- FuelPower SlowSteaming will reduce the soot particle load to exhaust heat recovery systems helping with the safety of avoiding possible exhaust gas res

An engine is built to perform best at its maximum rating and operating at a lower power output can lead to problems with combustion, lubrication and fouling of turbo charger and exhaust gas boiler. It is important to have a good combustion performance at low loads to avoid fouling of the turbo charger and the exhaust gas econmiser, the reduced ow of the exhaust gases means that deposit formation is quicker with loss of heat transfer and reduced ef ciency. The insulation effect of soot is very high and a 2 mm layer will increase oil consumption with about 8,5%.

Ordering information

Product Number	Product name
765042	FUEL POWER SLOW STEAMING 25LTR

Directions for use

Dosage and control
FuelPower SlowSteaming is completely oil-soluble and should be added via a metering pump into the suction side of the booster pump. Alternatively, it can be added into the settling tank. If so, the dose rate should be increased by 10%. As a general guide, the average dosage should be 1:6 000. Alterations can then be made according to operating experience and results obtained.

FUELPOWER SOOT REMOVER LIQUID

650 624627

Soot Remover Liquid is formulated for effective prevention of soot and rescale deposits from boilers and diesel engine exhaust systems.

Features

- For the prevention of soot and rescale deposits in diesel engine and boiler exhaust systems
- For reduction of cold-end corrosion where surface temperatures are lower than the dew point of the exhaust gases
- Aids soot blowing

Bene ts

- Saves you cleaning time by reducing soot and slag deposit
- Reduced cold-end corrosion reduces your meed for maintenance
- Saves you money by improving heat transfer and boiler ef ciency
- Helps to keep exhaust gas system clean while slow steaming and will also reduce cold end corrosion

If rescale is allowed to form on heat exchangers, the loss of ef ciency can be directly related to extra fuel consumption. A 1 mm deposit is approximately equivalent to a 10% ef ciency loss, a 3 mm deposit can reduce ef ciency by up to 50%.

The normal ignition temperature of soot is around 600°C. This means that it is burned only in the hottest parts of the boiler or diesel exhaust systems. Due to the catalytic action of Soot Remover Liquid, the ignition temperature of the soot/ rescale is reduced down to 200°C. The carbon deposits are thus ignited, leaving an easily removable ash.

The use of Soot Remover Liquid not only provides greater fuel ef ciency, but also prevents acid formation in areas where severe corrosion could result in expensive damage, i.e. heat exchangers, superheaters, economisers, exhaust paths/stacks.

Ordering information

Product number	Product name
624627	FUELPOWER SOOT REMOVER LIQUID 25 LT

Accessories

Product number	Product name
767926	AUT .DOSING UNIT FOR SOOT REMOVER L
625194	MANUAL DOSING UNIT F/SRL

Directions for use

Dosage and control
Soot Remover Liquid should be introduced to the boiler through a suitable port, preferably with an injector, ensuring that the liquid is spread through the ame path toward the back of the combustion chamber.

For Diesel engines, inject Soot Remover Liquid directly into the exhaust system upstream of the area to be treated. Soot Remover Liquid should be injected with the dosing equipment mentioned under Accessories.

Steam Raised (tons/hr)	Boiler fuel (tons/day)	Dose rate (kg/day)
Boiler		
3	5.5	1.0
6	11	2.0
9	16	3.0
12	21	3.5

Steam Raised (tons/hr)	Boiler fuel (tons/day)	Dose rate (kg/day)
15	27	4.0
23	41	4.5
31	55	5.0
46	82	5.5
62	110	6.5

Directions for use

Fuel Consumption (Tons/Day)	Dose Rate (Kg/Day)
Diesel Engines	
10	1.5
20	3.0
30	3.5
40	4.0
50	4.5
60	5.0
70	5.0
80	5.7
90	5.7
100	6.1
100-125	6.4
125-150	7.0
150-200	7.7
200+	8.3

FUELPOWER SOOT REMOVER

650 571240

FuelPower Soot Remover is a dry powder compound formulated for safe removal of soot and deposits from boilers and diesel engine exhaust systems.

Features

- Reduces soot and slag deposits
- Reduces cold-end corrosion
- Assists soot blowing

Bene ts

- Saves you money by improving heat transfer
- Saves you money by increasing boiler ef ciency

If deposits are allowed to form on heat exchangers, the loss of ef ciency can be directly related to extra fuel consumption. A 1 mm deposit is approximately equivalent to a 10% ef ciency loss, a 3 mm deposit can reduce ef ciency by up to 50%. The normal ignition temperature of soot is around 600°C. This means that it is burned only in the hottest parts of the boiler or diesel exhaust systems. Due to the catalytic action of FuelPower Soot Remover, the ignition temperature of the soot/deposit is reduced to less than 280°C. The carbon deposits are thus ignited, leaving an easily removed ash.

The use of FuelPower Soot Remover not only provides greater fuel ef ciency, but also prevents acid formation in areas where severe corrosion could result in expensive damage, i.e. heat exchangers, superheaters, economisers, exhaust paths/stacks.

Ordering information

Product number	Product name
571240	FUELPOWER SOOT REMOVER 25 KG

Accessories

Product number	Product name
572073	FIXED INJECTOR
572065	PORTABLE SOOT INJECTOR

Directions for use

Dosage and control
FuelPower Soot Remover should be introduced to the boiler through a suitable port, preferably with a blower, ensuring that the powder is spread through the ame path towards the back of the combustion chamber. For Diesel engines, inject FuelPower Soot Remover directly into the exhaust system upstream of the area to be treated. FuelPower Soot Remover is preferably dosed using Unitor's Fixed Injector, product No. 664 572073 and/or Portable Injector, product No. 664 572065.

Steam Raised (tons/hr)	Boiler fuel (tons/day)	Dose rate (kg/day)
Boiler		
3	5.5	1.0
6	11	2.0
9	16	3.0
12	21	3.5
15	27	4.0
23	41	4.5

Steam Raised (tons/hr)	Boiler fuel (tons/day)	Dose rate (kg/day)
31	55	5.0
46	82	5.5
62	110	6.5

Directions for use

Fuel Consumption (Tons/Day)	Dose Rate (Kg/Day)
Diesel Engines	
10	1.5
20	3.0
30	3.5
40	4.0
50	4.5

POTABLE WATER TEST KIT

661 778419

The Nal eet Potable Water Test Kit range enables ships staff to monitor the quality of the drinking water on board the ship by providing tests for important operational control parameters and veri cation tests for bacteria that can be of risk to human health. The range of tests can be used on the ship either as a standalone control solution or as a supplement to laboratory analysis, dependant on ag state guidelines.

Features

- Self contained testing kit for E Coli and Coliforms
- Helps you to meet MLC 2006 recommendations for the quality of drinking water
- Includes compact and robust sample incubator
- Training video included

Bene ts

- Incubator ensures that you achieve consistent test results
- Additional test kits can be added as required to meet ag state and/or company requirements
- Video supports you with crew training and competency

Diseases on board ships

Improperly managed water is an established route for infectious disease transmission on ships. This was illustrated in a review of more than 100 outbreaks associated with ships undertaken by Rooney et al. (2004). One fth was attributed to a waterborne route.

WHO “Guide to Ship Sanitation” (Third Edition)

“A ship operator’s role is to provide safe water to passengers and crew, t for all intended purposes. Water on board should be kept clean and free from pathogenic organisms and harmful chemicals. Responsibilities are to monitor the water system, particularly for microbial and chemical indicators, to report adverse results under the IHR 2005, where required, and to take corrective action”.

Maritime Labour Convention 2006

The Marine Labour Convention (MLC) 2006 is the platform for the International Labour Organisation (ILO) to implement standards for the employment and living conditions for workers in the marine industry These standards include the requirement that “ Each member shall adopt laws and regulations or other measures to provide minimum standards for the quantity and quality of food and drinking water and for the catering standards that apply to meals provided to seafarers on ships that y its ag, and shall undertake educational activities to promote awareness and implementation of the standards referred to in this paragraph.” (Standard A3.2 Food and Catering)

Accessories

Product Number	Product name
CONTENTS OF BASE TEST KIT 778419	
777932	E.COLI/COLIFORM TEST SET(25 TESTS)
777930	PORTABLE INCUBATOR
777931	UV LAMP (F/E.COLI CONFIRMATION)
ADDITIONAL TESTS	
TOTAL BACTERIA TEST	

Product Number	Product name	
778413	BACTERIA PLATES (40 PCS)	
778414	DILUTION POTS (40 PCS)	
778483	1 ML STERILE SYRINGES (30)	
777722	LEGIONELLA TEST KIT...	
CHLORINE AND PH TESTS		
778420	CHECKIT COMPARATOR	
778457	CHECKIT TEST CELLS	2 required per comparator
778421	CHECKIT FREE CHLORINE DISC	
777934	CHLORINE DPD NO 1 (FREE) 250 TESTS	
777935	CHLORINE DPD NO.3(TOTAL)(250 TESTS)	
778458	CHECKIT HIGH RANGE CHLORINE DISC	
777937	ACIDIFYING GP TABLETS(CHLORINE)	
777938	CHLORINE HR TABLETS (250)	
778422	CHECKIT pH DISC (6.8 TO 8.4)..	
777936	PHENOL RED(PH) (250 TESTS)	
778416	INTESTINAL ENTEROCOCCI KIT(PK20)	
778163	COLITAG THIO BAGS (25)	
TURBIDITY TEST		
778415	TURBIDITY TUBE	
COLOUR MEASUREMENT		
555565	LOVIBOND 2000 COMPARATOR	
778417	COLOUR DISC	
778418	40MM CELLS F COLOUR MEASUREMENT	
IRON AND COPPER TESTS		
778644	CHECKIT IRON DISC (0 TO 1 MG/L)	
778645	IRON LR TABLETS(100)	
778647	CHECKIT COPPER DISC (0 TO 5MG/L)	
778646	COPPER NO.1 TABLETS(100)	
778648	PLASTIC STIRRING RODS (10)	

LEGIONELLA TEST KIT

661 777722

The Nal eet Industrial Legionella Test Kit is a quick and effective kit to deliver microbiological results in minutes instead of days. The test kit is a compact kit delivered in a case with easy and clear instructions.

The Nal eet Industrial Legionella Test Kit uses an immunochromatographic assay to detect the presence of cell surface antigens from Legionella bacteria in a sample. The presence of antigen causes the “Test Line” to turn red.

The kit contains all the items required to perform 5 tests:

- 5 individual foil wrapped tests.
- 5 hollow bre lters.
- 5 syringes with recovery buffer.
- 1 ltrate collection bottle.
- 1 pipework adapter with ½" and ¾" female threaded connectors.
  Note that this can also connect to a shower head thread. lters, recovery buffer, collection vessel and sample point.

Accessories

Product Number	Product name
764491	FILTRATION PACK FOR LEGIONELLA KIT

HR TOTAL HARDNESS TEST KIT

661 755775

Water hardness is caused by the presence of calcium and magnesium salts. High levels of hardness prevent the formation of lather with soap, and can cause scaling in water systems, particularly steam boilers, engine cooling systems and fresh water pipework. Hardness is an important control test in a wide variety of applications. The Total Hardness Test provides a simple method of checking water hardness over the range 5 - 500 mg/l.

Note

1. This test measures total hardness, i.e. the total content of calcium and magnesium ions in the water.
2. The expression of hardness results is normally expressed as mg/l CaCO3 (calcium carbonate). This is a convention to allow the comparison of different results and does not necessarily indicate that the hardness is present in the water in only the calcium form.

Accessories

Product Number	Product name
755779	HR TOTAL HARDNESS TABLETS PCK(250)

LR HARDNESS KIT DROP TEST 4-100 PPM

661 778114

The Low Range Hardness Drop Test is a quick and simple method to test the levels of Hardness in water samples from Engine Cooling Systems, Boiler Feed Water, Evaporator Supply Water and Pools and Spas.

Features

- Easy to use
- Small disposable kit
- Can be used on a wide range of water samples

SPECTRAPAK 309

661 739466

Cooling Water Test Kit, Parameters; NITRITE, CHLORIDE & pH

Test recommended to maintain cooling water within the prescribed limits.

Nitrite - Recommended Limits can be in the range of 700-2400 ppm as NO2. Please refer to the inhibitor Product Data Sheet for product speci c control limits. The nitrite concentration should be maintained within the above recommended limits to effectively inhibit any corrosive or scaling action within a closed cooling system. Too high a concentration should be avoided to minimize the cost to maintain the system. Insuf cient dosage can set up a condition where accelerated corrosion can occur in areas which become unprotected.

pH - Recommended Limits 8.3-10. The effectiveness of a corrosion inhibitor is restricted to within a certain pH range. Treatment ensures that this pH range is observed when the nitrite level is suf ciently maintained to prevent corrosion.

Chlorides - Recommended limit max. 50 ppm. The chloride value of the cooling water should be kept as low as possible, any increase in value whether sudden or gradual, will be an indication of sea water contamination. Check with engine manufacturer for other speci ed limits. If the chloride level exceeds 50 ppm, the possibility of corrosion in the system increases because chlorides have a negative effect on the passivation lm created by nitrites. Therefore, until corrective action has succeeded in bringing the chloride level back down below 50 ppm, the nitrite level should be kept close to the upper limit (2400 ppm).

Accessories

Product number	Product name
Consumables:	
739458	CHLORIDE TEST TABLETS
555623	NITRITE NO.1 TABLETS
555631	NITRITE NO.2 TABLETS
555698	PH PAPER F/ 309 TEST KIT
Spares	
555714	SHAKER TUBE 309 TEST KIT
778648	PLASTIC STIRRING RODS (10)

LOVIBOND 2000 COMPARATOR

661 555565

Spare part for water test kits.

Accessories

Product number	Product name
555565	Lovibond Comparator
777177	Lovibond Light Source
777084	Phosphate Disc 0 to 20ppm
777071	Phosphate Disc 0 to 100ppm
777082	Hydrazine Disc 0 to 0.5ppm
555599	MOULDED CELLS 10ML + CAPS (5 PACK)

WATER SAMPLE KIT

111 767164

The water analysis service is introduced to respond to the increasing need for laboratory services with regards to water treatment. Your convenient water sample kit contains: 2 x 500 ml sample bottles and sample information forms.

Cooling Water Test

Analysis of cooling water or related make-up water including test report and recommendations in compliance with manufacturer's recommendations. Analysis of the following elements: Nitrite, Nitrate , Calcium , Magnesium, Iron, Copper, Choride, Sulphate, pH, Conductivity, Bacteria (total count).

Boiler Water Test

Analysis of boiler water or related make-up, feed water or condensate including test report and recommendations. Analysis of the following elements: P-alkalinity, Phosphate, Calcium, Magnesium, Iron, Copper, Silica, Chloride, Sulphate, pH, Conductivity.

Brine Test

Brine test to verify the level of corrosion inhibitor in brine systems. Analysis of the following elements: Borate, pH, Conductivity.

Ordering information

Product Number	Product name
767164	WATER SAMPLE KIT

SPECTRAPAK 310

661 739474

Low Pressure Boiler Water Test Kit, Parameters; P-Alkalinity, Chloride & pH.

Test recommended to maintain boiler water within the desired level of quality when treating with Liquitreat/Combitreat are as follows:

A. p-Alkalinity - Recommended Limits: 150-300 ppm as $CaCO_3$

B. Chlorides - 200 ppm maximum as Cl^-.
C. Condensate pH 8.5-9.2
D. Hotwell temperature > 80°C

Accessories

Product Number	Product name
Consumables:	
739458	CHLORIDE TEST TABLETS
555664	P-ALKALINITY TABLETS
555706	PH PAPER + PH REAGENT
Spare parts available for purchase:	
555557	SAMPLE BOTTLES 250ML
778648	PLASTIC STIRRING RODS (10)
555714	SHAKER TUBE 309 TEST KIT
764418	pH POWDER SCOOP

SPECTRAPAK 311

661 739482

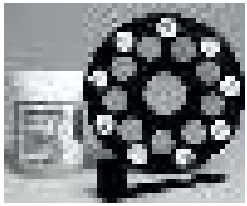
Boiler Water Test Kit,
Tests included are: Phosphate, P- Alkalinity, Chloride and pH. Please note that oxygen scavenger testing is provided separately (Spectrapak 312 for Hydrazine. Spectrapak 313 for DEHA and Sulphite test kit for Sulphite).

Accessories

Product Number	Product name
Consumables:	
739458	CHLORIDE TEST TABLETS
555730	FILTER PAPER
555680	HYDRAZINE TEST POWDER
555599	MOULDED CELLS 10ML + CAPS (5 PACK)
555664	P-ALKALINITY TABLETS
555706	PH PAPER + PH REAGENT
555649	PHOSPHATE TABLETS
Spare parts available for purchase:	
555581	HYDRAZINE DISC 3/126
555565	LOVIBOND 2000 COMPARATOR
555573	PHOSPHATE DISC 3/70
555557	SAMPLE BOTTLES 250ML
Accessories:	
555490	SPECTRAPAK 312
698746	SPECTRAPAK 313
778648	PLASTIC STIRRING RODS (10)

SPECTRAPAK 312 - HYDRAZINE

661 555490



Test reagent and comparator disc to test for hydrazine based oxygen scavengers. Recommended to ensure boiler water is free from dissolved oxygen.

Features

- Compact, portable test kit
- Test method included in the kit

Hydrazine reacts with oxygen, acting as a scavenger. The reaction results in nitrogen and water with no solids being added to the boiler system. Some of the hydrazine will carry over with the steam, aiding in maintaining the condensate pH in an alkaline range, which thereby helps combat acid formation. Hydrazine will also form magnetite which will act as a protective layer against further corrosion. SPECTRAPAK 312 Boiler Water Test Kit,

Hydrazine ORDER CODE: EDP 555490 Photometer 312 HYDRAZINE (PPM N2 H4) This is an option to the Spectrapak 311 and 315. This test must be performed below 21°C. A cooling coil should be tted at the sampling point or the sample should be cooled immediately under cold running water. Cloudy samples should be ltered before testing.

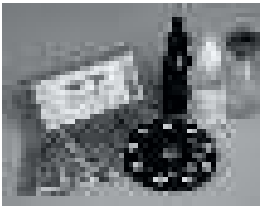
Accessories

Product number	Product name
555680	Hydrazine Reagent
555581	Hydrazine Disc 3/126
555565	LOVIBOND 2000 COMPARATOR
555599	MOULDED CELLS 10ML + CAPS (5 PACK)

SPECTRAPAK 313 - DEHA

661 698746

Reagents and comparator disc for testing for DEHA based oxygen scavengers.



Features

- Compact, portable test kit
- Test method included in the kit.

Controlling dissolved oxygen in boiler feed water and boiler water is important to avoid pitting corrosion in boiler systems. Oxygen Scavenger Plus contains DEHA, a low toxicity oxygen scavenger that is distributed throughout the boiler system. Dosage level of Oxygen Scavenger Plus is based on the DEHA value of the condensate water.

Accessories

Product Number	Product name
Consumables:	
698761	DEHA TEST SOLUTION
698753	DEHA TEST TABLETS
698928	DEHA DISC 3/170
555565	LOVIBOND 2000 COMPARATOR
555599	MOULDED CELLS 10ML + CAPS (5 PACK)

SPECTRAPAK 315

661 739490

Low Pressure Boiler Water Test Kit, Parameters: P. ALKALINITY, CHLORIDE and pH.

Compact portable boiler water test kit. Please note that oxygen scavenger testing is provided separately (Spectrapak 312 for Hydrazine. Spectrapak 313 for DEHA and Sulphite test kit for Sulphite).

Accessories

Product number	Product name
Consumables	
739458	CHLORIDE TEST TABLETS
555730	FILTER PAPER
555664	P-ALKALINITY TABLETS
555706	PH PAPER + PH REAGENT
Spare parts available for purchase:	
568717	BEAKER 100ML AZLON
573048	FUNNEL
555565	LOVIBOND 2000 COMPARATOR
555599	MOULDED CELLS 10ML + CAPS (5 PACK)
555557	SAMPLE BOTTLES 250ML
Accessories:	
555490	SPECTRAPAK 312
698746	SPECTRAPAK 313
778648	PLASTIC STIRRING RODS (10)

PERMANGANATE VALUE TEST KIT

661 778861

The Permanganate Value (PV) is a test for indicating the general quality of nal ef uents from on board sewage treatment systems. The PV result enables the COD and BOD of the ef uent to be calculated and the ef uent classi ed as to its acceptability for discharge according to MARPOL Annex IV guidelines.

References

MEPC 159 13th Oct 2006 describes the performance criteria for ef uent treatment plant installed on ships for the period 2010 to 2016. MEPC 227 (annex 22) 5th Oct 2012 (supersedes MEPC 159) and will apply to sewage treatment plants installed on or after 1 January 2016.

Features

- Rapid test to calculate COD and BOD of ef uent waters
- Easy and cost effective

Accessories

Product Number	Product name
778863	PERMANGANATE VALUE TABLETS PCK 100
778868	ACIDIFYING SE TABLETS PCK 100
555714	SHAKER TUBE 309 TEST KIT

BACTERIA COUNT TEST (10 PCS)

661 568568

BT2 general purpose microbiological dip slides are used for rapid, on board monitoring of microbial contamination in water systems. They can be used to test waste waters and engine cooling waters. The slide is coated with TTC media which supports the growth of most common bacteria.

Features

- Easy 3 step procedure; dip in uid, incubate and read results
- Convenient and cost effective on-site testing
- Incubate at 27 to 30° C for 24-48 hours for detection of bacteria

Bene ts

- Helps prevent equipment breakdowns by detecting early signs of corrosion or contamination
- Enables on board testing

BOILER PLUS TEST KIT MO380

661 777100

Combined drop test kit for engine cooling waters and low pressure boilers. Test parameters are P Alkalinity, Chloride and Nitrite, Tannin and pH.

Features

- Compact and portable
- Suitable for LP boilers using tannin for corrosion protection and engine cooling waters utilising a nitrite based corrosion inhibitor

Accessories

Product Number	Product name
777124	P.ALKALINITY INDICATOR MPA1X2(30ML)
777125	P ALKALINITY TITRANT MPA3X2(65ML).
777050	CHLORIDE INDICATOR MBC1X2 (65 ML).
777051	CHLORIDE TITRANT MBC2X2 (65 ML).
777121	NITRITE INDICATOR MN1X2 (65ML).
777122	NITRITE TITRANT MN2X2 (65ML).
777101	TANNIN.INDICATOR MO381 MTN1 (2X50G)
777102	TANNIN.TITRANT MO382 MTN2 (2X65 ML)
777987	UNVERSAL INDICATOR SOLUTION
777049	PLASTIC SYRINGE 2ML 2MLSYR.
777093	20ML FILTER SYRINGE MO369.
778113	TITRATION JAR 40ml
766416	10 ML TEST TUBE

CONDUCTIVITY METER PEN MODEL

661 607801

Low cost, waterproof hand-held Conductivity/TDS meter.

Features

- Dust tight
- Waterproof
- Thermometer function

Accessories

Product Number	Product name
736637	Spare conductivity electrode
568683	STANDARD COND SOLN
568691	COND NEUTRALISING SOLN

PH METER PEN MODEL

661 607800

Low cost, waterproof hand-held pH meter for the measurement of pH in a range of water samples.

Features

- Dust tight
- Waterproof
- Included pH calibration reagents
- Thermometer function included

Accessories

Product Number	Product name
736629	Spare pH electrode
729632	PH BUFFER 7 & 10 REPLACEMENT PACK
766412	pH ELECTRODE STORAGE SOLN. 100ML

MD 100 POOLCONTROL 6IN1

661 768129

The MD 100 PoolControl 6in1 Photometer is a portable handheld instrument designed for the testing of Pool and Spa waters. Simple button layout and robust waterproof design make them easy to use and ideal for testing pool waters. With a large backlit display they are also suitable for use in the Plant Room. The units supply accurate, reproducible results using high quality interference lters with long-life LEDs as a light source. Tests are conducted using tablet reagents which give long-term stability. Test results are automatically stored with time and date for later review.

Contents

- Instrument in carrying case
- 4 Micro batteries (AAA)
- 3 Round vials (Glass) with lids
- Tablets reagents
- Crushing / Stirring Rod
- Guarantee sheet
- Certi cate (COC)
- Instruction manual

Technical data

Test Ranges:

- Chlorine 0-6.0 mg/l
- pH Value 6.5-8.4
- Alkalinity Total 5-200 mg/l
- Ca Hardness 0-500 mg/l
- Bromine 0.05-13 mg/l
- Cyanuric Acid 2-160 mg/l

Ordering information

Product Number	Product name
768129	MD100 POOLCONTROL 6IN1

Accessories

Product Number	Product name
777934	CHLORINE DPD NO 1 (FREE) 250 TESTS
777935	CHLORINE DPD NO.3(TOTAL)(250 TESTS)
777936	PHENOL RED(PH) (250 TESTS)
778207	M ALKALINITY PHOTOMETER TABLETS
778209	CA HARDNESS PHOTOMETER TABLETS
778211	CYANURIC ACID PHOTOMETER TABLETS
778141	MAXIDIRECT TEST CELLS(5 PCS)
736645	MAXIDIRECT VERIFICATION SET.
778648	PLASTIC STIRRING RODS (10)

POOLCHECK 6 IN 1 TEST KIT 6 PCS.

661 767020

The Poolcheck 6 in 1 test kit provides simple testing for the most popular pool and spa water treatment parameters. The kit uses rapid dissolving tablets to give accurate reliable results quickly, and provides a simple, cost effective solution for Pool and Spa water management. Each Poolcheck 6 in 1 test kit comes in a robust case and includes the Poolcheck unit, accessories, reagents for 20 tests and instructions.

Features

- The tests are fast, accurate and simple.
- Ready to use, no preparation or calibration needed.
- Utilises rapid dissolving tablets that reduces the risk of operational errors

Directions for use

The Poolcheck 6 in 1 test kit contains tests for the following parameters:

- Chlorine - 0,5 – 5,0 mg/l
- pH value 6,8 – 8,2
- Calcium hardness 100 – 200 mg/l
- Total alkalinity 25 – 200 mg/l
- Cyanuric acids 20 – 100 mg/l
- Acid demand

ECOSCAN CONDUCTIVITY METER MO347

661 777079

Ecoscan CON 6 TDS Meter and probe.
Compact, portable meter for testing boiler water, condensate water and enginge cooling water.

Features

- Multi-Point Push-button Calibration (up to 5 points) with ±1% full scale accuracy
- Automatic or Manual Calibration - for quick, easy calibration; use automatic mode with preset calibration points at most popular values or manually set values in the manual mode for more exibility
- Automatic Temperature Compensation (ATC) for the optimum accuracy under uctuating temperatures
- Hold Function momentarily freezes reading for easy viewing
- Auto-Power Off saves battery power after non-use
- Protective Rubber Boot shields meter from drops and features a sturdy built-in stand for easy bench-top operation

Accessories

Product number	Product name
777091	Spare Conductivity probe
568683	STANDARD COND SOLN
568691	COND NEUTRALISING SOLN

ECOSCAN.PH6 METER & ELECTRODE MO348

661 777080

Features

- Multi-Point Calibration (up to 3 points) with Auto-Buffer Recognition - choice of USA, NIST or pure water buffer standards with ±0.01 pH accuracy
- Automatic Temperature Compensation (ATC) for the highest accuracy under uctuating temperatures
- Hold Function momentarily freezes reading for easy viewing and recording
- Auto-Power Off saves battery power after non-use
- Large Custom LCD provides optimum viewing even at a distance
- Protective Rubber Boot shields meter from accidental knocks and features a sturdy built-in stand for easy bench-top operation

Accessories

Product number	Product name
777098	Spare pH eletrode and lead
777152	Spare Temperature probe and lead
777087	pH7 Buffer Solution 125ml
777088	pH10 Buffer Solution 125ml
766412	pH ELECTRODE STORAGE SOLN. 100ML

CHLORINE/BROMINE CHECKIT KIT

661 777074

A comparator type test kit for the measurement of free chlorine and bromine levels in potable water, waste water and pools and spas.

Range: 0.2 to 8ppm.

Accessories

Product Number	Product name
777934	CHLORINE DPD NO 1 (FREE) 250 TESTS

HR TOTAL HARDNESS TEST KIT

661 755775

Water hardness is caused by the presence of calcium and magnesium salts. High levels of hardness prevent the formation of lather with soap, and can cause scaling in water systems, particularly steam boilers, engine cooling systems and fresh water pipework. Hardness is an important control test in a wide variety of applications. The Total Hardness Test provides a simple method of checking water hardness over the range 5 - 500 mg/l.

Note

1. This test measures total hardness, i.e. the total content of calcium and magnesium ions in the water.
2. The expression of hardness results is normally expressed as mg/l CaCO3 (calcium carbonate). This is a convention to allow the comparison of different results and does not necessarily indicate that the hardness is present in the water in only the calcium form.

Accessories

Product Number	Product name
755779	HR TOTAL HARDNESS TABLETS PCK(250)

LR HARDNESS KIT DROP TEST 4-100 PPM

661 778114

The Low Range Hardness Drop Test is a quick and simple method to test the levels of Hardness in water samples from Engine Cooling Systems, Boiler Feed Water, Evaporator Supply Water and Pools and Spas.

Features

- Easy to use
- Small disposable kit
- Can be used on a wide range of water samples

PLASTIC STORAGE CABINET

663 773159

An affordable and versatile storage cabinet. The cabinet has reinforced doors and back plate and can easily be mounted on the wall via the four mounting holes on the back plate.

The cabinet comes empty with a middle shelf. A padlock can be added and used to lock the cabinet when samples are stored in the cabinet. If the cabinet is used for storing Water and/or Fuel Oil Test Kits.

Ordering information

Product number	Product name
773159	TEST KIT STORAGE CABINET

Further Technical Data

Length	71 cm
Width	33 cm
Height	71 cm
Weight	8,2 kg

MAXIDIRECT PHOTOMETER MO402.

661 777180

A hand held spectrophotometer that can be used to produce a wide range of accurate water tests. This instrument offers a unique ability in that it can be used, dependent upon parameter, with liquids, powders, tablets, or powder sachets. It operates a six lter system for greater accuracy and uses a LED light source, keeping power consumption low.

Features

- Uses tablets, powder packs, liquids or vials
- Wide range of test parameters
- Reproducible results
- Results displayed as ppm (mg/l)

Accessories

Product number	Product name	Contents
777180	MaxiDirect Photometer	
777179	Chloride test pack 0 to 32ppm (100 tests)	Chloride Reagent A, Chloride Reagent B
777181	Phosphate test pack 0 to 80 ppm (100 tests)	Phosphate Photometer 1 Reagent, Phosphate Photometer 2 Reagent.
777083	Hydrazine test pack 0 to 0.6ppm (50 tests)	Hydrazine Concentrate Soln.
777182	Iron test pack 0 to 2ppm(100 tests)	Vario Ferro Powder Sachet
777183	Copper test pack 0.05 to 5ppm (100 tests)	Copper De Chlor Tablet, Copper LR Tablet
777184	Silica test pack 0 to 1.6ppm (50 tests)	Silica Reagent 1. Silica Reagent 2, Silica Reagent 3
777073	Free Chlorine	DPD No.1 Tablets
698753	DEHA TEST TABLETS	
698761	DEHA TEST SOLUTION	
777185	AMMONIA PHOTOMETER MO407 0-1 PPM	
778141	MAXIDIRECT TEST CELLS(5 PCS)	
736645	MAXIDIRECT VERIFICATION SET.	

MOTOR SHIP TEST KIT MO246A

661 777066

Combined drop test kit for engine cooling waters and low pressure boilers. Test parameters are P Alkalinity, Chloride and Nitrite.

Bene ts

- Compact and portable
- Suitable for LP boilers and engine cooling waters

Accessories

Product Number	Product name
777124	P.ALKALINITY INDICATOR MPA1X2(30ML)
777125	P ALKALINITY TITRANT MPA3X2(65ML).
777050	CHLORIDE INDICATOR MBC1X2 (65 ML).
777051	CHLORIDE TITRANT MBC2X2 (65 ML).
777121	NITRITE INDICATOR MN1X2 (65ML).
777122	NITRITE TITRANT MN2X2 (65ML).
777049	PLASTIC SYRINGE 2ML 2MLSYR.
777093	20ML FILTER SYRINGE MO369.
778113	TITRATION JAR 40ml
766416	10 ML TEST TUBE

NITRITE FULL KIT MO248A

661 777067

Packaged drop test kit for nitrite. Suitable for testing nitrite levels in engine cooling water systems.

Accessories

Product number	Product name
777121	NITRITE INDICATOR MN1X2 (65ML).
777122	NITRITE TITRANT MN2X2 (65ML).
777124	P.ALKALINITY INDICATOR MPA1X2(30ML)
777049	PLASTIC SYRINGE 2ML 2MLSYR.

OXYGEN FULL KIT 0 - 40 PPB O2 M341

661 777060

Chemet sample tubes work by placing the ampoule into the sample and then gently breaking the end off. The correct amount of sample then gets sucked into the ampoule allowing the test to be performed quickly and accurately. Kit comes in a cardboard box and contains everything needed to perform 30 tests: Re ll, Comparator, adhesive mounting clamp, permanent mounting clamp, sampling tube, and instructions.

Features

- Premade reagent vials
- Vacuum sealed ampoules

Accessories

Product number	Product name
777059	Replacement Oxygen Ampoules (0 to 40ppb)

SALINITY TEST METER

661 778904

Hand held, waterproof Salinity Meter. The meter will measure salt (NaCl) content up to 2000ppt (parts per thousand) and temperature between 0-60C and is supplied in a protective case with with instructions.

The Salinity Meter is used to check the IMO D1 standard is for ballast water exchange. The D1 standard speci es the volume of water to be exchanged and the target salinity of the ballast water, typically >30ppt.

Features

- LCD Display
- Dust tight
- Waterproof

Further Technical Data

D1 Standard

Ships undertaking ballast water exchange should conduct it at least 200 nautical miles from the nearest land and in water at least 200 metres in depth; or in cases where the ship is unable to conduct ballast water exchange in accordance with the above, as far from the nearest land as possible, and in all cases at least 50 nautical miles from the nearest land and in water at least 200 metres depth;
Ships performing ballast water exchange, should do so with an ef ciency of at least 95% volumetric exchange of ballast water. For ships exchanging the ballast water by the pumping-through method, pumping through three times the volume of each ballast tank will be considered equivalent to meeting the 95% standard.

SULPHITE TEST KIT

661 574913

Test kit for the determination of Sulphite levels in Boilerwater.

TEST KIT FOR COOLTREAT AL

661 758904

Cooling Water Test Kit, Parameters; COOLTREAT AL CONCENTRATION, CHLORIDE & pH

Accessible sampling cocks should exist on all cooling systems for each diesel engine. This including, but not limited to, main jacket water, piston cooling, fuel oil valve, auxiliary engines, low temperature systems, etc. A representative sample must be taken from each cooling water system to be tested. To minimize the effort in obtaining cooling water samples, a sample cock located in a position to draw a sample/having access to draw the sample quickly and easily, will make the task of drawing samples simple. Before taking the sample the sampling line if present, should be thoroughly ushed with cooling water to ensure a representative sample is used for testing. In each case of drawing a sample, the container should be lled with the water to be tested, sealed and labelled. It is advisable to conduct the appropriate tests within 30 minutes of drawing the sample, although this time limit can be extended when the sample container is completely lled and sealed.

Accessories

Product Number	Product name
735738	COOLTREAT SHAKER TUBE 50ML
735761	COOLTREAT CONSUMABLES REP PACK
555698	PH PAPER F/ 309 TEST KIT
735746	COOLTREAT REAGENT REP PACK
758912	CHLORIDE TITRATION REAGENT

TITRATION.APPARATUS PACK NO 1 MO217

661 777063

Apparatus pack for the performance of boilerwater titration testing.

Features

- Enables accurate titration analysis
- Free standing auto ll burettes

Ordering information

Supplied with:
Automatic Burettes 3 x 10ml
Amber Galll Auto Burette 1 x 10ml
Burette Valves 1 pack
Stirring Rods 2 x 150mm
Polythene resevoir 1 x 250ml

TITRATION.APPARATUS PACK NO 2 MO218

661 777064

Apparatus pack for the performance of boilerwater titration testing.

Features

- Enables accurate measurement of water samples

Ordering information

Supplied with:
Plastic Measuring Cylinders 2 x 25ml
Plastic Measuring Cylinders 1 x 50ml
Plastic Measuring Cylinders 1 x 100 ml
Graduated Pipette 1 x 10ml
Stirring Rods 2 x 150mm
Porcelain Casserole 2 x 175ml
Filter Funnel 1 x 90ml

FILTER PACK, 1 CARDBOARD BOX MO213.

661 777062

Filter pack for the performance of boilerwater titration testing.

Features

- Filter pack for the clari cation of boilerwater samples

Bene ts

- Filtration enables clearer titration end point observation

Ordering information

Supplied with:
5 Boxes Whatman Filter Papers No. 1 15cm diam.
1 Box Whatman Filter Papers No. 6 15cm diam.

ALKALINITY TITRATION PACK M250.

661 777055

Titration solution and indicator for the performance boilerwater Alkalinity analysis.

Ordering information

Supplied with:
N/50 Sulphuric Acid Solution 4 x 250mls
Phelophthalein Indicator 2 x 65 ml

CHLORIDE TITRATION PACK M251

661 777056

Titration solution and indicator for the performance of boierwater Chloride analysis.

Accessories

Product Number	Product name
777050	CHLORIDE INDICATOR MBC1X2 (65 ML).

TOTAL HARDNESS TITRATION PACK M204.

661 777052

Titration solution, buffer solution and indicator for the performance of boilerwater Hardness analysis.

Ordering information

Supplied with:
N/50 EDTA Solution 2 x 250 ml
Ammonia Buffer Solution 1 x 250 ml
Total Hardness Indicator Tablets 2 x 200
Dropper bottle for Ammonia Bubber Solution 1 x 65 ml

BUNKER SAMPLER

The most common and economic means of obtaining a representative sample is by using a drip type Bunker Sampler. In back to back tests performed by a major fuel testing laboratory over an extended period, samples obtained by drip samplers were identical to those from more expensive automatic fuel samplers.

Features

- Lloyds Register approved and manufactured under strict ISO 9001:2000 quality assurance standards
- IMO MARPOL 73/78 Annex VI compliant - helps you stay within the legal requirements for bunker sampling
- Lightweight and very easy to install - obtaining a representative sample is quick and easy

Bene ts

- Complies with current regulation

Ordering information

Product number	Product name
606252	BUNKER SAMPLER 3 INCH
606253	BUNKER SAMPLER 4 INCH
606254	BUNKER SAMPLER 5 INCH
606255	BUNKER SAMPLER 6 INCH
606256	BUNKER SAMPLER 7 INCH
606257	BUNKER SAMPLER 8 INCH
606259	BUNKER SAMPLER 10 INCH

Accessories

Product number	Product name
606265	5 LITRE CUBITAINER, 24 PACK
757252	CASE OF 70 SAMPLE BOTTLES
757245	SAMPLE BOTTLE MAILER KIT (40xX)
606262	SAMPLER VALVE COVER PSA

Approvals

Lloyds Register approved and manufactured under strict
ISO 9001:2000 quality assurance standards
IMO MARPOL 73/78 Annex VI compliant

FUEL OIL TEST CABINET

663 607820

A new design, microprocessor controlled, easy to use, fast and accurate electronic instrument to determine the viscosity of lube oil at ambient temperature but corrected to 40°C.

Bene ts

- All equipment is contained in a robust, metal case that is fully lockable for safe and secure sample storage.
- Certi ed by Germanischer Lloyd, providing everything you need to ensure that your fuel samples are compliant with IMO MARPOL 73/78 Annex VI regulations.
- Replacement consumables and a full range of bunker samples are easily available through our network.

Viscometer
A new design, microprocessor controlled, easy to use, fast and accurate electronic instrument to determine the viscosity of lube oil at ambient temperature but corrected to 40°C, or heated to the standard temperature of 40°C, and for viscosity measurement of Intermediate Fuels heated to 50°C. Estimation of the combustion performance, Calculated Carbon Aromaticity Index (CCAI). Reports directly in cSt, repeat reading in one minute.

Range:

- 20 - 810 cSt @ 50°C (ISO Fuel Grades RMA 10 RML 55)
- 20 - 810 cSt @ 40°C (lube oils SAE 5 through SAE 50)

Density Meter
An easy to use, fast instrument to determine the density of a fuel. 850-1010 kg/m3 @ 15°C. Calculates the CCAI.

Compatibility Test
Compatibility and stability determination. Prediction of a fuel's sludging tendencies.

Water in Oil Test
To determine the water content 0-1%, 0-10% or 1-10000 ppm in lube and fuel oil.

TBN Test
For accurate testing of TBN (Total Base Number) in the range of 0-60.

Insolubles Test
Comprehensive Training Manual included

Accessories

Product number	Product name
Consumables:	
773156	UNITOR EASYSHIP REAGENT PACK WATER
632406	TBN REAGENT PACK
602805	WATER IN OIL REAGENT
Spare parts available for purchase:	
773158	UNITOR EASYSHIP UPGRADE PACK COMB
632414	ELECTRONIC REACTION CELL
632521	HYDROMETER HYD900-1.010
632513	HYD 850-950
632554	HYD 800-1.010
625756	SALT WATER DETERM. TEST
625749	INSOLUBLES TEST KIT

INSOLUBLES TEST

663 625749

Insolubles contamination usually comes from combustion and mainly in the form of unburned hydrocarbon. High insolubles loading will cause laquering and other undesirable effects like stiction and increased wear.

Ordering information

Supplied with:

1 pc bottle 100 ml
1 pc bottle cap
1 pc plastic stirring rod
1 pc drop bottle label
100 pcs chromatography papers
1 pc large module box
1 pc test kit manual

SALT WATER DETERMINATION TEST

663 625756

A simple qualitative test to verify if there is salt water contamination.

Ordering information

Supplied with:

1 pc salt test pads (For 25 tests)
4 pcs pipette disposable 1 ml
1 pc test tube
1 pc disposable syringe 5 ml
1 pc white closure
1 pc reagent
1 pc large module box
1 pc test kit manual

TBN TEST KIT

663 773150

The Unitor TBN (Total Base Number) Test Kit is a major advance in portable tests for oil alkalinity.

Features

- TBN digital cell
- 100 mL plastic beaker
- 10 mL disposable syringe
- Disposable plastic gloves
- TBN reagent pack
- Manual TBN test kit

Bene ts

- Easy to use
- Reliable result in a few minutes
- One reagent only (patented by Unitor)
- Non-toxic and non- ammable
- Simple cleaning with water after use

The kit gives results for crankcase and other lubricants in a very short time, normally about 5 minutes. Designed for testing lubricants with TBN up to 100. The results may be used as an in-service check of depleting TBN to the equilibrium value.

Accessories

Product number	Product name	Comments
Consumables:		
632406	TBN REAGENT PACK	
Spares parts available for purchase:		
632430	ELECTRONIC REACTION CELL	FOR TBN TESTING

HEATED VISCOSITY METER

663 773151

Small, fast and reliable. Measurements without heating (but corrected to 40°C) or heated to 40°C for lube oil viscosity and to 50°C for fuel oil viscosity.

Features

- 110-240 V AC
- Reports directly in cSt, repeat reading in one minute
- Calculation of Calculated Carbon Aromaticity Index (CCAI)
- Clear and comprehensive user instructions
- Monitors changes in lubricating oil viscosity, preventing costly engine and machinery failures
- Veri es correct fuel grade or blend has been delivered
- Checks that fuel viscosity is acceptable for storage, pumping and puri ers
- Estimates the combustion performance (CCAI) of fuel oil
- Correct density from 50°C. to kg/m^3 @ 15°C in vacuo

The Heated Oil Viscometer is suitable for measuring both fuel oil viscosity & lube oil viscosity from a wide variety of applications including diesel engines, gas and aviation turbines, gear boxes, hydraulics and fuel oils.

Testing fuel oil viscosity is important for verifying the correct grade of fuel is delivered, for calculating combustion performance, plus adjusting of fuel handling and injection systems. Viscosity of lube oil is the most important property with the correct viscosity providing optimum lm strength in system clearances, with minimum friction losses and leakage.

DENSITY METER

663 773152

A fast and reliable device to accurately determine the density of fuels from 800-1010 kg/m^3 @ 15°C (ISO Fuel Grades DMA to RML 55). Allows rapid determination of exact bunker delivery quantities.

Features

With information and the viscosity of the fuel, the Density Meter can determine:

- Mass of fuel delivered
- Calori c value
- Calculation of density at 15°C in vacuo
- centiPoise to centiStoke
- CCAI (Calculated Carbon Aromaticity Index)
- Clear instructions
- 110-240 V AC
- Easy to use with quick results
- Easy to clean

The Density Meter measures diesel and residual fuel density and con rms the quantity of fuel delivered, veri es that the correct grade of fuel has been delivered and estimates the combustion performance (CCAI), correct viscosity in cP to cSt.

The Density Meter measures fuel density using a hydrometer dropped in warmed oil. Most oils can be measured at 50ºC but for very viscous fuels and diesels the units can be set to warm to 70ºC. There is a calculator feature, which allows the reading to be adjusted to show density at 15°C in a vacuum. If the diesel and fuel viscosity is known in centiStokes or centiPoise the calculator will display the CCAI. The Density Meter uses Hydrometers to measure the fuel density and marine diesel's density corrected to kg/m^3 at 15°C.

Accessories

Product number	Product name
Spare parts available for purchase:	
632554	HYD 800-1.010
632521	HYDROMETER HYD900-1.010
632513	HYD 850-950

COMPATIBILITY TEST KIT

663 773153

The Unitor Oil Compatibility Tester is possibly the most useful and underrated tool available for testing fuel oils. This kit provides a quick and extremely useful tool for engineers faced with the necessity to mix or blend residual fuel oil.
This kit provides a quick and extremely useful tool for engineers faced with the necessity to mix or blend residual fuel oil.

Features

- Small and compact
- Completely portable
- Speci cally designed for onboard use
- Complete with guide on methods to prevent sludging

Bene ts

- Completely portable
- Results can be used to determine if pre combustion additives are required and to assess dose rate
- Easy to use
- Fast - less than ve minutes operator time
- No reagents, no glassware, disposable sample containers and No cleaning
- Con rm that the fuel delivery will remain stable in the bunker tanks
- Identify possible stability problems before mixing two fuels
- Help prevent sludge deposits, failure of fuel handling systems and costly combustion related engine damage

Accessories

Product number	Product name
Consumables:	
555771	COMPATIBILITY SAMPLE TUBE
555789	COMPATIBILITY TEST PAPER

EASY SHIP COMBINED OIL TEST KIT

663 773154

Supplied ready for use, in durable ABS cases, Unitors multi-parameter DIGI Combined Oil Test Kit
contains all of the necessary equipment and consumables for oil condition monitoring needs. The DIGI Combined Oil Test Kit from Unitor comes complete with tests for Water in Oil, Total Base Number (TBN), Salt, Insolubles and a Viscosity comparison test.

Features

- Water in oil test
- TBN test
- Insolubles test
- Salt water determination test
- Viscosity comparison test
- All necessary reagents and consumables
- Practical and clear instructions provide guidance and interpretations of test results for the complete range of tests
- The test kit comes with reagents for 25 tests

Bene ts

- Fast, accurate and reliable oil test results
- Multiple oil parameters in an easy to use, portable oil analysis kit
- Make informed on-site maintenance decisions
- Act before the onset of critical failure
- Robust and reliable for use in harsh or remote environments

Accessories

Product Number	Product name	Comments
Consumables:		
773156	UNITOR EASYSHIP REAGENT PACK WATER	
602805	WATER IN OIL REAGENT	
632406	TBN REAGENT PACK	
Spare parts available for purchase:		
773158	UNITOR EASYSHIP UPGRADE PACK COMB	
632414	ELECTRONIC REACTION CELL	FOR WATER IN OIL AND TBN TESTING
632489	VISCOSITY INDICATOR STICK	

Directions for use

When using Easy Ship Paste

Before starting the test: make sure that the inside of the cell is clean and dry (pay particular attention to the seal).

EasySHIP Test Reagent must be above 18ºc

Always start the test with the highest range selected, when in doubt about the approximate amount of water in your test oil. Overpressure can occur if an oil sample is

tested with a very high water content on the low range 0.02-1% (200-10000ppm). This can cause permanent damage to the pressure sensor.

When using Powder Reagent

Make sure the inside of the cell is clean and dry (pay particular attention to the seal).

Always start your test with the highest range, when you are in doubt about the approximate amount of water in your test oil. Overpressure can occur if you test an oil sample with a very high water content on the low range 0.02-1% (200-10000ppm). This can cause permanent damage to the pressure sensor.

Performance data

Range:	0.02-1%, 200-10000 ppm, 0-10%, 0-20%
Test Time:	2 or 3 Minutes depending on reagent
Memory:	Previous test, plus five oils
Battery Life:	Five years (10,000 tests)

EASY SHIP WATER IN OIL TEST KIT

663 773155

Maintain and protect equipment, whilst eliminating damage caused by water in oil. With an easy to read digital display providing instructions and water in oil test / analysis results, a ve year (10,000 tests) battery life and built in memory for recording previous test results, Unitor DIGI Water in Oil Test / Analysis Kits have become a favoured test method worldwide for onsite and onboard testing.
Using this cell the DIGI Water in Oil Test Kit provides state of the art, digital analysis and gives fast, accurate results for easy monitoring of trends.

Features

- Reliable test for water content: 0-1%, 0-10% or 0-10000ppm
- Short testing time: 3 min
- Good accuracy
- Reagent packs available worldwide
- The test kit comes with reagents for 25 tests

Bene ts

- Eliminates damage caused by water in lube oil which will rapidly cause severe damage to an engine, bearing or hydraulic system
- Prevents corrosion, cavitation or failure of machinery by detecting water in oil, before any damage occurs
- Minimises instability of additive packages and damaging microbe growth by monitoring oil
- Fully portable for use onboard or in the eld, test cells are extremely robust, durable and easy to use

Accessories

Product number	Product name	Comments
Consumables:		
773156	UNITOR EASYSHIP REAGENT PACK WATER	
602805	WATER IN OIL REAGENT	
Spare parts available for purchase:		
773157	UNITOR EASYSHIP UPGRADE PACK WATER	
632380	ELECTRONIC REACTION CELL	FOR WATER IN OIL TESTING

Directions for use

When using Easy Ship Paste

Before starting the test: make sure that the inside of the cell is clean and dry (pay particular attention to the seal).

EasySHIP Test Reagent must be above 18ºc

Always start the test with the highest range selected, when in doubt about the approximate amount of water in your test oil. Overpressure can occur if an oil sample is tested with a very high water content on the low range 0.02-1% (200-10000ppm). This can cause permanent damage to the pressure sensor.

When using Powder Reagent

Test kits and equipment

Oil Test Kits

Make sure the inside of the cell is clean and dry (pay particular attention to the seal).

Always start your test with the highest range, when you are in doubt about the approximate amount of water in your test oil. Overpressure can occur if you test an oil sample with a very high water content on the low range 0.02-1% (200-10000ppm). This can cause permanent damage to the pressure sensor.

Performance data

Range:	0.02-1%, 200-10000 ppm, 0-10%, 0-20%
Test Time:	2-3 Minutes depending on reagent used
Memory:	Previous test, plus five oils
Battery Life:	Five years (10,000 tests)

PLASTIC STORAGE CABINET

663 773159

An affordable and versatile storage cabinet. The cabinet has reinforced doors and back plate and can easily be mounted on the wall via the four mounting holes on the back plate.

The cabinet comes empty with a middle shelf. A padlock can be added and used to lock the cabinet when samples are stored in the cabinet. If the cabinet is used for storing Water and/or Fuel Oil Test Kits.

Ordering information

Product number	Product name
773159	TEST KIT STORAGE CABINET

Further Technical Data

Length	71 cm
Width	33 cm
Height	71 cm
Weight	8,2 kg

UNITOR BACTERIA TEST

663 764493

Unitor Bacteria Test detects the microorganisms which grow in marine oil. It is a rapid, accurate on site test which requires no special facilities, equipment or skills. The treatment indicating results are delivered in 10 minutes using pregnancy style technology. All that is required to conduct a test is a 15 mL sample of water from the tank to be tested or a 200 mL sample of fuel and water if less than 15 mL of water is available.

Features

- Only rapid onsite test with zero capital investment
- Only rapid test kit with zero set up time
- Fast, accurate and easy to read results
- Distinguishes between type of organism
- No false positives or negatives

Bene ts

- Helps you minimize the cost of managing your fuel
- Enables you to know if your fuel is in good condition
- We want you to be certain that you can trust the result

Why is the fuel contaminated?

More and more problems are seen with distillate fuels being infected by microorganisms such as bacteria, fungus and algae. The reduction of sulphur is a main reason for the increase in contamination. Sulphur acts as a natural protection against microbial growth in fuel and the more environmentally friendly fuels with low sulphur levels have the unfortunate drawback of making the fuel more hospitable for microbial growth.

A more recent contributing factor is the addition of FAME (Fatty Acid Methyl Esters) to the distillate fuels. The FAME is a biofuel component and greatly enhances the environmental pro le of the fuel but again has the drawback of increasing microbial growth in a fuel.

Fuel Hygiene

Proper fuel hygiene is becoming more and more important. Managing the water content of the fuel and make sure the water is frequently drained is important. The microorganisms need the water to be able to live and thrive. Regular testing for the presence of microorganisms is also an important part to keep contaminations at bay.

Wilhelmsen Ships Service can offer a complete solution through the new test kit together with our chemical offer. We can offer the test kit for control of fuel contamination but we can also offer the products to help you if the fuel has been contaminated. From products to sanitise the fuel by killing the microorganisms to removal of water or sludge created by the microorganisms.

Ordering information

Product Number	Product name
764493	UNITOR BACTERIA SINGLE TEST KIT

Accessories

Product type	Product number	Product name
Biocide - Fuel Sanitation	**571257**	DIESELPOWER MAR 71 25 LTR
Fuel polisher - Removes sludge	**777190**	DIESELPOWER ENHANCER 25 LTR
Demulsifier - Removes water	**778791**	FUEL POWER DEMULSIFIER 25 LTR

DOSING UNIT FOR BWT 16 BAR

664 767922

Dosing unit for BWT 16 Bar, 2.2lit/hr

The standard dosing unit consists of:

- Electronic Metering Pump
- Dosing Container
- Adjustable Suction Assembly, with Float Switch
- Dosing Tube
- Injection Valve Assembly for Hot Systems, Complete with 1 Metre Stainless Steel Pipe

Accessories

Product Number	Product name	
773184	SPARE DOSING PUMP FOR BWD16 BAR	
619643	DISCHARGE TUBE PTFE 6 X 4 5MTR.	
683706	SPARE KIT BETABOILER PUMP	Spare parts kit contains: Diaphragm Complete O-ring set Pump inlet and outlet valves Pieces for tube connections

DOSING UNIT FOR BWT 25 BAR

664 767923

Dosing unit for BWT 25 Bar, 2.9lit/hr.

The standard dosing unit consists of:

- Electronic metering pump
- Dosing container
- Adjustable suction assembly, with oat switch
- Dosing tube
- Injection valve assembly for hot systems, complete with 1 metre stainless steel pipe

Accessories

Product Number	Product name	
Refer to drawing in Documentation section		
773192	Spare dosing pump	
740698	Chemical tank	
691692	Suction assembly	
619643	Dosing tube	
L30046	Dosing connector (200C)	
683706	Pump spares pack	Spare parts kit contain: Diaphragm Complete O-ring set Pump inlet and outlet valves Pieces for tube connections

DOSING UNIT FOR EVAPORATOR TREATMENT

664 656207

Easily installed dosing equipment for evaporator water treatment.

Accessories

Product Number	Product name
656223	FLOWMETER EVAPORATOR DOSING UNIT
619619	Dosing tank 60lit PE
619643	Discharge Line PTFE 6 X 4 5mtr

Directions for use

Dosage and control
An electrical metering pump for these applications can also be supplied - Use product no. 773184 as an electrical metering pump.

SEA WATER DOSING UNIT

664 767925

Sea Water Dosing Unit. 4 bar, 12,3lt/hr.

The dosing unit consists of:

- Electronic metering pump
- Dosing container
- Adjustable suction assembly, with oat switch
- Dosing tube

Accessories

Product Number	Product name	
Refer to drawing in Documentation section		
773226	Spare dosing pump	
619619	Chemical dosing tank 60 lit.	
619718	Suction assembly	
L30065	Multi function valve	
619643	Suction tubing 5m	
L15218	Dosing tubing 25m	
619734	Injection valve	
619890	Dosing switch over unit	
683714	Pump spares pack	Spare parts kit contain: Diaphragm Complete O-ring set Pump inlet and outlet valves Pieces for tube connections

FUEL OIL TREATMENT DOSING UNIT

664 767924

Fuel Oil Treatment Dosing Unit

The standard dosing unit consists of:

- Electronic Metering Pump
- Dosing Container
- Adjustable Suction Assembly, with Float Switch
- Dosing Tube
- Injection Valve Assembly for Hot Systems, Complete with 1 Metre Stainless Steel Pipe. Max. operating temperature 200C.

PORTABLE SOOT REMOVER INJECTOR

664 572065

Equipment for blowing soot remover powder into boiler re-side or into the gas side of exhaust gas boilers. This simple, low cost injector ensures rapid and effective dosing of powder so that soot and rescale may be removed most ef ciently.

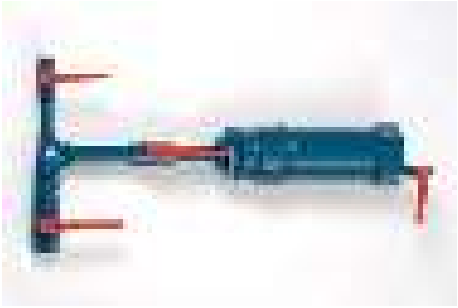
Accessories

Product number	Product name
571240	FUELPOWER SOOT REMOVER 25 KG

FIXED SOOT REMOVER INJECTOR

664 572073

Equipment for blowing soot remover powder into boiler re-side or into the gas side of exhaust gas boilers. This simple, low cost injector ensures rapid and effective dosing of powder so that soot and rescale may be removed most ef ciently.



Accessories

Product number	Product name
571240	FUELPOWER SOOT REMOVER 25 KG

MANUAL DOSING UNIT FOR SOOT REMOVER LIQUID

664 625194

Equipment for the injection of Soot Remover Liquid into the exhaust ducting.

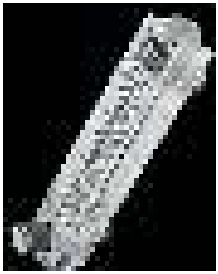
The product is nely dispersed and prevents the build-up of soot and re scale in the exhaust system and exhaust boiler. The installation and operation is fully described in the installation instructions. For installation of Soot Remover Liquid please refer to the le under the Documentation tab.

Accessories

Product number	Product name
624627	FUELPOWER SOOT REMOVER LIQUID 25 LT

FLOWMETER EVAPORATOR DOSING UNIT

664 656223



AUTOMATIC DOSING FOR SOOT REMOVER LIQUID

664 767926

Soot and exhaust deposits greatly reduce ef ciency and can ultimately lead to boiler failure. Effective control of those deposits will ensure reliable boiler operation. The Automatic Dosing Unit gives you full control at the touch of a button.

Features

- Provides automatic dosage of soot remover treatment
- Automatic shut-off when temperature becomes low
- All in one unit with programmable pump

Bene ts

- Trouble free operation, no need for you to worry if the dosage is being done
- No risk that the product will be dosed when the engine is not in operation or at optimum temperature
- Compact unit that doesn't waste valuable space for you

The Automatic Soot Remover unit can be programmed to meet all dosing requirements. The unit injects Soot Remover Liquid as a ne mist into the exhaust through a nozzle. Atomisation of the chemical is air assisted. The atomised Soot Remover Liquid is quickly evaporated and reacts with the unburned hydrocarbon which is burned into a dry ash.

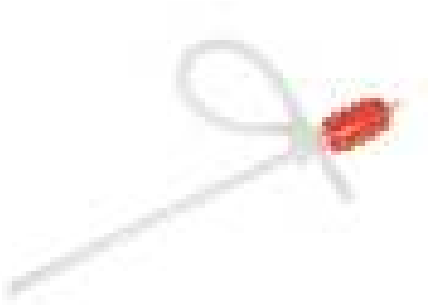
Accessories

Product number	Product name
624627	FUELPOWER SOOT REMOVER LIQUID 25 LT

SYPHON SQUEEZER

664 572024

The Syphon Squeezer has been developed to avoid cleaner spillages.



SPARES KIT FOR FUEL OIL TREATMENT PUMP

664 683722

Spares Kit for Fuel Oil Treatment Pump

Ordering information

Supplied with:

- Diaphragm
- Complete O-rings set
- Pump inlet and outlet valves
- Pieces for tube connections

JET SPRAY UNIT 10 L STE

664 572099

The Jet Spray Unit is ideal for applying Unitor Electrosolvents, Degreasers, and cleaning chemicals.

The Jet Spray Unit is supplied complete with Instantaneous Control Lance, Cone Spray Nozzle, Charge Pump, Pressure Gauge and Relief Valve (set to operate at 6 bar).

Features

- 10 L tank with carrying strap
- Spray gun and exible hose

Bene ts

- Ergonomic application of chemicals
- Safe to operate
- Fast to pressurize
- Easy to apply pre-mixed dilution

JET SPRAY UNIT 10 L STAINLESS STEEL

664 572123

The Jet Spray Unit is ideal for applying Unitor Electrosolvents, Degreasers, and cleaning chemicals. Supplied complete with Instantaneous Control Lance, Cone Spray Nozzle, Charge Pump, Pressure Gauge and Relief Valve (set to operate at 6 bar).

RECHARGEABLE SPRAYER - MODEL A

664 572156

The sensible alternative to aerosols, using compressed air instead of CFC propellants.

Features

- Environmentally safe
- Rechargeable
- Easy to maintain
- Versatile
- Economical

Suitable for Unitor products such as

- Enviroclean
- Fore and Aft
- Coldwash HD
- Uniwash
- Electrosolv-E
- Aquabreak PX

Extension piece and different nozzles available:

Pin stream
Solid pin stream pattern. For applications where "splash" coverage is preferred or deeper penetration is required (such as penetrating oil, lubricating oil, insecticide, etc. Ideal for distant or inaccessible areas. Effective range up to 20 feet.
Product no.664 572206

Fine mist
Solid cone pattern, ne density. For use with lighter liquids and applications that require extra uniformity such as mold release agents and dry cleaning uids. Product no. 664 572214

Rigid 6-inch, extension piece
Product no. 664 572230

Ordering information

SPRAY GUN 1 L

664 592568

The Unitor Spray Gun has been designed for ef cient spraying of Unitor's range of Electrosolvents and Solvents Degreasers. The adjustable nozzle allows for easy adjustment of the uid discharge from a ne spray to a solid jet.

ALARM KIT FOR BETA PUMP

664 683771

Alarmkit for dosing station.

CHEMICAL CLEANING UNIT

664 737189

The Circulation Cleaning Unit is a portable integral unit comprising mixing tank with lid, airdriven Graco Double Diaphragm 1050 stainless steel pump (product number 777991), hoses, heating element and connections. The Pump is installed inside a protective powder coated frame.

Technical data

Drum size	210 ltr
Hose length	9 m
Hose dim	1"
Inlet connector	1" (m)
Outlet connector	1" (m)

Designed for use with acid and caustic based products for descaling boilers, calori ers, heat exchangers and other types of equipment where rust and scale form. It is also ideally suited for degreasing or decarbonising contaminated systems. The unit is supplied with a 210 litre steel drum with expoxy coated interior.

The Chemical Cleaning Unit can be used in conjunction with the following Unitor chemicals:

- Descalex
- Descaling Liquid
- Disclean
- Metal Brite H.D.
- Seaclean
- Coldwash
- Enviroclean
- Alkleen Liquid
- Aquabreak PX
- Carbonclean
- ACC Plus
- Air Cooler Cleaner
- Carbon Remover
- Electrosolv-E
- Aquatuff
- Seaclean Plus
- Commissioning Cleaner
- Ultra CIP

SPARES KIT FOR OLD FUEL OIL TREATMENT DOSING STATION (GAMMA PUMPS)

664 670133

Spares Kit for Old Fuel Oil Treatment Dosing Station (GAMMA Pumps)

Ordering information

Supplied with:
Diaphragm
Complete o-rings set
Pump Inlet and Outlet valves
Pieces for Tube Connections

HYDROMETER 800-1010 KG/CBM

663 632554

Spare for the density meter with product number 773152

Ordering information

Product Number	Product name
632554	HYD 800-1.010

HYDROMETER 900-1010 KG/CBM

663 632521

Spare for density meter with product number 773152

Ordering information

Product Number	Product name
632521	HYDROMETER HYD900-1.010

DIGITAL TBN REACTION CELL

663 632430

Digital TBN Reaction Cell. Replacement cell for the TBN test kit with product number 773150.

Content

- 1pc Digital TBN Reaction Cell

Ordering information

Product Number	Product name
632430	ELECTRONIC REACTION CELL

HYDROMETER 850-950 KG/CBM

663 632513

Spare for density meter with product number 773152

Ordering information

Product Number	Product name
632513	HYD 850-950

DIGITAL WIO AND TBN REACTION CELL

663 632414

Replacement cell for the Combined test kit with product number 773154.
The Water in Oil test is the new Easy Ship test.

Content

- 1pc Digital WiO and TBN Reaction Cell; Easy Ship

Ordering information

Product Number	Product name
632414	ELECTRONIC REACTION CELL

TBN REAGENT REPLACEMENT PACK

663 632406

TBN Reagent Replacement Pack for TBN test kit with product nr 773150.

Ordering information

Product Number	Product name
632406	TBN REAGENT PACK

Further Technical Data

Supplied with:

TBN Reagent	500 ml
10 mL syringe	3 pcs
Gloves	100 pcs

UNITOR EASYSHIP REAGENT PACK WATER.

663 773156

Our latest test kit technology with a reagent for Water in Oil testing that is no longer classi ed for transport.
This replacement pack is for:

- Water in Oil test kit product number 773155.
- Combined test kit product number 773154.

The new reagent is a paste instead of the old type powder and this means that the new kit will not have any transport restrictions. This new Water in Oil reagent can be air freighted and that is why it carries the name EASYSHIP.

Ordering information

Product Number	Product name
773156	UNITOR EASYSHIP REAGENT PACK WATER

Further Technical Data

Supplied with

Reagent B	50 paste holders
Reagent S	2 x 500 ml
5 ml syringe	3 pcs
1 ml syringe	3 pcs
Agitator	1 pc
Tweezer	1 pc
Safety Data Sheet	1 pc

UNITOR EASYSHIP UPGRADE PACK WATER.

663 773157

Replacement cell for the new EASY SHIP Water in Oil test kit. If you have an older type of test kit this upgrade pack will give you the bene ts of the Easy Ship test kit.

Upgrade pack content

- 2 pcs Unitor Reagent S
- 1 pc Unitor Combined DIGI Cell
- 1 pc EasySHIP Test Agitator (Pack of 3 agitators)
- 2 pcs EasySHIP WIO Test Reagent (Good for 50 tests)
- 3 pcs 5 mL Disposable Syringe
- 1 pc SDS Reagent S
- 1 pc SDS EasySHIP Test Reagent
- 1 pc DIGI Combined Manual

UNITOR EASYSHIP UPGRADE PACK COMB.

663 773158

Replacement cell only for the new EASY SHIP Combined test kit. If you have an older type of test kit this upgrade pack will give you the bene ts of the Easy Ship test kit.

Upgrade pack content

- 1 pc Unitor Combined Water and TBN DIGI Cell
- 1 pc EasySHIP Test Agitator (Pack of 3)
- 2 pcs Unitor Reagent S (for 50 tests)
- 2 pcs EasySHIP WIO Test Reagent (for 50 tests)
- 3 pcs 5 mL Disposable Syringe
- 1 pc Safety Data Sheet Reagent S
- 1 pc Safety Data Sheet EasySHIP Test Reagent
- 1 pc Combined Water & TBN Instruction Manual

DIGITAL WIO REACTION CELL

663 632380

Replacement cell for the Water in Oil test kit. This is the new Easy Ship cell.

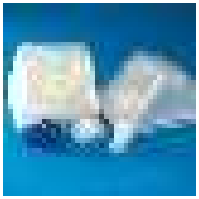
Content

- 1 pc Digital WiO Reaction Cell; Easy Ship

5 L CUBITAINER PACK

663 606265

Drip sampler uses disposable cubitainers. These hold the oil sample before mixing and transfer to the sample bottles. The cubitainer keep out all external contaminations. 5 L Cubitainer Pack for sampling oil with the Bunker Samplers.



Ordering information

Product number	Product name
606265	5 LITRE CUBITAINER, 24 PACK

Further Technical Data

Content:

Cubitainers	24 pcs
Pourer Spout	1 pc
Pourer Box	1 pc
Tamper Evident Cap	5 pcs

CASE OF 70 SAMPLE BOTTLES

663 757252

Case of 70 x 750 mL sample bottles

Features

- 750 mL content and stronger than previous bottle
- More secure, possible to seal a second time for further forwarding of untempered sample
- Numbered tamper evident caps

Bene ts

- Compliance with upcoming legislation changes

Recent legislation has pushed shipping into unchartered waters and further changes are undoubtedly on their way.

Unitor has now redesigned the fuel sample bottle pack and mailer kits to assist with compliance to current legislation and prepare for forthcoming legislation.

Focusing solely on a new 750 mL square bottle which is stronger and offers increased security Unitor's new sample bottle packs contain bottles, numbered tamper evident caps and free MARPOL approved labels.

Ordering information

Product number	Product name
757252	CASE OF 70 SAMPLE BOTTLES

Further Technical Data

Content:

Sample Bottles	70 x 750 ml
Numbered Tamper Edvident Caps	72 pcs
MARPOL Approved Sample Labels	80 pcs

WATER IN OIL REAGENT REPLACEMENT PACK

663 602805

Water in Oil Reagent Replacement Pack for Water in Oil test kit product number 773155 and Combined test kit product number 773154.

Ordering information

Product Number	Product name
602805	WATER IN OIL REAGENT

Further Technical Data

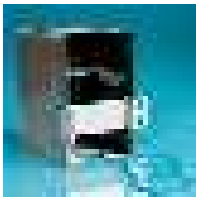
Supplied with:

Reagent B	50 sachets
Reagent S	2x500 ml
5 mL syringe	3 pcs
Scissors	1 pc
Gloves	100 pcs

SAMPLER VALVE COVER PSA

663 606262

Sampler Valve Cover PSA



Ordering information

Supplied with:

1 pc Lock
24 pcs tamper-evident locks

SAMPLE BOTTLE MAILER KIT

663 757245

The 40 x 750 mL Bottle Mailer Kit contains 10% more bottles, extra sample capacity for laboratory re-tests in the case of dispute or test errors, increased security and free MARPOL approved labels.

Features

- 750 mL content and stronger than previous bottle
- More secure, possible to seal a second time for further forwarding of untempered sample
- Numbered tamper evident caps

Bene ts

- Compliance with upcoming legislation changes

Recent legislation has pushed shipping into unchartered waters and further changes are undoubtedly on their way.

Unitor has now redesigned the fuel sample bottle pack and mailer kits to assist with compliance to current legislation and forthcoming legislation.

Focusing solely on a new 750 mL square bottle which is stronger and offers increased security, Unitor's new sample bottle packs contain bottles, numbered tamper evident caps and free MARPOL approved labels.

Ordering information

Product number	Product name
757245	SAMPLE BOTTLE MAILER KIT (40xX)

Further Technical Data

Content:

Sample Bottles	40 x 750 ml
Tamper Evident Caps	40 pcs
IATA Approved Mailer Boxes	12 pcs
MARPOL Approved Sample Labels	45 pcs

COMPATIBILTIY TEST PAPER

663 555789

Compatibiltiy Test Paper for the Compatibility Test Kit, 773153

Ordering information

Product number	Product name
555789	COMPATIBILITY TEST PAPER

Accessories

This product is an accessory for the following test kit:

Product number	Product name
773153	UNITOR COMPATIBILITY TEST KIT

Further Technical Data

Number Supplied	100 pcs

COMPATIBILITY SAMPLE TUBE

663 555771

Compatibility sample tubes for the Compatibility Test kit, 773153

Ordering information

Product number	Product name
555771	COMPATIBILITY SAMPLE TUBE

Accessories

This product is an accessory for the following test kit:

Product number	Product name
773153	UNITOR COMPATIBILITY TEST KIT

Further Technical Data

Number Supplied	25 pcs

Wilhelmsen Ships Service

FIRE PROTECTION

Compliant with all relevant international standards our range of re protection equipment includes; re extinguishers, hoses, re system products and smoke detectors.

PORTABLE FIRE EXTINGUISHERS - CARTRIDGE OPERATED

We offer you a complete Unitor range of standard and specialist portable re extinguishers. Whether you require cartridge operated or stored pressure our range covers the standard requirements of the majority of marine regulations. Also included are specialist application extinguishers for fat res and metals which increase your safety levels and extend your re ghting plan.

Features

- Improved re ghting capabilities
- Stored pressure or cartridge operated
- Capacity range 5-12 kg
- Long lasting steel extinguishers
- CO_2, foam, dry powder or water options

Bene ts

- We offer higher re rating levels of re ghting mediums to ght res quicker and safer to reduce your damage costs
- Whether meeting regulation or extending your re ghting capability we give you a exible range of options dependant on your requirements
- Our extinguishers are designed for ease of use offering you the unique feature of hoses with ow control valves giving you greater accuracy while ghting res
- Our 2mm thick steel extinguisher cases with coatings provide longer product life in the marine environment

Now available with 5 Year Cylinder Body Warranty

Spare charges regulations

- Spare charges shall be provided for 100% of the rst ten extinguishers and 50% of the remaining re extinguishers capable of being recharged on board. Not more than sixty total spare charges are required. Instructions for recharging shall be carried on board

Ordering information

Product Number	Product name	EDP W/ Brkt	Discharge Time (Sec)	Discharge pressure (Bar)	Discharge Range (mtr)	Ht x Dia (mm)	Rating	Operating Temp (C)
ABC POWDER EXTINGUISHERS								
766994	12 Kg Powder	766993	26	14.2	4	730x180	55A-233B-C	-30 to+60
766990	9 Kg Powder	766989	23	15	4	640x180	43A-233B-C	-30 to+60
766988	6 Kg Powder	766987	17	13	4	500x180	34A-233B-C	-30 to+60
WATER AND FOAM EXTINGUISHERS								
766984	9 Lt Foam	766983	43	11.2	4	640x180	27A-233B	+5 to +60
766982	9 Lt Water	766981	43	11.2	4	500x180	27A	+5 to +60

Product Number	Product name	EDP W/ Brkt	Discharge Time (Sec)	Discharge pressure (Bar)	Discharge Range (mtr)	Ht x Dia (mm)	Rating	Operating Temp (C)
SPECIAL APPLICATIONS								
763870	6 Lt Fat Fires	766980	31	11.2	3	500x180	13A-144B-75F	+5 to +60
764043	9 Lt Foam Low Temp	756197	31	11.2	4	640x180	27A-233B	-10 to +60
657957	6 Kg Metal Fires	766996	17	11.2	1	640x180	D	-30 to+60

Accessories

Product Number	Product name	EDP W/Brkt	EDP Spare Cartridge	EDP Fighting Medium	EDP Marine Bracket	EDP Valve Seal
ABC POWDER EXTINGUISHERS						
766994	12 Kg Powder	766993	668251	668319	711416	667584
766990	9 Kg Powder	766989	668244	668293	711416	667584
766988	6 Kg Powder	766987	668236	668285	711416	667584
WATER AND FOAM EXTINGUISHERS						
766984	9 Lt Foam	766983	668178	736579	711416	667584
766982	9 Lt Water	766981	668178		711416	667584
SPECIAL APPLICATIONS						
763870	6 Lt Fat Fires	766980	668178	736579	711416	667584
764043	9 Lt Foam Low Temp	756197				
657957	6 Kg Metal Fires	766996	759894	759902	711416	667584

Approvals

STORED PRESSURE EXTINGUISHERS

Our Unitor range of stored pressure re extinguishers contains high levels of re ghting mediums, provides higher re ratings, easier re ghting capability and increased levels of user safety.

Features

- Higher re ratings
- Safer re ghting
- High quality material and nish & with clear gauges
- Capacity range 2 - 12 Kg

Bene ts

- Our re extinguishers boast high levels of Mono ammonium phosphate powders giving you quicker re ghting capability even on electrical res up to 35Kv
- Our higher than normal industry standard burst pressure for the cylinder and hose safeguards you when re ghting
- A long life and low maintenance costs are assured as our extinguishers are manufactured from 2mm thick steel, shot blasted, polyester coated with a non rusting safety pin

Now available with 1 Year Cylinder Body Warranty

Spare Stored Pressure Extinguisher regulations

- For re extinguishers which cannot be recharged on board, additional portable re extinguishers of the same quantity, type, capacity and number be provided for 100% of the rst ten extinguishers and 50% of the remaining re extinguishers. Not more than sixty total spare extinguishers are required.

Ordering information

Product Number	Product name	EDP For Bracket	Discharge Time (Sec)	Discharge pressure (Bar)	Discharge Range (mtr)	Ht x Dia (mm)	Rating	Operating Temp (C)
ABC POWDER EXTINGUISHERS								
743104	12 Kg Powder	743112	18	13.5	4.5	630x198	55A-233B-C	-20 to+60
739508	9 Kg Powder	739516	26	13.5	4.5	587x218	43A-233B-C	-20 to+60
671594	6 Kg Powder	671909	16	13.5	4.5	530x190	34A-233B-C	-20 to+60
755322	3 Kg Powder	N/A	15	12	4.0	380X105	13A-89B-C	-20 to +60
CO2 EXTINGUISHERS								
667535	5 Kg CO2	668111	12	169	N/A	930x140	89B	-30 to+60
FOAM EXTINGUISHERS								
777836	9 Lr Foam	739516	44	14	4.5	597x218	27A-233B	+5 to +60

Accessories

Product Number	Product name	EDP For Bracket	EDP Fighting Medium	EDP Valve Seal
ABC POWDER EXTINGUISHERS				
743104	12 Kg Powder	743112	668319	674275
739508	9 Kg Powder	739516	668293	674275
671594	6 Kg Powder	671909	668285	674275
CO2 EXTINGUISHERS				
667535	5 Kg CO2	668111	N/A	667824
FOAM EXTINGUISHERS				
777836	9 Lr Foam	739516	777838	674275

Approvals

This re extinguisher is certi ed according to Directive 96/98 EC on Marine Equipment. It complies with European standard EN 3 and is one of the highest performance devices in its category.

WHEELED EXTINGUISHERS

Where you have high risk locations with limited access our range of wheeled extinguishers allows you to ght res from a longer distance. Wheeled extinguishers provide you with the ability to easily and quickly move high capacity extinguishers closer to the re.

Features

- Higher re ratings
- Easier re ghting capability
- Safer re ghting
- High quality material and nish

Bene ts

- Our re extinguishers boast high levels of mono ammonium phosphate giving you quicker re ghting capability even on electrical res up to 35KV
- Long and non kinking hose with opening tap equips you with a direct and better control to ght re
- Our higher than normal industry standard burst pressure for the cylinder and hose safeguards you when re ghting
- A long life and low maintenance costs are assured as our extinguishers are manufactured from 2mm thick steel, shot blasted, polyester coated with a non rusting safety pin

Now available with 5 Year Cylinder Body Warranty

Ordering information

Product Number	Product name	Discharge Time (Sec)	Discharge pressure (Bar)	Discharge Range (mtr)	Hose Length (mtr)	Rating	Operating Temp (C)
ABC POWDER EXTINGUISHERS							
755348	25 Kg STP Powder	62	15	6	1.5	55A-233B-C	-30 to+60
767928	25 Kg Powder	25	15	8	3.5	A-IIB-C	-30 to+60
609735	50 Kg Powder	35	13.6	10	5	A-IVB-C	-30 to+60
WATER AND FOAM EXTINGUISHERS							
667386	135 Lt Foam	90	18	14	5	A-B	+5 to+60
667378	45 Lt Foam	90	16.4	14	5	A-IVB	+5 to +60
CO2 EXTINGUISHERS							
767930	20 kG CO2	49	176	3	5	144B	-30 to+60
767929	9 Kg CO2	16	169	4	5	113B	-30 to+60

Accessories

Product Number	Product name	EDP Spare Cartridge	EDP Fighting Medium	Seal Ring
ABC POWDER EXTINGUISHERS				
609735	50 Kg Powder	668335	674317 x 2	667766
767928	25 Kg Powder	668327	674317	667584
755348	25 Kg STP Powder	N/A	674317	674275
WATER AND FOAM EXTINGUISHERS				
667386	135 Lt Foam	668202	668228	667758
667378	45 Lt Foam	668194	668210	667766
CO2 EXTINGUISHERS				
767930	20 kG CO2	N/A	N/A	N/A
767929	9 Kg CO2	N/A	N/A	N/A

Approvals

This re extinguisher is certi ed according to Directive 96/98 EC on Marine Equipment as well as China Classi cation Society.

Approved to EN1866 standards

CABINET FOR FIRE EXTINGUISHER 6 TO 9 KG

295 766827

This top of the range cabinet allows you to store any type of re extinguishers ranging from 6 kg to 9 kg.

They are manufactured from PE, an environmentally friendly product, which you can recycle.

Features

- Polycarbonate windows
- Can be wall of oor mounted
- Plastic hinges and door catch
- Rubber door seal for additional protection

Bene ts

- Windows allow equipment to be checked quickly without the need to remove it from the cabinet
- You can wall or oor mount these cabinets to suit your storage availability
- The plastic hinges and door catch give a longer life than traditional steel
- The rubber door seal gives you additional protection against moisture and dusts

Technical Data

Length	253 mm
Width	320 mm
Height	700 mm

Ordering information

Product Number	Product name
766827	CABINET FOR FIRE EXTINGUISHER

CABINET FOR FIRE EXTINGUISHER 5 TO 9 KG

295 723064

This re extinguisher cabinet gives you storage for a wide range of extinguisher sizes in a tough red polystyrene box with quick and easy opening.

It is impact resistant making it ideal for external storage in high traf c places.

Features

- For all 6 to 9 kg powder and water extinguishers, and 5 kg CO_2 extinguishers
- Simple push button opening
- 316L marine grade hinges and rivets
- Impact resistant and anti UV treated

Bene ts

- Flexible storage option for a wide range of extinguisher types and sizes
- Easy push button opening is also secured with a tamper proof tag which is easily broken in an emergency
- Hinges and locks are 316L standard for effective resistance to saline and chemical corrosion giving you long product life
- It is impact resistant, has anti UV protection and is impervious to rain and spray cleaning so you can store externally in high traf c areas

Technical Data

Length (mm)	270
Width (mm)	400
Height (mm)	840

Ordering information

Product Number	Product name
723064	CABINET F/FIRE EXTINGUISHER

FIRE BLANKET 120 X 180 CM WALL MOUNTED

394 756130

Our Unitor re blanket is speci cally designed and manufactured to the new European standards. When you remove it from the container you can either use it as a shield for protection or for placing over the ames to smother them.

Features

- Easy installation
- Multi use
- Tough outer cover
- Easy to deploy

Bene ts

- Easy to install on most walls ensures it is accessible when needed
- Multiple use applications from smothering ames to offering you protection
- Tough highly visible outer cover ensures it is stored correctly until needed
- Simply pull the tabs to deploy

Ordering information

Product Number	Product name
756130	FIRE BLANKET 120 X 180

FIRE EXTINGUISHER SPARES

A complete range of Unitor cartridges and charges to ensure that your re extinguishers remain operational and compliant. Suitable for Unitor's cartridge operated water and foam type extinguishers

Features

- High quality material and nish

Bene ts

- Easy to replace and store
- Coated with zinc primer, the cartridges have long product life and require minimal space for storage on your vessel
- You only need minimal technical knowledge to replace cartridges or charges

Spare charges regulations

- Spare charges shall be provided for 100% of the rst ten extinguishers and 50% of the remaining re extinguishers capable of being recharged on board. Not more than sixty total spare charges are required. Instructions for recharging shall be carried on board.

Spare Stored Pressure Extinguisher regulations

- For re extinguishers which cannot be recharged on board, additional portable re extinguishers of the same quantity, type, capacity and number be provided for 100% of the rst ten extinguishers and 50% of the remaining re extinguishers. Not more than sixty total spare extinguishers are required.

Ordering information

Product Number	Product name	Used in Extinguishers
668178	CO2 CARTRID.60G F/E9/E9A1	766984 - 766982 - 766981 - 763870 - 766983
668194	CO2 CYLINDER 450G F/E45A2	667378
668202	CO2 CYLINDER 2KG F/E135A2	667386
668236	CO2 CARTRIDGE 120G F/P6P	766988 - 766987
668244	CO2 CARTRIDGE F/P6/P9P	766990 - 766989
668251	CO2 CARTRIDGE F/P12/P12P	766994 - 766993
668327	CO2 CARTRIDGE 450G	755348 - 767928
668335	CO2 CYLINDER 900G F/P50, P50P	609735
Foam Refills		
736579	AFFF FOAM CHARGE 90ML FOR E9A1EV	766984 - 763870
668228	AFFF FOAM CHARGE F/E135A2	667386
668210	AFFF FOAM CHARGE F/E45A2	667378
Powder Refills		
668285	ABC POWDER 6 KG	All powder extinguishers
668293	ABC POWDER 9 KG	766990 - 766989
668319	ABC POWDER 12KG	766994 - 766993
674317	ABC POWDER 25KG	755348 - 767928 - 609735

Product Number	Product name	Used in Extinguishers
Brackets		
668111	MAR BRACKET W/STRAP F/U5C	667535
711416	UNIVERSAL BRACKET F/P6/P6P/P9P/	657957 - 766994 - 766984 - 766990 - 766988 - 766982 - 763870
739516	MARINE BRACKET F/PP9P	739508
743112	MARINE BRACKET F/PP12P	743104

NORWEGIAN COUPLINGS

A comprehensive range of Unitor hose sockets, and male and female couplings suited for re ghting equipment. Made of aluminium alloy, they are light weight and robust, providing you with a corrosion proof and maintenance free, long lasting product.

Features

- Standard connections
- Aluminium alloy ttings
- Nominal 1, 1/2, 2, 2 1/2 inch sizes

Bene ts

- Standard connections makes our couplings easily compatible with your on board re ghting equipment
- Our couplings and hose sockets come with standard thread sizes and socket diameters making connections an easy process

Ordering information

Product Number	Product name
233908	NOR-1 CPL W/2" FEMALE THREAD
790593	NOR-1 CPL W2¢" FEMALE THREAD
233940	NOR-1 CPL W/2" MALE THREAD
233882	NOR-2 CPL W/1 ¢ INCH HOSE SOCKET
233841	NOR-2 CPL W/2'' HOSE SOCKET
233916	NOR-2 CPL W/2" FEMALE THREAD
233957	NOR-2 CPL W/2" MALE THREAD

Accessories

Product Number	Product name
527697	NOR COUPLING SPANNER
527671	NOR-1 BLANKING CAP W/CHAIN
527689	NOR-2 BLANKING CAP W/CHAIN
If Required	
605212	BINDING MACHINE PORTABLE
605220	BIND.BRACKET F/COUPLING
758888	BINDING WIRE 1.6 MM(1KG ROL)

STORZ COUPLINGS

Unitor Storz sockets, and male and female couplings suited for re ghting equipment. Made of aluminium alloy, they are light weight and robust, providing you with a corrosion proof and maintenance free, long lasting product.

Features

- Standard connections
- Aluminium alloys tting

Bene ts

- Standard connections easily compatible with your on board re ghting equipment
- Standard thread sizes and sockets diameters make it easier to connect
- Corrosion proof, durable and maintenance free

Technical data

Storz type	C, 65, B
Nominal size	1 1/2, 2, 2 1/2 inch

Ordering information

Product Number	Product name
233890	STORZ C CPL W/1 ¢" HOSE SOCKET
233858	STORZ C CPL W/2'' HOSE SOCKET
605121	STORZ C CPL W/1¢" MALE TREAD
233965	STORZ C CPL W/2'' MALE THREAD
233924	STORZ C CPL W/2" FEMALE THREAD
607965	STORZ C CPL W/2 1/2" FEMALE THREAD
523357	STORZ GASKET F/C CPL LUG 66
523431	STORZ 65 CPL W/2'' HOSE SOCKET
523449	STORZ 65 CPL W/2 1/2'' HOSE SOCKET
523456	STORZ 65 CPL W/2'' FEMALE THREAD
605311	STORZ 65 CPL W/2¢" FEMALE THREAD
595777	STORZ 65 CPL W/2" MALE THREAD

Accessories

Product Number	Product name
Recommended	
527705	STORZ CPL SPANNER F/B,C AND 65 TYPE
523357	STORZ GASKET F/C CPL LUG 66
If Required	
605212	BINDING MACHINE PORTABLE
605220	BIND.BRACKET F/COUPLING
758888	BINDING WIRE 1.6 MM(1KG ROL)

GUARDMAN FIRE HOSE

The Unitor Guardman range of re hoses offers you a rugged and reliable product complementing your on board requirements. Speci cally designed for marine use, our long life hoses are suitable for extreme climatic and re ghting conditions. We use materials that safeguards the hoses against external damage from UV radiation and oil or commonly used chemicals.

Features

- High durability
- Easy to use
- Available with our without coupling

Bene ts

- Our hoses are made of rubber blend with circular woven polyester jacket giving you safer operations by absorbing sudden pressure increase during use
- Light weight design enables you to carry them with ease on board your vessel when ghting res
- We provide you ready to use hoses tted with standard couplings or hoses without couplings giving you the exibility to choose and t the ones suited for your re ghting equipment

Technical data

Approvals	MED, EN 14540:2004 + A1:2007
Length	Standard 15 mtr or per meter
Inner diameter	1 1/2, 2 or 2 1/2 inch
Max working pressure	15bar
Min burst pressure	45bar
Temp range	-30 C to + 75 C
Coupling	Std Norwegian, Storz or Instantaneous couplings

Ordering information

Product Number	Product name
574939	GUARDMAN FIRE HOSE 1 1/2" PER MTR
574947	GUARDMAN FIREHOSE 2" PER MTR
574954	GUARDMAN FIREHOSE 2 ¢" PER MTR

Guardman re hoses can be supplied to your desired cut lengths with a selection of couplings to suit your vessels requirements

Accessories

Product Number	Product name
If Required	

Product Number	Product name
605212	BINDING MACHINE PORTABLE
605220	BIND.BRACKET F/COUPLING
758888	BINDING WIRE 1.6 MM(1KG ROL)
Cabinets	
234799	CABINET GRP F/18M FIRE HOSE
605279	CABINET GRP F/20M FIRE HOSE
758557	CABINET GRP FOR 25MTR FIRE HOSE

Approvals

MERTEX FIRE HOSE

The Unitor Mertex range of re hoses offers you a rugged and reliable product complementing your on board requirements. Speci cally designed for marine use, our long life hoses are suitable for extreme climatic and re ghting conditions. We use materials that safeguards the hoses against external damage from UV radiation and oil or commonly used chemicals.

Features

- Extreme low temp use
- Light weight
- Available with or without coupling

Bene ts

- Our hoses are manufactured as circular woven with inner thermoplastic polyurethane lining safeguarding it against both internal and external wear even at temp as low as -50 C
- Light weight design enables you to carry them with ease on board your vessel when ghting res
- We provide you ready to use hoses tted with standard couplings or hoses without couplings giving you the exibility to choose and t the ones suited for your re ghting equipment

Technical data

Approvals	MED, EN 14540:2004 + A1:2007
Length	Standard 15,18,20 mtr or per meter
Inner diameter	1 1/2, 2 or 2 1/2 inch
Max working pressure	15bar
Min burst pressure	50bar
Temp range	-50 C to + 75 C
Coupling	Std Norwegian, Storz, Instantaneous or without couplings

Ordering information

Product Number	Product name
589580	MERTEX FIRE HOSE 1¢" PER MTR
589572	MERTEX FIRE HOSE 2" PER MTR
589564	MERTEX FIRE HOSE 2.5" PER MTR

MERTEX re hoses can be supplied to your desired cut lengths with a selection of couplings to suit your vessels requirements

Accessories

Product Number	Product name
If Required	

Product Number	Product name
605212	BINDING MACHINE PORTABLE
605220	BIND.BRACKET F/COUPLING
758888	BINDING WIRE 1.6 MM(1KG ROL)
Cabinets	
234799	CABINET GRP F/18M FIRE HOSE
605279	CABINET GRP F/20M FIRE HOSE
758557	CABINET GRP FOR 25MTR FIRE HOSE

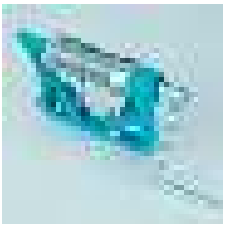
Approvals

HOSE BINDING

The hand held binding device combined with our mechanical clamping device provides a complete tool for binding couplings to our Unitor brand of re hose with diameters ranging from 25mm to 110 mm.

Our device is made of cast frame with a strip brake. A hand crank is supplied for winding the binding wire.

The hand crank allows you to adapt the clamping arrangement optimally to the coupling size. The clamping device can be easily xed on your vessels workshop standard vice with jaw of at least 75mm.



Accessories

Product Number	Product name
605212	BINDING MACHINE PORTABLE
605220	BIND.BRACKET F/COUPLING
758888	BINDING WIRE 1.6 MM(1KG ROL)

CLAMPING DEVICE FOR BINDING MACHINE

295 605220

This clamping device is used in combination with the portable binding tool used to connect couplings to the re hose with varying sizes from 25mm to 110mm diameter.

The hand crank allows you to adapt the clamping arrangement optimally to the coupling size. The clamping device can be easily xed on your vessels workshop standard vice with jaw of at least 75mm.

Ordering information

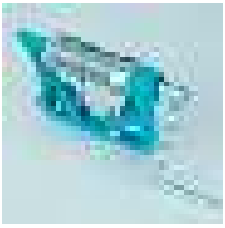
Product Number	Product name
605220	BIND.BRACKET F/COUPLING

Accessories

Product Number	Product name
605212	BINDING MACHINE PORTABLE

BINDING MACHINE PORTABLE

295 605212



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This device is made of cast frame with a strip brake. A hand crank is supplied for winding the binding wire.

Accessories

Product Number	Product name
605220	BIND.BRACKET F/COUPLING

FIRE NOZZLES

Fire nozzles provide you with the rst line of defence when ghting res. We understand this need and our Unitor range of re nozzles are designed to enhance your re ghting capability when tackling res.

Our re nozzles are dual purpose spray and jet mode, offering variable ow rates and spray angles. The nozzles are light weight, robust and incorporate minimalistic parts giving you an easy to use and maintenance free product.

Features

- Variable ow rate and spray angle
- Light weight
- Corrosion proof

Bene ts

- Variable ow rates and spray angels gives you the exibility to adjust water use as per your requirement
- Light weight enables you to carry them with ease on board your vessel when ghting res
- The use of NBR rubber for operating head and POM plastic tube body makes our nozzles corrosion proof giving you a long life product

Approvals std	EN 15182-1&3:2007 +A1:2009
Material	Nitrile butadiene rubber (NBR) & Polyoxymethylene (POM)

Ordering information

Product Number	Product name
708271	SPRAY/JET NOZZLE 12MM HS-12
708289	SPRAY/JET NOZZLE 16MM HS-16
708297	SPRAY/JET NOZZLE 20MM HS-20
737759	TURBO NOZZLE 2000 W/2" MALE THREAD

Approvals

TURBO NOZZLE 2000 WITH 2" MALE THREAD BRASS

295 737759

Unitor's Turbo nozzle features a unique design that gives you very high ow rates and also safeguards you when extinguishing res on electrical equipment up to 30Kv thus overcoming the limitation of a traditional re nozzle.

This turbo nozzle is designed to operate in spray and jet mode, with adjustable and preset marked positions for ow rates and spray angle enabling you to quickly select the levels suited to your needs.

Features

- High extinguishing effect
- Safe to use on electrical equipment res
- Unique gun shape handle design

Bene ts

- Unique fast rotating turbo wheel atomizes the water droplets giving optimal droplet size and distribution that gives faster cooling effect when ghting res.
- Your safety is ensured when ghting electrical res up to 30Kv as in full jet mode the max volume of water delivered prevents ash over
- The handle design gives you a better control for operating the nozzle making it easier for you to ght res

Technical data

Flow rate at 6bar	60-130-235 L/min
Throw distance	20-27-31mtr
Spray angle	0 - 120 degrees
Inlet connection thread	2inch male thread
Electrical re application	Min distance 5m

FOAM MONITORS AND APPLICATORS

Our range of Foam applicators cover a wide scope of operations and differing system types. Manufactured from quality materials to withstand the rigours when needed yet can be stored for long periods of time.

Features

- Variable ow rates and Admix solutions
- Suction hose versions
- Light weight
- Corrosion proof

Bene ts

- You can choose your type dependant on your admix ratio
- Your system will require whether you need a suction hose version
- Light weight enables you to carry them with ease on board your vessel when ghting res
- A complete range of Cabinets, Hoses, Couplings are available to ensure we meet your systems requirements

Please look on our website for options and further technical details

Ordering information

Product Number	Product name
Foam Monitors	
596650	Monitor Fjm-80 Din/Jis
596668	Monitor Fjm-100 Din/Jis
596676	Monitor Fjm-150 Din/Jis
Foam Applicators MLR A Type	
604991	Foam Applicator Mlr-40a
605014	Foam Applicator Mlr-40 A
605022	Foam Applicator Mlr-40 A
605030	Foam Applicator Mlr-40 Sa
605055	Foam Applicator Mlr-40 Sa
605063	Foam Applicator Mlr-40 Sa
Foam Applicators Ufa Types	
740621	Foam Applicator Ufa-400/3
740647	Foam Applicator Ufa-200/6-S3
740654	Foam Applicator Ufa-200/6-S6
740662	Foam Applicator Ufa-400/6-S3
740670	Foam Applicator Ufa-400/6-S6
Foam Spray Nozzles	
613743	Foam Spray Nozzle Us 80
613745	Foam Spray Nozzle Us 150

DECK,MACHINERY & ENGINE ROOM FOAM CONCENTRATES

Our Unitor range of Foam Concentrates gives you a wide range to choose from covering Decks,Helidecks,Engine - Machinery spaces,Monitors,Sprinklers and Foam applicators all approved to the latest Msc 1312 regulations,ICAO Level B or UL and Class.

Fluoroprotein, AFFF, and synthetic foam concentrates with Alcohol resistant variants to suit your vessels requirements.

We ensure your re system requirements are maintained through our Global maintenance plans, Foam Testing stations and spare stock support.

Features

- Available in 20Lt, 200Lt or 1,000Lt sizes
- Msc 1312,ICAO Level B,UL and Class compliant types available
- Complete range of Low, Medium,High Expansion
- Global Test, Stock and Service Support

Bene ts

- Enjoy Long shelf life for Spare Litre's to be kept onboard to ensure continuity
- Choose from a wide range of storage temperatures
- Fully documented certi cation process
- We offer Global testing of the foam concentrate and small scale re tests to support your Msc 1312 compliance

For further Technical information, Certi cates and descriptions please visit our Website;

** Also available**

- Applicators - UF/MLR
- Monitors - 80/100/150 DIN/JIS
- Foam Spray Nozzles
- Foam Stations

Ordering information

Product Number	Product name	Density	Type	Freeze Point
Universal Deck Foam Concentrates - Alcohol Resistant				
For use on both Oil & Chemical Tankers				
764987	UNIVEX.3-3% SUPER F-13 20L CAN	Low - Med	Flouroprotein	-18°C
764985	UNIVEX.3-3% SUPER F-13 200L DRUM			
778491	FOAM CONC. UNIVEX SUPER 3-3% 1000L			
764988	UNIVEX 3-6% SUPER F-15 20L CAN	Low - Med	Flouroprotein	-15°C
764986	UNIVEX.3-6% SUPER F-15 200L DRUM			
778009	UNIRAL-AR 3-3M F-8 20 LTR CAN	Low - Med	Synthetic - AFFF - AR	-13°C
778008	UNIRAL-AR 3-3M F-8 200 LTR DRUM			

Product Number	Product name	Density	Type	Freeze Point
Deck - Foam Concentrates - Oil Tankers				
778186	UNIRAL 3M F-18 20L CAN	Low - Med	Synthetic - AFFF	-18°C
592204	UNIROL 3% F-15 20L CAN	Low - Med	Flouroprotein	-15°C(NEW Lower frost point)
556084	UNIROL 3% F-15 200 L DRUM			
777696	FC AFFF 1% F-20 20L CAN.	Low - Med	Synthetic - AFFF	-25°C (NEW Lower frost point)
777695	FC AFFF 1% F-20 200L DRUM..			
777686	FC AFFF 3% F-15 20L CAN	Low - Med	Synthetic - AFFF	-15°C
777685	FC AFFF 3% F-15 200L DRUM			
777692	FC AFFF 3% F-25 20L CAN	Low - Med	Sythetic - AFFF	-25°C
777691	FC AFFF3% F-25 200L DRUM			
Engine Room - Machinery Space Foam Concentrates				
711808	FC HIGH EXPANSION 2% F-12 20L CAN	High	Synthetic	-10°C
711390	FC HIGH EXPANSION 2% F-12 200L DRUM			

Approvals

HELIDECK FOAM CONCENTRATES

The Unitor range of Helideck Foam Concentrates gives you a wide range to suit both your vessel and Foam applicator requirements.

All fully approved to ICAO and conforming to CAP437 they are suitable for both vessels and Offshore Installations.

We ensure your re system requirements are maintained through our Global maintenance plans, Foam Testing stations and spare stock support.

Features

- Available in 20Lt, 200Lt or 1,000Lt sizes
- ICAO Level B and Class compliant
- Complete range of Low, Medium,High Expansion
- Global Test, Stock and Service Support

Bene ts

- Long shelf life for Spare Litre's to be kept onboard
- Choose from a wide range of storage temperatures
- Fully documented certi cation process
- We offer Global testing of the foam concentrate and small scale re tests to ensure you comply to Msc 1312

For further Technical information, Certi cates and descriptions please visit our Website

- Also available**

Foam Station boxes

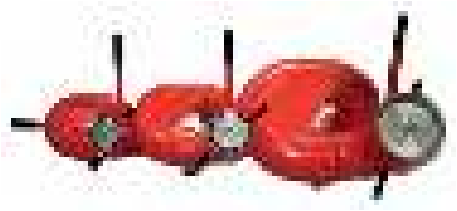
Ordering information

Product Number	Product name	Density	Type	Freeze Point
Heildeck - Foam Concentrates - Msc 1312/ICAO Level B				
778186	UNIRAL 3M F-18 20L CAN	Low - Med	Synthetic AFFF	-18°C
777696	FC AFFF 1% F-20 20L CAN.	Low - Med	Synthetic AFFF	-15°C
777695	FC AFFF 1% F-20 200L DRUM..			
777686	FC AFFF 3% F-15 20L CAN	Low - Med	Synthetic AFFF	-15°C
777685	FC AFFF 3% F-15 200L DRUM			
777692	FC AFFF 3% F-25 20L CAN	Low - Med	Synthetic AFFF	-25°C
777691	FC AFFF3% F-25 200L DRUM			
Heildeck - Foam Concentrates - ICAO Level B				
777694	FC AFFF 6% F-36 20L CAN	Low - Med **TOP UP ONLY**	Synthetic AFFF	-35°C
Applicators - Monitors - Spray Nozzles				
604991	Foam Applicator Mlr-40A	w/valve - 215LM - 3Bar		
605014	Foam Applicator Mlr-40 A	w/valve - 400LM - 3Bar		
605022	Foam Applicator Mlr-40 A	w/valve 400LM - 6Bar		

Product Number	Product name	Density	Type	Freeze Point
605030	Foam Applicator Mlr-40 Sa	w/valve & inductor/215LM/6Bar /3%		
605055	Foam Applicator Mlr-40 Sa	w/valve & inductor/400LM/6Bar/3%		
605063	Foam Applicator Mlr-40 Sa	w/va/ve & inductor/400LM/6Bar/6%		
740647	Foam Applicator Ufa-200/6-S3			
740662	Foam Applicator Ufa-400/6-S3			
740621	Foam Applicator Ufa-400/3			
740654	Foam Applicator Ufa-200/6-S6			
740670	Foam Applicator Ufa-400/6-S6			
596650	Monitor Fjm-80 Din/Jis			
596668	Monitor Fjm-100 Din/Jis			
596676	Monitor Fjm-150 Din/Jis			
613743	Foam Spray Nozzle Us 80			
613745	Foam Spray Nozzle Us 150			

Approvals

UNITOR FOAM MONITORS



The UNITOR Foam Monitor is a key part of our Low Expansion Foam Fire Extinguishing System protecting your oil and chemical tankers tank deck area, as well as your helidecks in the event of a re.

The foam monitor has a compact low weight design allowing exible installation whilst requiring a small footprint. A new high hardness bearing contributes to better rotation and improved sealing of the rotation component secures the monitor from leakage when in operation. The monitor is coated with metallic paint, ensuring good adhesion and smoothness.

Our Monitors have an improved throwing length, and wide working range enabling the foam monitor to be used in a broad working condition. Our New Range of Monitors have been tested and inspected with attendance of class surveyors, and has already been type approved by DNV, BV and RINA.

Features

- Elevation ; -60° to +90°
- Rotation ; 360
- Operation ; Manual

Bene ts

- Flexible area coverage
- High spec materials in manufacture for longer life

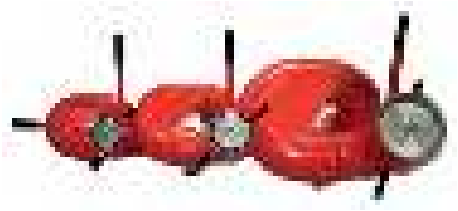
The ange dimensions and connection types (to external piping) remains unchanged (DIN PN16 /JIS 10K), making it possible to replace the current monitor for required projects.

Ordering information

Product Number	Product name	Capacity	Weight	Max Throwing length
777959	MONITOR UFM-80 DIN/JIS MANUAL.,.	3,800 Lt pm @ 16 Bar	19kg	76mt
777960	MONITOR UFM-100 DIN/JIS MANUAL	6,500 Lt pm @ 16 Bar	26kg	88mt
Materials ; Stainless Steel AISI316				

MONITOR UFM-80 DIN/JIS MANUAL

530 777959



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777960	MONITOR UFM-100 DIN/JIS MANUAL	6,500 Lt pm @ 16 Bar	26kg	88mt
Materials ; Stainless Steel AISI316				

FOAM APPLICATORS

Our Unitor range of Foam Portable Applicators give you easy handling through lighter weight material being used in their construction.

You can choose both pick up tubes or direct feed and with a standard BSP end thread to take most coupling types ensuring complete exibility standardizing on a product throughout your eet.

Features

- Stainless steel and brass body
- Light weight
- Induction capacity upto 6%
- Large area coverage

Bene ts

- Materials give a long lasting life with the added bene t of being lightweight
- 3 and 6 BAR options
- Design ensures your challenge is met quickly and ef ciently with a wide coverage range

Ordering information

Product Number	Product name	Capacity at 3 Bar	Capacity at 6 Bar	Coupling Size
740605	UNITOR Foam Applicator 3 Bar 200l	200 lt per minute		2" BSP Female
740621	UNITOR Foam Applicator 3 Bar 400l	400 lt per minute		2" BSP Female
740613	UNITOR Foam Applicator 6 Bar 200l		200 lt per minute	2" BSP Female
740639	UNITOR Foam Applicator 6 Bar 400l		400 lt per minute	2" BSP Female
Proportioning will work with most major foam mixes				
Suitable for both Newtonian and non-Newtonian pseudoplastic and thixoropic Foams				

FOAM APPLICATORS -S

Our Unitor range of Foam Portable Applicators give you easy handling through lighter weight material being used in their construction.

You can choose both pick up tubes or direct feed and with a standard BSP end thread to take most coupling types ensuring complete exibility standardizing on a product throughout your eet.

Features

- Stainless steel and brass body
- Light weight
- Induction capacity upto 6%
- Large area coverage

Bene ts

- Materials give a long lasting life with the added bene t of being lightweight
- 3 and 6 BAR options
- Design ensures your challenge is met quickly and ef ciently with a wide coverage range

Ordering information

Product Number	Product name	Proportioning	Capacity at 6 Bar	Inductor length	Coupling Size
740647	UNITOR Foam Applicator 6 Bar 200ltpm	3%	200 lt per minute	1.5mt	2" BSP Female
740662	UNITOR Foam Applicator 6 Bar 400ltpm	3%	400 lt per minute	1.5mt	2" BSP Female
740654	UNITOR Foam Applicator 6 Bar 200ltpm	6%	200 lt per minute	1.5mt	2" BSP Female
740670	UNITOR Foam Applicator 6 Bar 400ltpm	6%	400 lt per minute	1.5mt	2" BSP Female

Proportioning will work with most major foam mixes

Suitable for both Newtonian and non-Newtonian pseudoplastic and thixoropic Foams

FOAM APPLICATORS 1.5" C/W PICK UP TUBE

Our range of Low expansion foam portable applicators are designed for the user in mind. Versions include both pick up tubes or direct feed and a 1" BSP standard end thread to take most coupling types.

Features

- Stainless steel and brass body
- Light weight
- Induction capacity upto 6%
- Large area coverage

Bene ts

- Materials give a long lasting life with the added bene t of being lightweight
- 3 and 6 BAR options
- Design ensures your challenge is met quickly and ef ciently with a wide coverage range

Ordering information

Product Number	Product name	Capacity at 3 Bar	Capacity at 6 Bar	Inductor length	Coupling Size
604991	FOAM APPLICATOR MLR-40A	215 Lt per minute		1.5mt	1.5" BSP Male
605014	FOAM APPLICATOR MLR-40 A...	400 Lt per minute		1.5mt	1.5" BSP Male
605006	FOAM APPLICATOR MLR-40 A		215 Lt per minute	1.5mt	1.5" BSP Male
605022	FOAM APPLICATOR MLR-40 A		400 Lt per minute	1.5mt	1.5" BSP Male
Proportioning will work with most major foam mixes					
Suitable for both Newtonian and non-Newtonian pseudoplastic and thixoropic Foams					

FOAM APPLICATORS 1.5"

Our range of Low expansion foam portable applicators are designed for the user in mind. Versions include both pick up tubes or direct feed and a standard BSP end thread to take most coupling types.

Features

- Stainless steel and brass body
- Light weight
- Induction capacity upto 6%
- Large area coverage

Bene ts

- Materials give a long lasting life with the added bene t of being lightweight
- 3 and 6 BAR options
- Design ensures your challenge is met quickly and ef ciently with a wide coverage range

Ordering information

Product Number	Product name	Capacity at 3 Bar	Capacity at 6 Bar	Coupling Size
605030	FOAM APPLICATOR MLR-40 SA	215 lr per minute		1.5" BSP Male
605055	FOAM APPLICATOR MLR-40 SA	400 lt per minute		1.5" BSP Male
605048	FOAM APPLICATOR MLR-40 SA		215 lt per minute	1.5" BSP Male
605063	FOAM APPLICATOR MLR-40 SA...		400 lt per minute	1.5" BSP Male
Proportioning will work with most major foam mixes				

UNIVEX 3-3% SUPER-AR IN 20LT CAN

530 764987

Our UNIVEX 3x3 Super is a totally new formulated Universal foam for use on both Oil and Chemical tankers.
(FP-AR) for extinguishing ammable hydrocarbon and polar solvent liquid res at a unique 3% induction ratio.

The chemical and physical properties maintains stability for many years in hot and cold weather conditions.

UNIVEX 3-3 SUPER-AR is approved for marine applications according to the latest IMO Msc 1312

Features

- Approved to Msc 1312 and MED
- Class B Fires
- 10 Year shelf life
- Globally available in 20lt,200lt and 1,000lt

Bene ts

- Our Univex 3-3 Super-AR meets the latest Msc 1312 making it ideal for updating your vessels foam re ghting system
- Ideal for use on both your Oil and Chemical Tankers giving you eet standardisation
- Store it correctly in accordance with the manufacturers instructions or in the containers it is supplied in and generally it will have a life in excess of 10 years
- Global availability,latest IMO regulations, eet exibility and standardisation make it ideal for your future requirements

Type	Universal Flouroprotein Alcohol Resistant
Usage	Deck & Portable Applicators
Pump	Centrifugal
Density @ g/ml 20°C	1.13 ± 0.02
Viscosity 20°C mm²/S	5.0 ± 2.0
pH @ 20°C	6.0 - 8.0
Freezing Point (C°)	-18 Deg
Pour Point (°C)	<-15
Sediments, Max (%Vol)	< 0.25
Expansion	Low
Expansion ratio	>7.0
Drainage in time 25% Min:Sec	>5:00

- Environmentally friendly

Did you know Wilhelmsen Ships Service offer a range of Foam tests under Msc 1312?

Regulations require Portable Applicators where applicable to have 20lt plus 20lt Spare!!

Full details are available in the Documents tab below

Ordering information

Product Number	Product name	
764987	UNIVEX 3-3% SUPER F-13 20L CAN	
764985	UNIVEX 3-3% SUPER F-13 200L DRUM	
778491	FOAM CONC. UNIVEX SUPER 3-3% 1000L	Special Order

UNIVEX 3-3% SUPER-AR IN 200LT DRUM

530 764985

Our UNIVEX 3x3 Super is a totally new formulated Universal foam for both Oil and Chemical Tankers (FP-AR) for extinguishing ammable hydrocarbon and polar solvent liquid res at a unique 3% induction ratio.

The chemical and physical properties maintains stability for many years in hot and cold weather conditions.

UNIVEX 3-3 SUPER-AR is approved for marine applications according to the latest IMO Msc 1312

Features

- Approved to Msc 1312 and MED
- Class B Fires
- 10 Year shelf life
- Globally available in 20lt,200lt and 1,000lt

Bene ts

- Our Univex 3-3 Super-AR meets the latest Msc 1312 making it ideal for updating your vessels foam re ghting system
- Ideal for use on both your Oil and Chemical Tankers giving you eet standardisation
- Store it correctly in accordance with the manufacturers instructions or in the containers it is supplied in and generally it will have a life in excess of 10 years
- Global availability,latest IMO regulations, eet exibility and standardisation make it ideal for your future requirements

Type	Universal Flouroprotein Alcohol Resistant
Usage	Deck & Portable Applicators
Pump	Centrifugal
Density @ g/ml 20°C	1.13 ± 0.02
Viscosity 20°C mm²/S	5.0 ± 2.0
pH @ 20°C	6.0 - 8.0
Freezing Point (C°)	-18 Deg
Pour Point (°C)	<-15
Sediments, Max (%Vol)	< 0,25
Expansion	Low
Expansion ratio	>7.0
Drainage in time 25% Min:Sec	>5:00

- Environmentally friendly

Did you know Wilhelmsen Ships Service offer a range of Foam tests under Msc 1312?

Full details are available in the Documents tab below

Ordering information

Product Number	Product name	
764985	UNIVEX 3-3% SUPER F-13 200L DRUM	
764987	UNIVEX 3-3% SUPER F-13 20L CAN	
778491	FOAM CONC. UNIVEX SUPER 3-3% 1000L	Special Order

UNIVEX 3-6% SUPER-AR 20LT CAN

530 764988

Our Univex 3x6% Super is a Universl use re ghting foam liquid (Alcohol Resistant) giving you exceptionally high extinguishing capabilities, against hydrocarbons at 3% mix, polar solvents and other chemicals res at 6%.

The chemical and physical properties maintains stability for many years in hot and cold weather conditions.

UNIVEX 3-6% SUPER-AR is approved for marine applications according to the latest IMO Msc 1312.

Features

- Approved to Msc 1312 and MED
- Class B Fires
- 10 year life
- Globally available in 20lt,200lt and 1,000lt sizes

Bene ts

- Our Univex 3-3 Super-AR meets the latest Msc 1312 regulations making it ideal for updating your vessels foam re ghting system and standardising your eet
- Your Oil and Chemical Tankers can take advantage of 3-6% offering you dual use allowing you to mix to either 3% or 6% dependant on your vessels foam requirements
- Store it correctly in accordance with the manufacturers instructions or in the containers it is supplied in and generally it will have a life in excess of 10 years
- Globally availalble in 20lt,200lt and 1,000lt sizes

Type	Universal Flouroprotien Alcohol Resistant
Usage	Deck & Portable Applicators
Pump	Centrifugal
Density @ 20°C	1.12 ± 0.02
Viscosity 20°C mm²/S	4.0 ± 2.0
Recommend storage-usage Temp °C	-10 to +60
pH @ 20°C :	6.0 - 8.0
Freezing Point (°C)	-15
Pour Point (°C) :	<-12
Sediments, Max (%Vol)	< 0.25
Expansion	Low,Med
Expansion ratio	>6.5 (3%) - >7.5 (6%)
Drainage time 25% Min:Sec	>4:30 (3%) - >7:00 (6%)

- Environmentally friendly

Did you know Wilhelmsen Ships Service offer a range of Foam tests under Msc 1312?

Regulations require Portable Applicators where applicable to have 20lt plus 20lt Spare!!

Full details are available in the Documents tab below

Ordering information

Product Number	Product name
764988	UNIVEX 3-6% SUPER F-15 20L CAN
764986	UNIVEX.3-6% SUPER F-15 200L DRUM

UNIVEX 3-6% SUPER-AR 200LT DRUM

530 764986

Our Univex 3x6% Super is a Universl use re ghting foam liquid (Alcohol Resistant) giving you exceptionally high extinguishing capabilities, against hydrocarbons at 3% mix, polar solvents and other chemicals res at 6%.

The chemical and physical properties maintains stability for many years in hot and cold weather conditions.

UNIVEX 3-6% SUPER-AR is approved for marine applications according to the latest IMO Msc 1312.

Features

- Approved to Msc 1312 and MED
- Class B Fires
- 10 year life
- Globally available in 20lt,200lt and 1,000lt sizes

Bene ts

- Our Univex 3-3 Super-AR meets the latest Msc 1312 regulations making it ideal for updating your vessels foam re ghting system and standardising your eet
- Your Oil and Chemical Tankers can take advantage of 3-6% offering you dual use allowing you to mix to either 3% or 6% dependant on your vessels foam requirements
- Store it correctly in accordance with the manufacturers instructions or in the containers it is supplied in and generally it will have a life in excess of 10 years
- Globally availalble in 20lt,200lt and 1,000lt sizes

Type	Universal Flouroprotien Alcohol Resistant
Usage	Deck & Portable Applicators
Pump	Centrifugal
Density @ 20°C	1.12 ± 0.02
Viscosity 20°C mm²/S	4.0 ± 2.0
Recommend storage-usage Temp °C	-10 to +60
pH @ 20°C :	6.0 - 8.0
Freezing Point (°C)	-15
Pour Point (°C) :	<-12
Sediments, Max (%Vol)	< 0.25
Expansion	Low,Med
Expansion ratio	>6.5 (3%) - >7.5 (6%)
Drainage time 25% Min:Sec	>4:30 (3%) - >7:00 (6%)

- Environmentally friendly

Did you know Wilhelmsen Ships Service offer a range of Foam tests under Msc 1312?

Full details are available in the Documents tab below

Ordering information

Product Number	Product name
764986	UNIVEX.3-6% SUPER F-15 200L DRUM
764988	UNIVEX 3-6% SUPER F-15 20L CAN

UNIVEX 3-3% SUPER -AR 1000LT

530 778491

Our UNIVEX 3x3 Super is a totally new formulated Universal foam for use on both Oil and Chemical tankers.
(FP-AR) for extinguishing ammable hydrocarbon and polar solvent liquid res at a unique 3% induction ratio.

The chemical and physical properties maintains stability for many years in hot and cold weather conditions.

UNIVEX 3-3 SUPER-AR is approved for marine applications according to the latest IMO Msc 1312

Features

- Approved to Msc 1312 and MED
- Class B Fires
- 10 Year shelf life
- Globally available in 20lt,200lt and 1,000lt

Bene ts

- Our Univex 3-3 Super-AR meets the latest Msc 1312 making it ideal for updating your vessels foam re ghting system
- Ideal for use on both your Oil and Chemical Tankers giving you eet standardisation
- Store it correctly in accordance with the manufacturers instructions or in the containers it is supplied in and generally it will have a life in excess of 10 years
- Global availability,latest IMO regulations, eet exibility and standardisation make it ideal for your future requirements
- Environmentally friendly

Did you know Wilhelmsen Ships Service offer a range of Foam tests under Msc 1312?

Full details are available in the Documents tab below

Type	Universal Flouroprotein Alcohol Resistant
Usage	Deck & Portable Applicators
Pump	Centrifugal
Density @ g/ml 20°C	1.13 ± 0.02
Viscosity 20°C mm²/S	5.0 ± 2.0
pH @ 20°C	6.0 - 8.0
Freezing Point (C°)	-18 Deg
Pour Point (°C)	<-15
Sediments, Max (%Vol)	< 0.25
Expansion	Low
Expansion ratio	>7.0
Drainage in time 25% Min:Sec	>5:00

Ordering information

Product Number	Product name	
778491	FOAM CONC. UNIVEX SUPER 3-3% 1000L	Special Order
764987	UNIVEX.3-3% SUPER F-13 20L CAN	
764985	UNIVEX.3-3% SUPER F-13 200L DRUM	

UNIROL 3% 20LT CAN

530 592204

UNIROL 3% F-15 is a Flouroprotien foam concentrate for use on Decks and in Machinery spaces.

It is intended for use as a 3% proportioned solution either in fresh,salt or hard water. The correct proportioning ratio is 3 parts of concentrate to 97 parts of water.

UNIROL 3% F-15 is approved for marine applications according to the latest IMO Msc 1312.

Features

- Approved to Msc 1312 and UL162
- Class A+B Fires
- 10 year life
- Globally available in 20lt and 200lt sizes

Bene ts

- Approved to latest IMO regulations
- Ideal for use on Oil Tankers
- Store it correctly in accordance with the manufacturers instructions or in the containers it is supplied in and generally it will have a life in excess of 10 years
- Globally available and latest approvals make it ideal for a long term solution to your foam concentrate requirements

Technical Data

Type	Flouroprotein
Usage	Deck & Portable Applicator
Pump	Centrifugal
Density @ 20°C :	1.16 ± 0.02
Viscosity 20°C mm²/S	10.0 +/- 4.0
pH @ 20°C	7.00 ± 0.50
Recommended storage/usage Temp (°C)	-10 to +60
Freezing Point (°C)	-15
Pour Point (°C)	<-12 Deg.C
Sediments, Max (%Vol)	< 0.25
Expansion	Low
Expansion ratio	>7.0
Drainage time 25% min (Min:Sec)	>5:00

Environmentally friendly

Did you know Wilhelmsen Ships Service offer a range of Foam tests under Msc 1312?

Regulations require Portable Applicators where applicable to have 20lt plus 20lt Spare!!

Full details are available in the Documents tab below

Ordering information

Product Number	Product name
592204	UNIROL 3% F-15 20L CAN
556084	UNIROL 3% F-15 200 L DRUM

UNIRAL AR 3-3M F-8

UNIRAL AR 3-3M is a newly formulated Universal foam for use on Decks and Helidecks.
It is intended for use as a 3% proportioned solution (3% = 3lt of foam with 97lt water) on both polar solvent and hydrocarbon fuels.
UNIRAL AR 3-3M is approved for marine applications according to the latest IMO MSC/Circ. 1312

Features

- Approved to Msc 1312 and ICAO Level B
- Class A+B Fires
- 20-25 Year shelf life
- Globally available in 20lt, 200lt and 1,000Lt sizes

Bene ts

- Approved to the latest IMO regulations
- Ideal for use on Oil & Chemical Tankers
- Store it correctly in accordance with the manufacturers instructions or in the containers it is supplied it has a 20-25 Year shelf life
- Global availability and meeting latest IMO regulations makes it ideal for to meet your future requirements

Type	Synthetic AFFF-Alcohol Resistant
Usage	Deck & Helideck
Pump	Displacement/Gear Screw
Density (g/ml) at 20C	1.16 ± 0.02
Viscosity 20°C mm²/S	1800 ± 200
pH @ 20°C	7.5 ± 0.50
Recommended storage / usage temp (°C)	-8 C to + 50 C
Sediments by aging, Max at -25 Deg.C	< 0.1
Expansion	Low,Med,High
Expansion ratio	>8.0
Drainage in time 25% Min:Sec	>6.00

Did you know Wilhelmsen Ships Service offer a range of Foam tests under Msc 1312?

Full details are available in the Documents tab below

Ordering information

Product Number	Product name
778009	UNIRAL-AR 3-3M F-8 20 LTR CAN
778008	UNIRAL-AR 3-3M F-8 200 LTR DRUM

UNIRAL AR 3-3M F-8 1000LT

530 778493

UNIRAL AR 3-3M is a newly formulated Universal foam for use on Decks and Helidecks.

It is intended for use as a 3% proportioned solution (3% = 3lt of foam with 97lt water) on both polar solvent and hydrocarbon fuels.

UNIRAL AR 3-3M is approved for marine applications according to the latest IMO MSC/Circ. 1312

Features

- Approved to Msc 1312 and ICAO Level B
- Class A+B Fires
- 20-25 Year shelf life
- Globally available in 20lt, 200lt and 1,000Lt sizes

Bene ts

- Approved to the latest IMO regulations
- Ideal for use on Oil & Chemical Tankers
- Store it correctly in accordance with the manufacturers instructions or in the containers it is supplied it has a 20-25 Year shelf life
- Global availability and meeting latest IMO regulations makes it ideal for to meet your future requirements

Type	Synthetic AFFF-Alcohol Resistant
Usage	Deck & Helideck
Pump	Displacement/Gear Screw
Density (g/ml) at 20C	1.16 ± 0.02
Viscosity 20°C mm²/S	1800 ± 200
pH @ 20°C	7.5 ± 0.50
Recommended storage / usage temp (°C)	-8 C to + 50 C
Sediments by aging, Max at -25 Deg.C	< 0.1
Expansion	Low,Med,High
Expansion ratio	>8.0
Drainage in time 25% Min:Sec	>6.00

Did you know Wilhelmsen Ships Service offer a range of Foam tests under Msc 1312?

Full details are available in the Documents tab below

Ordering information

Product Number	Product name
778008	UNIRAL-AR 3-3M F-8 200 LTR DRUM
778009	UNIRAL-AR 3-3M F-8 20 LTR CAN

UNIROL 3% 200LT DRUM

530 556084

UNIROL 3% F-15 is a Flouroprotien foam concentrate for use on Decks and in Machinery spaces.

It is intended for use as a 3% proportioned solution either in fresh,salt or hard water. The correct proportioning ratio is 3 parts of concentrate to 97 parts of water.

UNIROL 3% F-15 is approved for marine applications according to the latest IMO Msc 1312.

Features

- Approved to Msc 1312 and UL162
- Class A+B Fires
- 10 year life
- Globally available in 20lt and 200lt sizes

Bene ts

- Approved to latest IMO regulations
- Ideal for use on Oil Tankers
- Store it correctly in accordance with the manufacturers instructions or in the containers it is supplied in and generally it will have a life in excess of 10 years
- Globally available and latest approvals make it ideal for a long term solution to your foam concentrate requirements

Type	Flouroprotein
Usage	Deck & Portable Applicator
Pump	Centrifugal
Density @ 20°C :	1.16 ± 0.02
Viscosity 20°C mm²/S	10.0 +/- 4.0
pH @ 20°C	7.00 ± 0.50
Recommended storage/usage Temp (°C)	-10 to +60
Freezing Point (°C)	-15
Pour Point (°C)	<-12 Deg.C
Sediments, Max (%Vol)	< 0.25
Expansion	Low
Expansion ratio	>7.0
Drainage time 25% min (Min:Sec)	>5:00

Environmentally friendly

Did you know Wilhelmsen Ships Service offer a range of Foam tests under Msc 1312?

Full details are available in the Documents tab below

Ordering information

Product Number	Product name
556084	UNIROL 3% F-15 200 L DRUM
592204	UNIROL 3% F-15 20L CAN

FC AFFF 1% F-20 20LT CAN

530 777696

Our AFFF 1% F-20 is a highly concentrated foam solution specially developed to create a gas tight cover on liquid re surfaces. Capable of extinguishing res quickly on Decks and Helidecks.

Due to its high foam density you can throw the foam further for safer re ghting operations.

Its quick foam formation also allows it to be used in sprinkler systems and ideal for Foam applicators.

Features

- Approved to Msc 1312, MED,DNV and ICAO Level B
- Class A+B res
- Ideal for your external or cold temperature storage
- Globally available in 20lt and 200lt sizes

Bene ts

- The dense nature gives you excellent re ghting capabilities whilst you can also close down liquids res by sealing in the hot gases.
- Ideal for use on Oil Tankers and Helidecks
- Our AFFF 1% F-20 meets the latest MSC1312 recommendations making it ideal for updating your vessels foam re ghting system
- Flexible storage in sealed original containers for long periods of time, temperature range between -20 to + 50 degrees Celsius

Technical Data

Type	AFFF
Usage	Deck , Helideck & Portable Applicator
Pump	Centrifugal
Viscosity 0°C (IMO 3.4) mm²/S	< 40
Viscosity 20°C (IMO 3.4) mm²/S	< 20
Viscosity -15°C (IMO 3.4) mm²/S	< 120
pH at 20°C	6,5 - 8,5
Freeze Point	-20°C
Sediments, Max (%Vol)	None
Sediments by aging, Max at -25 Deg.C	< 0.25
Sediments by aging, Max at +60 Deg.C	< 0.25
Expansion	Low
Expansion ratio	> 15
Drainage in time 50% min (Min:Sec)	< 8:00 - 15:00

Environmentally friendly

Did you know Wilhelmsen Ships Service offer a range of Foam tests under Msc 1312?

Regulations require Portable Applicators where applicable to have 20lt plus 20lt Spare!!

Full details are available in the Documents tab below

Ordering information

Product Number	Product name
777696	FC AFFF 1% F-20 20L CAN.
777695	FC AFFF 1% F-20 200L DRUM..

FC AFFF 1% F-20 200LT DRUM

530 777695

Our AFFF 1% F-20 is a highly concentrated foam solution specially developed to create a gas tight cover on liquid re surfaces. Capable of extinguishing res quickly on Decks and Helidecks.

Due to its high foam density you can throw the foam further for safer re ghting operations.

Its quick foam formation also allows it to be used in sprinkler systems and ideal for Foam applicators.

Features

- Approved to Msc 1312, MED,DNV and ICAO Level B
- Class A+B res
- Ideal for your external or cold temperature storage
- Globally available in 20lt and 200lt sizes

Bene ts

- The dense nature gives you excellent re ghting capabilities whilst you can also close down liquids res by sealing in the hot gases.
- Ideal for use on Oil Tankers and Helidecks
- Our AFFF 1% F-20 meets the latest MSC1312 recommendations making it ideal for updating your vessels foam re ghting system
- Flexible storage in sealed original containers for long periods of time, temperature range between -20 to + 50 degrees Celsius

Type	AFFF
Usage	Deck , Helideck & Portable Applicator
Pump	Centrifugal
Viscosity 0°C (IMO 3.4) mm²/S	< 40
Viscosity 20°C (IMO 3.4) mm²/S	< 20
Viscosity -15°C (IMO 3.4) mm²/S	< 120
pH at 20°C	6,5 - 8,5
Freeze Point	-20°C
Sediments, Max (%Vol)	None
Sediments by aging, Max at -25 Deg.C	< 0.25
Sediments by aging, Max at +60 Deg.C	< 0.25
Expansion	Low
Expansion ratio	> 15
Drainage in time 50% min (Min:Sec)	< 8:00 - 15:00

Environmentally friendly

Did you know Wilhelmsen Ships Service offer a range of Foam tests under Msc 1312?

Full details are available in the Documents tab below

Ordering information

Product Number	Product name
777695	FC AFFF 1% F-20 200L DRUM,.
777696	FC AFFF 1% F-20 20L CAN.

FC AFFF-AR 3% F-10

Our AFFF-AR 3% F-10 is Universal alcohol resistant foam solution offering both re ghting and liquid spill containment for Decks, Machinery spaces and Helidecks.

The high freezing point allows greater exibility for outside storage conditions.

Its quick foam formation and high density allows it to be used in sprinkler systems and applicators.

Features

- Approved to Msc 1312,ICAO Level B
- Class A+B Fires
- Long shelf life
- Globally available in 20lt and 200lt sizes

Bene ts

- Approved to the latest IMO regulations ensuring long usage
- Ideal for use on Oil and Chemical Tankers with extreme cold storage
- AFFF 3% F-15 can be stored for long periods of time in the sealed original containers and in corrosion-resistant plastic or stainless steel tanks. High temperatures up to +50°C do not affect the quality, neither does temporary freezing at temperatures below the speci ed frost resistance limit.
- Globally available and meeting latest regulations ensure you have predictability of supply in the future

Technical Data

Type	AFFF-AR
Usage	Deck
Pump	Displacement/Gear Screw
Density kg/l @ 20°C	1.06 ± 0.02
Viscosity, max (CPS) at 20 Deg.C	Thixotrope liquid
pH @ 20°C	6,5 - 8,5
Sediments, Max (%Vol)	None
Freeze Point	-10°C
Expansion	Low-Med
Expansion ratio	Low 6-15 Med upto100
Drainage in time 25%/50% Min:Sec	Low 15:00 - 20:00 Med 5:00 - 10:00

Environmentally friendly

Did you know Wilhelmsen Ships Service offer a range of Foam tests under Msc 1312?

Full details are available in the Documents tab below

Ordering information

Product Number	Product name
777688	FC AFFF 3%-AR F-10 20L CAN
777927	FC AFFF 3%-AR F-10 200L DRUM

FC AFFF 3% F-15 20LT CAN

530 777686

Our AFFF 3% F-15 is a Synthetic AFFF specially developed to create a gas tight cover on liquid re surfaces. Highly ef cient at extinguishing res quickly on Decks and Helidecks.

Due to its high foam density you can throw the foam further for safer re ghting operations.

Its quick foam formation also allows it to be used in sprinkler systems and ideal for Foam applicators.

Features

- Approved to Msc 1312,MED,ICAO Level B
- Class A+B Fires
- Long life storage
- Globally available in 20lt and 200lt sizes

Bene ts

- The dense nature gives you excellent re ghting capabilities whilst you can also close down liquids res by sealing in the hot gases.
- The product it is quick forming giving you the option to run it through your sprinkler systems.
- Our AFFF 3% F-15 meets the latest MSC1312 recommendations making it ideal for updating your vessels foam re ghting system
- Flexible storage in sealed original containers for long periods of time, temperature range between -15 to + 50 degrees Celsius

Technical Data

Type	Synthetic AFFF
Usage	Deck,Helideck & Portable Applicator
Pump	Centrifugal
Density g/ml @ 20°C	1.04 ± 0.02
Viscosity 20°C (IMO 3.4) mm²/S	< 10
pH @ 20°C	6,5 - 8,5
Freeze Point	-15°C
Sediments, Max (%Vol)	None
Expansion	Low -Med
Expansion ratio	5-10 Low 60 Med
Drainage in time 25%/50% Min:Sec	< 5 / 8 min

Environmentally friendly

Did you know Wilhelmsen Ships Service offer a range of Foam tests under Msc 1312?

Regulations require Portable Applicators where applicable to have 20lt plus 20lt Spare!!

Full details are available in the Documents tab below

Ordering information

Product Number	Product name
777686	FC AFFF 3% F-15 20L CAN
777685	FC AFFF 3% F-15 200L DRUM

FC AFFF 3% F-15 200LT DRUM

530 777685

Our AFFF 3% F-15 is a highly concentrated foam solution specially developed to create a gas tight cover on liquid re surfaces. Capable of extinguishing res quickly on Decks and Helidecks.

Due to its high foam density you can throw the foam further for safer re ghting operations.

Its quick foam formation also allows it to be used in sprinkler systems and ideal for Foam applicators.

Features

- Approved to Msc 1312,MED,ICAO Level B
- Class A+B Fires
- Long life storage
- Globally available in 20lt and 200lt sizes

Bene ts

- The dense nature gives you excellent re ghting capabilities whilst you can also close down liquids res by sealing in the hot gases.
- The product it is quick forming giving you the option to run it through your sprinkler systems.
- Our AFFF 3% F-15 meets the latest MSC1312 recommendations making it ideal for updating your vessels foam re ghting system
- Flexible storage in sealed original containers for long periods of time, temperature range between -15 to + 50 degrees Celsius

Type	Synthetic AFFF
Usage	Deck,Helideck & Portable Applicator
Pump	Centrifugal
Density g/ml @ 20°C	1.04 ± 0.02
Viscosity 20°C (IMO 3.4) mm²/S	< 10
pH @ 20°C	6,5 - 8,5
Freeze Point	-15°C
Sediments, Max (%Vol)	None
Expansion	Low -Med
Expansion ratio	5-10 Low 60 Med
Drainage in time 25%/50% Min:Sec	< 5 / 8 min

Environmentally friendly

Did you know Wilhelmsen Ships Service offer a range of Foam tests under Msc 1312?

Full details are available in the Documents tab below

Ordering information

Product Number	Product name
777685	FC AFFF 3% F-15 200L DRUM
777686	FC AFFF 3% F-15 20L CAN

FC AFFF 3% F-25 20LT CAN

530 777692

Our AFFF 3% F25 is a highly concentrated foam solution specially developed to create a gas tight cover on liquid surfaces.

Due to its high foam density you can throw the foam further for safer re ghting operations.

Its quick foam formation allows it to be used in sprinkler systems and foam applicators.

Approved to Msc 1312

Features

- Approved to Msc 1312
- Class A+B Fires
- Long term life in harsh storage conditions
- Globally available in 20lt and 200lt sizes

Bene ts

- Approved to the latest IMO regulations ensuring long usage
- Ideal for use on Oil Tankers with extreme cold storage
- AFFF 3% F-25 can be stored for long periods of time in the sealed original containers and in corrosion-resistant plastic or stainless steel tanks. High temperatures up to +50°C do not affect the quality, neither does temporary freezing at temperatures below the speci ed frost resistance limit.
- Globally available and meeting latest regulations ensure you have predictability of supply in the future

Technical Data

Type	AFFF
Usage	Deck & Portable Applicator
Pump	Centrifugal
Density g/ml @ 20°C	1,060 ± 0.02g/ml
Viscosity 20°C (IMO 3.4) mm²/S	< 20 mm2/s
Viscosity -25°C (IMO 3.4) mm²/S	< 150
pH @ 20°C	6,5 - 8,5
Freeze Point	-25°C
Sediments, Max (%Vol)	None
Expansion	Low
Expansion ratio	< 15
Drainage time 25%/50% Min:Sec	Low 2:00 - 4:00 / 4:00 - 8:00 Med 1:00 - 3:00 / 3:00-5:00

Environmentally friendly

Did you know Wilhelmsen Ships Service offer a range of Foam tests under Msc 1312?

Regulations require Portable Applicators where applicable to have 20lt plus 20lt Spare!!

Full details are available in the Documents tab below

Ordering information

Product Number	Product name
777692	FC AFFF 3% F-25 20L CAN
777691	FC AFFF3% F-25 200L DRUM

FC AFFF 3% F-25 200LT DRUM

530 777691

Our AFFF 3% F25 is a highly concentrated foam solution specially developed to create a gas tight cover on liquid surfaces.

Due to its high foam density you can throw the foam further for safer re ghting operations.

Its quick foam formation allows it to be used in sprinkler systems and foam applicators.

Approved to Msc 1312

Features

- Approved to Msc 1312
- Class A+B Fires
- Long term life in harsh storage conditions
- Globally available in 20lt and 200lt sizes

Bene ts

- Approved to the latest IMO regulations ensuring long usage
- Ideal for use on Chemical Tankers and Helidecks with extreme cold storage
- AFFF 3% F-25 can be stored for long periods of time in the sealed original containers and in corrosion-resistant plastic or stainless steel tanks. High temperatures up to +50°C do not affect the quality, neither does temporary freezing at temperatures below the speci ed frost resistance limit.
- Globally available and meeting latest regulations ensure you have predictability of supply in the future

Type	AFFF
Usage	Deck & Portable Applicator
Pump	Centrifugal
Density g/ml @ 20°C	1,060 ± 0.02g/ml
Viscosity 20°C (IMO 3.4) mm²/S	< 20 mm2/s
Viscosity -25°C (IMO 3.4) mm²/S	< 150
pH @ 20°C	6,5 - 8,5
Freeze Point	-25°C
Sediments, Max (%Vol)	None
Expansion	Low
Expansion ratio	< 15
Drainage time 25%/50% Min:Sec	Low 2:00 - 4:00 / 4:00 - 8:00 Med 1:00 - 3:00 / 3:00-5:00

Environmentally friendly

Did you know Wilhelmsen Ships Service offer a range of Foam tests under Msc 1312?

Full details are available in the Documents tab below

Ordering information

Product Number	Product name
777691	FC AFFF3% F-25 200L DRUM
777692	FC AFFF 3% F-25 20L CAN

FC HIGH EXPANSION 2% 20LT CAN

530 711808

Our 2% High Expansion IAF(Inside Air Foam) is for internal use only such as engine rooms or large machinery spaces

As a High expansion foam it can be used to preventively ood whole rooms or to displace ammable gas/air mixtures escaping from tanks.

Approved to IMO 670.

Features

- For use in Hi Foam systems
- Class A+B Fires
- Multi vessel use
- Globally available in 20lt and 200lt sizes

Bene ts

- For topping up UNITOR HI Foams systems
- Can be used on all vessels with a suitable Hi Foam system
- IAF can be stored for long periods in the original sealed containers,plastic or corrosion resistant steel tanks. High temperatures upto +50°C do not affect the quality, neither does temporary freezing below the recommended limit have any undue effects on its performance.

Technical Data

Type	Inside Air Foam
Usage	Engine Room
Density kg/l @ 20°C	1.03 ± 0.02
Viscosity 20°C (IMO 3.4) mm²/S	< 30
Viscosity at 0 Deg.C	<70
pH at 20°C	7.5 +/- 0.5
Sediments, Max (%Vol)	None
Min/Max use temp. Deg.C	-2 to +45
Store temp. (Deg.C)	<-10 to +45
Pour temp deg.C	<-10
Cloud temp deg.C	<-2
Refractive index	1.4100 - 1.4160
foam expansion ratio	< >700
Drainage in time 25% Min:Sec	>6.00
Drainage in time 50% Min:Sec	>15.00

Environmentally friendly

Did you know Wilhelmsen Ships Service offer a range of Foam tests under Msc 1312?

Full details are available in the Documents tab below

Ordering information

Product Number	Product name
711808	FC HIGH EXPANSION 2% F-12 20L CAN
711390	FC HIGH EXPANSION 2% F-12 200L DRUM

FC HIGH EXPANSION 2% 200LT DRUM

530 711390

Our 2% High Expansion IAF(Inside Air Foam) is for internal use only such as engine rooms or large machinery spaces

As a High expansion foam it can be used to preventively ood whole rooms or to displace ammable gas/air mixtures escaping from tanks.

Approved to IMO 670.

Features

- For use in Hi Foam systems
- Class A+B Fires
- Multi vessel use
- Globally available in 20lt and 200lt sizes

Bene ts

- For topping up UNITOR HI Foams systems
- Can be used on all vessels with a suitable Hi Foam system
- IAF can be stored for long periods in the original sealed containers,plastic or corrosion resistant steel tanks. High temperatures upto +50°C do not affect the quality, neither does temporary freezing below the recommended limit have any undue effects on its performance.

Type	Inside Air Foam
Usage	Engine Room
Density kg/l @ 20°C	1.03 ± 0.02
Viscosity 20°C (IMO 3.4) mm²/S	< 30
Viscosity at 0 Deg.C	<70
pH at 20°C	7.5 +/- 0.5
Sediments, Max (%Vol)	None
Min/Max use temp. Deg.C	-2 to +45
Store temp. (Deg.C)	<-10 to +45
Pour temp deg.C	<-10
Cloud temp deg.C	<-2
Refractive index	1.4100 - 1.4160
foam expansion ratio	< >700
Drainage in time 25% Min:Sec	>6.00
Drainage in time 50% Min:Sec	>15.00

Environmentally friendly

Did you know Wilhelmsen Ships Service offer a range of Foam tests under Msc 1312?

Full details are available in the Documents tab below

Ordering information

Product Number	Product name
711390	FC HIGH EXPANSION 2% F-12 200L DRUM
711808	FC HIGH EXPANSION 2% F-12 20L CAN

Wilhelmsen Ships Service

PERSONAL SAFETY

Including vital respiratory equipment, such as compressed air breathing apparatus and essential personal protection products like portable gas detection units and re suits, our entire personal safety range exceeds current IMO standards.

BREATHING AIR COMPRESSORS

Wilhelmsen Ships Service offers a complete range of compressors perfectly suited for use onboard your vessels when your breathing apparatus or lifeboat cylinders need re lling.

We also supply all units complete with a certi cate for pure air.

Whether you have occasional light use or heavy use - our Poseidon, Junior II or Oceanus t your requirements.

Features

- Wide range of types and pressures
- All units can be pressure reduced or increased to suit breathing apparatus or lifeboat air cylinders
- Bauer Triplex lter technology
- Lightweight, anti corrosion strong frames

Bene ts

- You can opt for light or heavy use and still use change-over devices to alternate pressures from 200 to 300 bar
- Lightweight space age frames allows you to manoeuvre them around your vessel
- Bauer's Triplex lter technology provide pure air on a consistent basis
- Corrosion resistant making them ideal for onboard use

Poseidon, Junior II and Oceanus come complete with air puri cation system and a ll hose. They are safe, reliable three stage compressors which are easily maintained onboard.

They are supplied with three phase 230/460 VAC electric motor.

New SOLAS regulation II-2/15.2.2.6, relating to 'Onboard training and drills' requires that: "An onboard means of recharging breathing apparatus cylinders used during drills
shall be provided or a suitable number of spare cylinders shall be carried on board to replace those used."

This applies to all ships on or after 1 July, 2014

JUNIOR II-E AIR COMPRESSOR

The Bauer Junior II-E 200 bar compressor for use onboard vessels that need to ll breathing air cylinders on a regular basis. The robust coated frames give you durability and a longer life in the marine environment.

Complete with air puri cation certi cate, valid for 12 months.

Features

- 200-300 or 200/300 bar lling
- Long life Triplex P21 lter cartridges, ensures cleaner air (EN12021)
- B-timer records running hours and maintenance log
- Robust and light weighted

Bene ts

- Easily portable and compact allowing you to easily transport it around the vessel
- Triplex lters ensure you a safe source of clean breathing air consistently
- The built in B-timer provides lter condition status, scheduled maintenance and running hours log to ensure the quality of your air remains at a high level
- The corrosion resistant steel frames make it ideal for use onboard vessels
- Availability of spares
- Global technical service supporting your investment long term

New SOLAS regulation II-2/15.2.2.6, relating to 'Onboard training and drills' requires that: "An onboard means of recharging breathing apparatus cylinders used during drills shall be provided or a suitable number of spare cylinders shall be carried on board to replace those used."

This applies to all ships on or after 1 July, 2014

Ordering information

Product Number	Product name
619387	JUNIOR II-E AIR COMPRESSOR 200 BAR
619395	JUNIOR II-EH AIR COMPRESSOR 300 BAR
619403	JUNIOR II-EHU AIR COMPR. 200/300 BA

Accessories

Product Number	Product name
Recommended	
736660	BREATHING AIR QUALITY TESTER CPT
528935	FILTER CHARGE KB 57679
652644	SERVICE KIT JUNIOR II/PE 500 H/1 YR
758169	SYNTH. OIL 1L COMPR.BUILD >07-2006

Product Number	Product name
If Required	
652651	SERVICE KIT JUNIOR II/PE1000 H/2 YR
736208	SERVICE KIT JUNIOR II/PE 2000H/4 YR
655167	SYNTH. OIL 1 LTR FOR COMPR. BUILD
709139	CHANGE OVER DEVICE FROM 200-300 BAR
709121	CHANGE OVER DEVICE FROM 300-200 BAR
If Required for Lifeboats	
758847	FILLING HOSE 50MTR, DN6, PN450

Approvals

The compressor is approved to the highest standards of the Pressure Equipment Directive 97/23/EC. Quality of breathing air delivered con rms to DIN EN12021. CE

COMPRESSOR SERVICE KIT JUNIOR II

Our Junior II compressor service kit includes a comprehensive range of spare parts increasing your operational reliability.

This kits allows you to service on board following 500, 1000 and 2000 hours of use or operation.

Features

- Genuine spare parts
- Complete kit for quicker maintenance time
- Cost effective spares inventory solution

Bene ts

- Use of genuine spares gives you increased reliability and extends the life of your compressor
- The comprehensive maintenance manual and clearly marked spares make your onboard maintenance simple
- Increased ef ciency of your spares inventory management

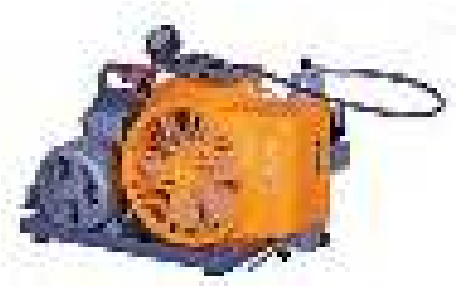
Ordering information

Product Number	Product name
652644	SERVICE KIT JUNIOR II/PE 500 H/1 YR
652651	SERVICE KIT JUNIOR II/PE1000 H/2 YR
736208	SERVICE KIT JUNIOR II/PE 2000H/4 YR

POSEIDON AIR COMPRESSORS

The Poseidon has been developed for reliable operation combining proven core components from Bauer with a simple and robust chassis.

The PE 100 is by far the smallest and lightest compressor unit of the PE range and provides great value for money.



Features

- 200 or 300 bar lling
- Long life Triplex P11 lter cartridges, ensures cleaner air (EN12021)
- Robust and light weight

Bene ts

- Triplex lters provide safe and consistent source of clean breathing air
- The corrosion resistant steel frames make it ideal for use onboard vessels
- Global technical service supporting your investment long term

New SOLAS regulation II-2/15.2.2.6, relating to 'Onboard training and drills' requires that: "An onboard means of recharging breathing apparatus cylinders used during drills shall be provided or a suitable number of spare cylinders shall be carried on board to replace those used."

This applies to all ships on or after 1 July, 2014

Ordering information

Product Number	Product name
777965	BREATHING AIR COMPRESSOR PE100 300B
777994	BREATHING AIR COMPRESSOR 200BAR

Accessories

Product Number	Product name
Recommended	
736660	BREATHING AIR QUALITY TESTER CPT
528935	FILTER CHARGE KB 57679
758169	SYNTH. OIL 1L COMPR.BUILD >07-2006
652644	SERVICE KIT JUNIOR II/PE 500 H/1 YR
If Required	
652651	SERVICE KIT JUNIOR II/PE1000 H/2 YR
736208	SERVICE KIT JUNIOR II/PE 2000H/4 YR
If required for Life boats	
758847	FILLING HOSE 50MTR, DN6, PN450

Approvals

CE

COMPRESSOR SERVICE KIT POSEIDON PE100

Our Poseidon compressor service kit includes a comprehensive range of spare parts increasing your operational reliability.

This kits allows you to service on board following 500, 1000 and 2000 hours of use or operation.

Features

- Genuine spare parts
- Complete kit for quicker maintenance time
- Cost effective spares inventory solution

Bene ts

- Use of genuine spares gives you increased reliability and extends the life of your compressor
- The comprehensive maintenance manual and clearly marked spares make your onboard maintenance simple
- Increased ef ciency of your spares inventory management

Ordering information

Product Number	Product name
652644	SERVICE KIT JUNIOR II/PE 500 H/1 YR
652651	SERVICE KIT JUNIOR II/PE1000 H/2 YR
736208	SERVICE KIT JUNIOR II/PE 2000H/4 YR

BREATHING AIR COMPRESSORS B TIMER

235 755967

The B-timer is a self activating mini computer that counts your operating hours of the compressor and calculates the saturation of the lter cartridge.

Features

- Records running hours
- Continuous lter cartridge monitoring
- 3 year battery life

Bene ts

- Provides easy to read maintenance log for continual monitoring of your compressors
- Your lter cartridge is constantly monitored ensuring clean air
- The 3 year battery provides durability and with no wiring necessary you can quickly t the B timer

The unit displays operating hours, cartridge life time and all maintenance due for the compressor which ensures you receive clean air constantly and consistently. This is all achieved through taking into account time, temperature, cartridge type and delivery rate of the compressor.

Technical data

Operating temp range	0 C to + 50 C
Storage temp	-20 C to + 70 C
Protection class	IP 65
Vibration	+/- 3g in operation
Humidity	95 %

Ordering information

Product Number	Product name
755967	B-TIMER FOR AIR COMPRESSOR

Approvals

CE

COMPRESSOR SYNTHETIC OIL 1 LTR FROM 2007-2006

395 758169

High grade synthetic oil for Bauer compressors from July 2006 to present.

Specialist oils are essential to the smooth operation of your compressors and ensure no contamination of your air through any damage.

Features

- Suitable for continous operation
- Suitable for high enviromental temperatures
- Approved for breathing air applications
- Non toxic

Bene ts

- It is hydroscopic for moisture absorption to lengthen the life of your lters
- Comes in a convenient handy pack size so you can perform an oil change or just a top up

Approvals

CE

COMPRESSOR SYNTHETIC OIL 1LTR FROM SEPT 1992 - MARCH 1999

395 655167

High grade synthetic oil for Bauer compressors from 1992 to 1999.

Specialist oils are essential to the smooth operation of your compressors and ensure no contamination of your air through any damage.

Features

- Suitable for contious operation
- Suitable for high enviromental temperatures
- Approved for breathing air applications
- Non toxic

Bene ts

- It is hydroscopic for moisture absorption to lengthen the life of your lters
- Comes in a convenient handy pack size so you can perform an oil change or just a top up

Approvals

CE

COMPRESSOR FILTER CHARGE FOR JUNIOR/OCEANUS TRIPLEX FILTER

395 528935

Bauer Iter cartridges exceed the European Standards EN 12021 for breathing air puri cation.

By keeping as a spare on board you can quickly replace in case of an emergency.

Available in vacuum packed aluminium packaging, guarantees 2 year shelf life.

Features

- Contains activated carbon, hopcalite and molecular sieve
- Easy to handle and replace

Bene ts

- This Iter maintains the high quality of your breathing air
- It is a quick replacement when your B Timer Iter status activates

Technical data

Standard	EN 12021
Oil / Aerosols	<0.1 mg/m3
CO	< 5 ml/m3
CO2	< 500 ppm (V/V)
Water vapour	< 10 mg/m3
Odour / taste	Nil
SO2	< 0.1 ppm (v/v)
NO	< 0.1 ppm (v/v)
NO2	< 0.1 ppm (v/v)

Approvals

CE

COMPRESSOR BAUER 50MT FILLING HOSE

235 758847

Bauer compressor 50 metre hose for lling lifeboat cylinders.
Fully exible, all hoses and ttings are 100% pressure tested, have a 20.000 cycle test and the corresponding approvals.

Bauer compressor lling hoses feature a wide certi ed temperature range.

Features

- Ease of use
- Robust material

Bene ts

- Long length and standard ttings enables you to connect the compressor with lifeboat cylinder without moving them from their location.
- Fluoropolymer pricked hose withstands extreme weather conditions providing you with safe operation

Technical data

Operating pressure	425 Bar
Connection	M16 X 1.5
DN	5 mm
Outer dia	13.3 mm
Outer layer	Pricked
Resistant agianst	Salty air, salt water, sun and fuel
Material	Fluoropolymer
Temperature	-40 C to + 100 C
Colour	Black

Approvals

CE

COMPRESSOR 300-200 BAR CHANGE OVER DEVICE

235 709121

Bauer Change Over Devices increase the exibility of your compressors to allow for varying pressure requirements. The 300-200 Bar Change Over Device comes complete in kit form and is simple to install requiring no specialist knowledge.

Bene ts

- The black hand wheel on the lling gives you a safety precaution to differentiate the pressure the compressor is set at
- The simple bolt on kit requires you to have no specialist knowledge to install
- You can install on any Bauer compressors
- WSS global service support gives you assurance should you need any assistance or advice

Supplied with:

- Switch-over device, EDP 528901
- Safety valve 225 bar EDP 643544
- Filling hose EDP 606168
- Filling valve 225 bar (black hand wheel) EDP 605261

Approvals

CE

CHANGE OVER DEVICE FROM 200-300 BAR COMPL F/ BAUER COMPRESSOR

235 709139

Bauer Change Over Devices allow Junior / Oceanus compressors to be used for a number of pressure applications.

The 200 to 300 Bar Change Over Device comes complete in kit form and is simple to t.

Bene ts

- The red hand wheel on the lling gives you a safety precaution to differentiate the pressure the compressor is set at
- The simple bolt on kit requires you to have no specialist knowledge to install
- You can install on any Bauer compressors
- WSS global service support gives you assurance should you need any assistance or advice

Supplied with:

- Switch-over device, EDP 528901
- Safety valve 330 bar EDP 646059
- Filling hose EDP 606168
- Filling valve 330 bar (red hand wheel) EDP 605253

Approvals

CE

COMPRESSOR BREATHING AIR QUALITY TEST KIT

395 736660

The Unitor Breathing Air Quality test kit measures the purity of breathing air from high or low-pressure cylinders and compressors quickly, easily, and accurately.

IMO guidelines MSC/Circ. 850 recommends annual testing of your air quality from BA Sets,Escape sets and breathing air compressors. The air quality should con rm to EN 12021

Features

- Can measure 4 gases simultaneously
- Ready to use
- Uses readily available testing tubes

Bene ts

- Our kit enables you to accurately measure carbon monoxide, carbon dioxide, water, oil and nitrous oxide levels in breathing air
- Preset settings of the ow rate for the gases to be measured enables you to use the kit instantly
- Tubes are clearly arrow marked for use with the kit giving you quick and easy to understand results

Technical data

Operational medium	Air
Max pressure	300 bar
Flow preset for CO & CO2 tubes	0.3 Ltr/min
Flow preset for H2O tubes	1 ltr/min
Flow preset for oil tubes	2.5 Ltr/min
Flow preset for nitrous gases tubes	0.3 ltr/min

Ordering information

Product Number	Product name
661553	GAS. D.TUBE CRB.MONOX.AIRTEST CO-HP
661728	GAS D.TBE WATER VAP. AIRTEST H2O-HP

Approvals

CE

SELF CONTAINED BREATHING APPARATUS

The Unipack self contained breathing apparatus covers re ghting, chemical or gaseous hazard protection for the offshore, shipping or land based industries, giving you exible options for the level of protection you require.

Features

- Adjustment possibilities on the ergonomically designed back plate
- Latest technology xed demand valves

Bene ts

- Flexible adjustment gives you the option to cover a wider size range so require fewer units
- You can use the Unipack in conjunction with our chemical suit range or choose the 2nd air for rescue situations
- Our xed demand valve allows you to don the unit quickly and simply
- Both audible and visual alarms warning of low pressure

You can also choose a a supplementary 2nd air option to add a rescue mask or if you want to use in conjunction with your gas tight chemical suit. Both functions can be used simultaneously with the special hoses available.

Both sets are fully compliant to MSC 91 - chapter 3 - Fire Safety Systems code - regulation II-2/10.1 , paragraph - 2.1.2.2 with both audible and visual low air alarms tted as standard.

New SOLAS regulation II-2/15.2.2.6, relating to 'Onboard training and drills' requires that: "An onboard means of recharging breathing apparatus cylinders used during drills
shall be provided or a suitable number of spare cylinders shall be carried on board to replace those used."

This applies to all ships on or after 1 July, 2014

Ordering information

Product Number	Product name
757879	UNIPACK-II BA SET, STANDARD
757881	UNIPACK-II BA SET, 2ND AIR

Accessories

Product Number	Product name
667279	AUTOMAXX RESCUESET WITH BAG(0-5986)
Cylinders	
690412	CYL.6L 200BAR W/AIR UNI
690453	CYL6L 300BAR W/AIR UNI
690438	CYL.7L 200BAR W/AIR UNI
739961	COMPOSITE CYL. 6,8 LTR 300 BAR FILL
532580	DUST PLUG 200 BAR FOR AIR CYLINDER
690610	DUST PLUG 300 BAR FOR AIR CYLINDER
We can also supply cylinders with no air charge	
690420	CYL.6L 200BAR W/O AIR UNI

Product Number	Product name
690461	CYL.6L 300BAR W/O AIR UNI
739979	COMPOSITE CYL. 6,8 LTR 300BAR EMPTY
Communications equipment also available on request	
For Hose connections for Chemical suits see the relevant suit type	

Approvals

UNIPACK BREATHING APPARATUS

391 757879

The Unipack II offers you the most user friendly self contained breathing apparatus available.

Simplicity in the design allows you to operate in hazardous environments with minimal training.

you have a choice of several cylinder sizes and types giving you the option to standardise the breathing apparatus for numerous applications.

Fully compliant to MSC 339 (91) - chapter 3 - Fire Safety Systems code - regulation II-2/10.1 , paragraph - 2.1.2.2 with both audible and visual low air alarms tted as standard.

Features

- Wide range of adjustment
- Wide range of uses
- Latest technology xed demand valve
- MSC 91/3 II-02/10.1 para 2.1.2.2 Compliant

Bene ts

- Flexible adjustment gives the option to cover a wider size range so require fewer units
- Use the Unipack in conjunction with Chemical suit range
- State of the art xed demand valve allows users to don the unit quickly and simply
- Minimal maintenance costs
- • You bene t from both audible and visual alarms warning of low pressure

Technical data

High Pressure line	200 or 300 Bar
Medium Pressure line	5 to 9 bar
Operating temperature range	-30C to +60C
Weight (Approx)	3.8 Kg (max)
Dimensions (L x W x H)	(580 x 300 x 170) mm

Audible and Visual Low pressure alarm settings

6 litre 200 bar	Audible and Visual set at min 360 litre
7 litre 200 bar	Audible @ 420- 350 litre - Visual red line set at min 360 litre
6 litre 300 bar	Audible and Visual red line set at min 360 litre
6.8 litre 300 bar	Audible @ 408 - 340 litre - Visual red line set at min 360 litre

Ordering information

Product Number	Product name
757879	UNIPACK-II BA SET, STANDARD

Accessories

Product Number	Product name
Required	
690412	CYL.6L 200BAR W/AIR UNI
690453	CYL6L 300BAR W/AIR UNI
690438	CYL.7L 200BAR W/AIR UNI
739961	COMPOSITE CYL. 6,8 LTR 300 BAR FILL
Recommended	
532580	DUST PLUG 200 BAR FOR AIR CYLINDER
690610	DUST PLUG 300 BAR FOR AIR CYLINDER
If required for Rescue	
757881	UNIPACK-II BA SET, 2ND AIR
All cylinders available without air	
690420	CYL.6L 200BAR W/O AIR UNI
690461	CYL.6L 300BAR W/O AIR UNI
739979	COMPOSITE CYL. 6,8 LTR 300BAR EMPTY
Communications equipment available on request	

Approvals

The compressed air breathing apparatus conforms to the Directives 89/686/EEC and 94/9/EC. It is a container unit with compressed air in accordance with EN 137. the apparatus also conforms to the ATEX as well as CE regulations.

UNIPACK BA SET WITH SECONDARY AIR FEED

391 757881

The Unipack II 2nd Air has an additional hose connection allowing you to add a rescue mask or feed your gas tight chemical suit.

We also offer a special hose allowing you to feed air into your chemical suit and add a rescue mask simultaneously for rescue in hazardous environments.

Fully compliant to MSC 339 (91) - chapter 3 - Fire Safety Systems code - regulation II-2/10.1 , paragraph - 2.1.2.2 with both audible and visual low air alarms tted as standard.

Features

- Simple to operate
- For rescue and chemical suit use
- Secondary air connection at the hip
- MSC 91/3 II-02/10.1 para 2.1.2.2 Compliant

Bene ts

- The click and go technology gives you the speed to alternate the use of this set
- The modular system gives you the option to reduce the amount of sets you need to carry on board your vessel
- You can choose any of our standard BA cylinders but we do recommend if you are using for rescue, a minimum 45 minute cylinder should be tted
- The operator is hands free meaning greater freedom of movement during a rescue operation
- You bene t from both audible and visual alarms warning of low pressure

Audible and Visual Low pressure alarm settings

6 litre 200 bar	Audible and Visual set at min 360 litre
7 litre 200 bar	Audible @ 420- 350 litre - Visual red line set at min 360 litre
6 litre 300 bar	Audible and Visual red line set at min 360 litre
6.8 litre 300 bar	Audible @ 408 - 340 litre - Visual red line set at min 360 litre

Technical Data

High Pressure line	200 or 300 Bar
Medium Pressure line	5 to 9 bar
Operating temperature range	-30C to +60C
Weight (Approx)	3.8 Kg (max)
Dimensions (L x W x H)	(580 x 300 x 170) mm

Ordering information

Product Number	Product name
757881	UNIPACK-II BA SET, 2ND AIR

Accessories

Product Number	Product name
If required	
669358	UNIPACK HOSE W/OUTLET FOR TS/VPS/TL
669366	UNIPACK HOSE WO/OUTLET FOR TS/VPS/
667279	AUTOMAXX RESCUESET WITH BAG(0-5986)

Approvals

The compressed air breathing apparatus conforms to the Directives 89/686/EEC and 94/9/EC. It is a container unit with compressed air in accordance with EN 137. the apparatus also conforms to the ATEX as well as CE regulations.

UNIPACK SECONDARY AIR RESCUE MASK COMPLETE WITH 11/2 M HOSE

397 667279

Our Rescue mask allows you to recover personnel from hazardous environments, whether they be chemical or in a re ghting situation.

Used in conjunction with the Unipack 2nd Air you simply click and go.

For chemical situations you can use the same BA set to feed your gas tight suit and have an optional hose for adding this Rescue Mask set.

Features

- 1.5 metre hose and stowage bag
- Click and go
- Hands free

Bene ts

- We supply suf cient hose length so as the survivor will not impede your rescue
- Click and go allows you to use the BA set as a standard unit or convert it quickly for rescue even if using it with a gas tight suit
- By giving the survivor a separate air feed your hands are free during a rescue situation

Ordering information

Product Number	Product name
667279	AUTOMAXX RESCUESET WITH BAG(0-5986)

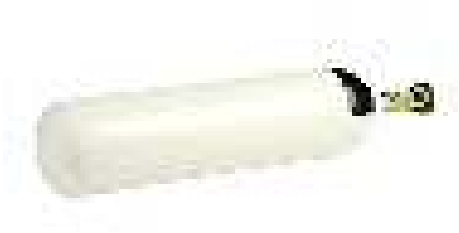
UNIPACK AIR CYLINDER

One of a range of steel cylinders you can choose from for use in your Unipack II self contained breathing apparatus.

This 6 litre 200 bar cylinder will provide you with 30 minutes of air.

It is manufactured from high grade materials to ensure the rigours you place on it will not affect performance or service life.

Supplied with VTI cylinder valve complete with air.



Features

- Fail safe operation
- High grade steel
- Multi brand use

Bene ts

- Press and turn action of the cylinder valve prevents accidental opening and ensures your safety
- Chromium molybdenum steel delivers robust and long life of the cylinder
- Compatible with all other majority of SCBA set manufacturers.

Technical data

Material	Chromium steel
Cylinder valve	High tensile brass, chrome plated, G 5/8" connection
Colour	White, with white and black quarters on shoulder
Surface treatment	Sand blasted, zinc primed and painted
Range	6L - 200 Bar / 6L - 300 Bar / 7L - 200 Bar
Air capacity	1200L / 1800L / 1400L
Design std	Neck thread DIN 477, material DIN 17000
Weight empty (Kg)	9.3 / 10.2 / 12.9

New SOLAS regulation II-2/15.2.2.6, relating to 'Onboard training and drills' requires that: "An onboard means of recharging breathing apparatus cylinders used during drills
shall be provided or a suitable number of spare cylinders shall be carried on board to replace those used."

This applies to all ships on or after 1 July, 2014

Ordering information

Product Number	Product name
690412	CYL.6L 200BAR W/AIR UNI
690453	CYL6L 300BAR W/AIR UNI
690438	CYL.7L 200BAR W/AIR UNI
739961	COMPOSITE CYL. 6,8 LTR 300 BAR FILL
We can also supply cylinders with no air charge	
690420	CYL.6L 200BAR W/O AIR UNI

Accessories

Product Number	Product name
522086	TEST GAUGE F/AIR CYLS.
532580	DUST PLUG 200 BAR FOR AIR CYLINDER

TEST GAUGE FOR BREATHING AIR CYLINDERS

287 522086

The test gauge can be used for the entire range of Unitor breathing apparatus cylinders and gives a secondary check, ensuring equipment is ready for use.

Features

- Simplicity of use
- Calibrated when supplied
- Requires no maintenance
- Onboard control of maintenance plans

Bene ts

- Accurate measurements provides a secondary check
- Calibrate just once a year and no further need for maintenance
- No need to send cylinders away for checking

Ordering information

Product Number	Product name
522086	TEST GAUGE F/AIR CYLS.

DUST PLUG 200 BAR FOR BREATHING AIR CYLINDERS

287 532580

It is recommended you should t dust plugs to your cylinders to extend their service life and reduce your maintenance costs.

Our chrome and brass plug simply screws it into the cylinder.

DUST PLUG 300 BAR FOR BREATHING AIR CYLINDERS

391 690610

It is recommended you should t dust plugs to your cylinders to extend their service life and reduce your maintenance costs.

Our chrome and brass plug simply screws it into the cylinder.

UNISCAPE EEBD

The Uniscape 15-H is a 15 minute compressed air emergency escape breathing device (EEBD) providing users with respiratory protection during escape from toxic or oxygen def cient atmospheres.

Features

- Fast automatic activation
- One size hood
- Clear vision
- Low maintenance
- Supplied with air

Bene ts

- The clear instructions on the valise ensure any non trained people can use quickly
- The encapsulated hood has suf cient adjustment in the neck seal to t most of your crews head sizes
- Our large visor gives you an unobstructed clear view yo aid your escape
- We can supply either with or without air to assist your freight requirements
- It can be carried or kept close to the workplace for immediate access in case of emergency

Technical Data

Size (Lt x Dia)	600 x 250 mm
Weight	Approx 4Kg
Service time	15 min
Air cylinder	3 ltr / 200 bar - steel

Ordering information

Product Number	Product name
668913	ESCAPE APP. 15H W/ AIR
Also available without air	
669473	ESCAPE APP. 15H W/O AIR

Accessories

Product Number	Product name
If required	
638395	CABINET F/UNISCAPE 15H
628164	BRACKET, UNISCAPE
632760	COVER F/UNISCAPE 15H

Approvals

It has been designed and tested in accordance with EN 1146 to demonstrated compliance with safety requirements of EC Directive 96/98 Marine Equipment. CE.

UNISCAPE CABINET

391 638395

Our wall mountable cabinet for Unitor Uniscape protects and ensures it is available for use when and where required.

The clear fascia allows users to check the Uniscape cylinder without having to the remove the unit from the cabinet whilst the security tags give you an immediate visual if it has been tampered with.

The polycarbonate hinges and door locks give you a longer life than traditional steel hinges.

Features

- Clear cover to view indicators
- Easy to access
- Protects and secures safety equipment
- Locking tab easily removed in emergency

Bene ts

- Clear cover reduces handling of safety equipment when performing regular maintenance checks
- Security tabs can be easily broken to gain access in an emergency
- Safety equipment is protected from dust and dirt during long periods of stowage
- Can be screwed in or bolted directly to a wall

Technical data

Length	282 mm
Width	762 mm
Height	211 mm
Weight	4kg
Rating	IP 54

Accessories

Product Number	Product name
628164	BRACKET, UNISCAPE

UNISCAPE WALL BRACKET SET

234 628164

Make the Uniscape EEBD more accessible in case of emergency by using the wall brackets.

Simply screw to the wall and place the Uniscape into the bracket and tighten the straps.

Features

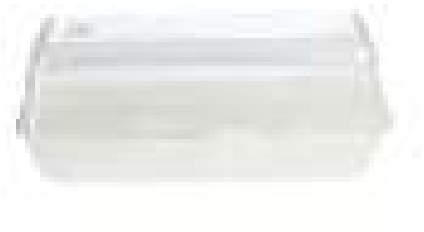
- Simple installation
- Secure strap system

Bene ts

- Simply screw or bolt the brackets to the wall
- Set of straps to hold the Uniscape in the brackets supplied
- Quick release buckles on the straps allow users to remove the Uniscape quickly

UNISCAPE WALL BRACKET SET PLASTIC COVERS

234 632760



By adding plastic covers to the Uniscape EEBD bracket, the unit is protected further from vibration and damage during long periods of storage.

Features

- Installs onto brackets

Bene ts

- Reduces vibration damage to the EEBD when in the bracket

CHEMICAL SUITS

Even though risk assessment is done serious accidents can and do occur. The Trellchem protective suit will give you the best of protection if accidents occur or when daily work is a high risk situation.

Features

- Rubber, Viton or PVC options
- Positive pressure air supplied or splash only
- Bayonet glove ring system on pressurised suits

Bene ts

- 3 materials offer differing levels of protection to suit your particular hazard
- You have a choice dependant on your risk of either splash only or positive pressure suits
- The Trellchem bayonet system for gloves gives you a positive seal ensuring gas tightness

All Trellchem positive pressure suits increase your safety and can either be connected to BA sets giving you total freedom of movement or by connecting to a hose from your vessel's air supply.

The pressurised system with varying air ow levels gives you protection against leaks, for example by accidental perforations, and also provides the suit with ventilation.

Air ows can be set at either 2 or 30 litres per minute with BA sets or optionally 30 or 100 litres when operating with an external airline

Approvals

CE

CHEMICAL SUIT REPAIR KITS

We provide a range of repair kits to give you the opportunity to make minor repairs to perforations.

Bene ts

- Comprehensive kits allow you to make repairs to perforations
- All pressurised suits have tailored repair kits
- Our global network of service stations can offer spare parts and services to your equipment

This pressurised system with varying air ow levels gives you protection against leaks, for example by accidental perforations, and also provides the suit with ventilation.

Ordering information

Product Number	Product name
739029	REPAIR KIT FOR TRELLCHEM VPS SUIT
775008	Repair Kit Trellchem Super Suit
775010	Repair Kit Trellchem Light & Splash 600 Suit

CHEMICAL SUITS TEST KIT

Trelltest allows for testing according to the European test method EN 464 (stipulated in EN 943) as well as ASTM F 1052 (stipulated n NFPA 1991). The easy to use test kit allows you to maintain high standards of safety onboard whilst at sea.

Features

CONTENTS

- 1 face seal plate (kit “T”),with connection nipple and valve
- 1 pce pressure gauge with PVC hose and quick release coupling
- 1 pce digital stop watch/timer
- 2 pcs rubber blind plugs
- 2 pcs cuff clips (used with old ring system)
- Packed in a black plastic box.

Bene ts

- Full range of Test and Repair kits available
- WSS Global service options for high level repairs

Ordering information

Product Number	Product name
781425	TRELLTEST CHEMICAL SUIT TEST KIT
If required to repair after Test	
739029	REPAIR KIT FOR TRELLCHEM VPS SUIT
775008	REPAIR KIT TRELLCHEM SUPER SUIT
775010	REPAIR KIT TRELLCHEM LIGHT & AMP; SPLASH 600 SUIT

TRELLCHEM SUPER T-ET CHEMICAL SUITS

The Super T-ET Chemical & Gas tight suit provides excellent protection against hazardous chemicals in liquid, vapor, gaseous and solid form.

The Trellchem Super ET-T is a mid level protection suit ideal for con ned space working.

Features

- Includes mini hood and re ghters standard boots
- High comfort
- BA worn outside of suit
- Positive pressure suit

Bene ts

- You can use the Super T-ET with most standard BA sets with supplementary air connections
- It is available in 3 sizes to give you a correct t
- The polyamide fabric coated with Viton and Butyl rubber gives excellent protection against acids, alkalis ,solvents, petrochemicals and warfare agents
- The mini hood protects you against inward leakage between mask and face seal, in case of jet spray from behind

Technical Data

Properties	METHOD
Abrasion resistance.	EN 530, method 2
Flex cracking	ISO 7854, method B
Flex cracking at -30 Deg.C	ISO 7854, method B
Trapezoidal tear resistance	ISO 9073-4
Tensile strength	ISO 13934-1
Puncture resistance	EN 863
Resistance to ame	EN 13274-4, method 3
Seam strength	ISO 5082
Antistatic	EN 1149-3, EN 1149-5

Supplied with the suit

- Chemical Resistance table
- Storage bag and suit hanger and instructions for storage
- Record card for use and chemical exposure

You will need to notify which type of BA set on board so we can advise on the correct hoses and ttings.

Ordering information

Product Number	Product name	Size	Height	Chest
740530	TRELLCHEM SUPER T-ET, M W/MINI HOOD	Medium	176-188cm	92-100cm
740555	TRELLCHEM SUPER T-ET, L W/MINI HOOD	Large	182-194cm	96-104cm

Accessories

Product Number	Product name
Recommended for onboard maintenance	
775008	REPAIR KIT TRELLCHEM SUPER SUIT

Product Number	Product name
If required	
605204	TRELLCHEM HOOD FOR MASK & BA SET
749838	GLOVES F/TRELLCHEM VPS & SUPER

Approvals

CE

TRELLCHEM LIGHT T

The Light T Chemical and Gas tight suit is soft and durable giving you excellent protection against hazardous chemicals in liquid, vapor, gaseous and solid form.

It is ideal for you to use for con ned spaces, short period working or less aggressive environments.

Features

- Lightweight
- High comfort
- BA worn outside of suit
- Positive pressure suit

Bene ts

- You can use the Trellchem Light with most standard BA sets with supplementary air connections
- It is available in two sizes to give you a correct t
- The polyamide fabric is coated on both sides and gives you excellent protection against alkalis, acids, oils, alchohols and aliphatics.
- Our global network cover both service and repair needs for your equipment

Technical data

Properties	METHOD
Abrasion resistance.	EN 530, method 2
Flex cracking	ISO 7854, method B
Flex cracking at -30 Deg.?C	ISO 7854, method B
Trapezoidal tear resistance	ISO 9073-4
Tensile strength	ISO 13934-1
Puncture resistance	EN 863
Resistance to ame	EN 13274-4, method 3
Seam strength	ISO 5082
Antistatic	EN 1149-3, EN 1149-5

Ordering information

Product No	Description	Size	Height	Chest
538918	Trellchem Light T Chemical suits without hose	Medium	136-188cm	92-100cm
538926	Trellchem Light T Chemical suits without hose	Large	182-194cm	96-104cm

Accessories

Product Number	Product name
Required	
571034	SAFETY BOOT YELLOW SIZE44
571026	SAFETY BOOT YELLOW SIZE43

Product Number	Product name
571018	SAFETY BOOT YELLOW SIZE42
571042	SAFETY BOOT YELLOW SIZE45
Recommended for onboard maintenance	
775010	REPAIR KIT FOR TRELLCHEM LIGHT & SPLASH 600 SUIT
If Required	
749838	GLOVES F/TRELLCHEM VPS & SUPER
605204	TRELLCHEM HOOD FOR MASK & BA SET
749846	GLOVES F/TRELLCHEM LIGHT AND SPLASH

Approvals

CE

TRELLCHEM VPS T-ET CHEMICAL SUIT

The VPS T-ET Chemical & Gas tight suit is perfect when carrying mixed or constantly changing cargoes. The higher levels of protection offer a greater resistance across a broader range of hazards.

Features

- Includes mini hood and re ghters boots
- High comfort
- BA worn outside of suit
- Positive pressure suit

Bene ts

- You can use the VPS T-ET with most standard BA sets with supplementary air connections
- It is available in three sizes to provide a better t
- Protects against most chemicals for >8 hours (including warfare agents)
- A well-proven combination of rubber and a multi-layer chemical barrier provides you with excellent chemical protection for >8 hours against a wide range of chemicals, as well as great abrasion and ame resistance
- The mini hood protects you against inward leakage between mask and face seal, in case of jet spray from behind

Technical data

Properties	METHOD
Abrasion resistance.	EN 530, method 2
Flex cracking	ISO 7854, method B
Flex cracking at -30 Deg.C	ISO 7854, method B
Tear resistance warp/weft	ISO 9073-4
Tear resistance warp/weft	ASTM D 2582
Tensile strength	ISO 13934-1
Burst Strength	ASTM D 751
Puncture resistance	EN 863
Seam strength	ISO 5082
Resistance to ignition	EN 13274-4, method 3
Flammability resistance	AST F 1358

We need to know the type of BA set on board to advise on correct hoses and ttings.

Standards

- EN 943-2/ET
- EN 943-1
- EN 1073-2
- EN 14126

Ordering information

Product Number	Product name	Size	Height	Chest
723031	TRELLCHEM VPS T-ET W/MINI HOOD, M	Medium	136-188cm	92-100cm
723049	TRELLCHEM VPS T-ET W/MINI HOOD, L	Large	182-194cm	96-104cm

Accessories

Product Number	Product name
Recommended for onboard maintenance	
739029	REPAIR KIT FOR TRELLCHEM VPS SUIT
If required	
669358	UNIPACK HOSE W/OUTLET FOR TS/VPS/TL
669366	UNIPACK HOSE WO/OUTLET FOR TS/VPS/
749838	GLOVES F/TRELLCHEM VPS & SUPER
605204	TRELLCHEM HOOD FOR MASK & BA SET

Approvals

CE

TRELLCHEM SPLASH 600 SUIT

The Splash 600 suit offers good protection against acids and alkalies and provides basic protection against chemical splash and spray in low-risk environments.

Features

- Non encapsulating design
- Can be used with BA set or lter masks
- Elasticated legs, drawstring hood

Bene ts

- The Light T can be used with any standard BA sets
- It is available in three sizes to provide a correct t
- The Trellchem® Splash material is made of a strong PVC coated fabric providing you with a soft and durable material
- Our global network support your need for service and repair

Technical data

Material Properties	METHOD
Abrasion resistance	EN 530, method 2
Flex cracking	ISO 7854, method B
Flex cracking at -30à¸¢à¸?C	ISO 7854, method B
Trapezoidal tear resistance	ISO 9073-4
Tensile strength	ISO 13934-1
Puncture resistance	EN 863
Resistance to ame	EN 13274-4, method 3
Seam strength	ISO 5082
Antistatic	EN 1149-3, EN 1149-5

Ordering information

Product Number	Product name	Size	Height	Chest
723296	SPLASH 600 WITHOUT BOOTS, SIZE S	Small	170-182cm	88-96cm
723304	SPLASH 600 WITHOUT BOOTS, SIZE M	Medium	136-188cm	92-100cm
723312	SPLASH 600 WITHOUT BOOTS, SIZE L	Large	182-194cm	96-104cm

Accessories

Product Number	Product name
Required	
571018	SAFETY BOOT YELLOW SIZE42
571026	SAFETY BOOT YELLOW SIZE43
571034	SAFETY BOOT YELLOW SIZE44
571042	SAFETY BOOT YELLOW SIZE45

Product Number	Product name
Recommended for onboard maintenance	
775010	REPAIR KIT FOR LIGHT & SPLASH 600 CHEMICAL SUITS
749846	GLOVES F/TRELLCHEM LIGHT AND SPLASH

Approvals

CE

UNIPACK HOSES FOR CHEMICAL SUITS SUPER/VPS/ LIGHT

The Unipack BA set connection hose for Trellchem Super/VPS/Light chemical gas tight suits ts into the supplementary air supply.

Choose between single exit hose or the double exit hose to add a Unipack Rescue mask set and feed your suit.

Features

- Bayonet tting
- For Trellchem Super/VPS/Light Chemical suits

Bene ts

- Simple click and go
- You can standardise your Unipack BA set even if you have different suits on board with the same tting
- Fits any of your suits with a similar tting - gives exibility for your BA sets

Ordering information

Product Number	Product name
669366	UNIPACK HOSE WO/OUTLET FOR TS/VPS/
669358	UNIPACK HOSE W/OUTLET FOR TS/VPS/TL

UNIPACK HOSE FOR CHEMICAL SUITS SUPER/VPS/LIGHT SUIT ONLY CONNECTION

391 669366

The Unitor Unipack BA Set Connection hose for Trellchem Super/VPS/Light chemical gas tight suits ts into the supplementary air supply.

Simply click and go into any of your suits with a similar tting gives yo exibility for your BA sets.

Features

- Bayonet tting
- For Trellchem Super/VPS/Light Chemical suits

Bene ts

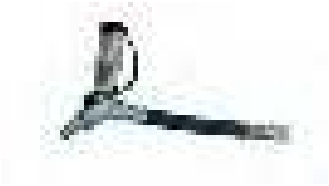
- Simple click and go
- You can standardise your Unipack BA set even if you have different suits on board with the same tting

Ordering information

Product Number	Product name
669366	UNIPACK HOSE WO/OUTLET FOR TS/VPS/

UNIPACK HOSE FOR CHEMICAL SUITS SUPER/VPS/LIGHT SUIT AND RESCUE MASK CONNECTIONS

391 669358



This Unitor Unipack connection hose for chemical & Gas tights suits gives you a secondary connection point to allow tting of a rescue mask set.

You can use either as a feed for your suit or quickly click and go to add a rescue set to giving you the freedom of movement during rescues whilst wearing your gas tight chemical suit.

Features

- Bayonet tting
- for Trellchem Super/VPS and Light type Chemical gas tight suits

Bene ts

- Simple click and go
- You can standardise your Unipack BA set even if you have different suits on board with the same tting

Ordering information

Product Number	Product name
669358	UNIPACK HOSE W/OUTLET FOR TS/VPS/TL

CHEMICAL SUIT SAFETY BOOTS

The nitrile rubber safety boots provides high ame and chemical resistance. They are impervious to a wide range of chemicals and biological hazards ensuring your protection in multi hazard environments.

These are the standard boot for all Trellchem rubber based gas tight suits.

Features

- Steel toe cap and midsole
- Anti static
- Cold insulating
- Available in sizes 42 to 45

Bene ts

- Yellow to identify with Chemical clothing
- Resistant to minerals, oils & fats, disinfectants and various chemicals

Standards

- EN 20345 type S5 HRO SRC
- EN 15090 type F3A

Ordering information

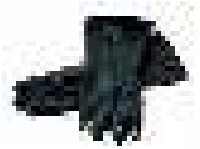
Product Number	Product name
571018	SAFETY BOOT YELLOW SIZE42
571026	SAFETY BOOT YELLOW SIZE43
571034	SAFETY BOOT YELLOW SIZE44
571042	SAFETY BOOT YELLOW SIZE45

Approvals

CE

GLOVES, VITON/BUTYL FOR TRELLCHEM VPS & SUPER

394 749838



These outer barrier gloves are for use with VPS/ Super and Light type suits are a unique rubber glove giving you excellent chemical resistance to a wide range of chemicals, including warfare agents and biological hazards.

Hands do the majority of work so it is important you protect them thoroughly.

To ensure constant use of your chemical suits it is always advisable to carry a spare set of gloves onboard.

Features

- Simple to replace onboard
- Provide abrasion resistance
- soft and exible
- Include the bayonet ring

Bene ts

- Carrying a spare set maintains operational readiness of your chemical suits
- The VPS/Super and Light bayonet system allows you to replace gloves quickly and easily
- They are soft and exible allowing you to carry out most tasks
- These outer barrier gloves protect your hands from abrasions and ensure your suit remains gas tight

Technical data

DESIGN	5-finger protective rubber glove with rolled cuff.
MATERIAL	Butyl rubber with an outer layer of Viton® rubber
THICKNESS	0.80 mm (nominal)
LENGTH	35 cm
COLOUR	Black

Ordering information

Product Number	Product name
749838	GLOVES F/TRELLCHEM VPS & SUPER

GLOVES PVC F/TRELLCHEM LIGHT AND SPLASH

394 749846

These Light and Splash type chemical suit spare gloves can be used in conjunction with the suits or as a stand alone protection.

They are nitrile chloroprene for excellent resistant to chemicals and have a roughened area in the palm to help you grip.

To ensure constant use of your chemical suits it is always advisable to carry a spare pair on board.

Features

- Good grip
- Good abrasion & weather resistance
- Very good chemical chemical resistance

Bene ts

- The roughened palm areas will improve your grip
- A combination of Nitrile rubber and Chloroprene rubber ensure you get excellent working properties even in cold weather
- The material also gives you good resistance against most chemicals

Standards

- EN 374
- EN 420
- EN 388

Ordering information

Product Number	Product name
749846	GLOVES F/TRELLCHEM LIGHT AND SPLASH

TESTKIT COMPL.TIGHTNES F/TRELLCHEM.

394 781425

Trelltest allows for testing according to the European test method EN 464 (stipulated in EN 943) as well as ASTM F 1052 (stipulated n NFPA 1991). The easy to use test kit allows you to maintain high standards of safety onboard whilst at sea.

Features

CONTENTS

- 1 face seal plate (kit “T”),with connection nipple and valve
- 1 pce pressure gauge with PVC hose and quick release coupling
- 1 pce digital stop watch/timer
- 2 pcs rubber blind plugs
- 2 pcs cuff clips (used with old ring system)
- Packed in a black plastic box.

Bene ts

- Full range of Test and Repair kits available
- WSS Global service options for high level repairs

Ordering information

Product Number	Product name
781425	TRELLTEST CHEMICAL SUIT TEST KIT
If required to repair after Test	
739029	REPAIR KIT FOR TRELLCHEM VPS SUIT
775008	REPAIR KIT TRELLCHEM SUPER SUIT
775010	REPAIR KIT TRELLCHEM LIGHT & AMP; SPLASH 600 SUIT

REPAIR KIT TRELLCHEM VPS SUIT

394 739029

Make minor repairs at sea to VPS T-ET Chemical & Gas tight suits with this simple repair kit.

All parts are included ensuring usage of your chemical suits when at sea.

For major repairs and service we offer a global service network to keep you compliant at all times.

Features

- Simple but effective small repair system
- Complete kit with patches, glue, hardener, solvent and brush

Bene ts

- The kit reduces your downtime for minor repairs keeps you going while at sea
- No specialist knowledge is required by your crews as the easy to follow instructions explain how to carry out repairs
- If you have any major work required we fully support your Trellchem suits throughout our global service network

Ordering information

Product Number	Product name
739029	REPAIR KIT FOR TRELLCHEM VPS SUIT

REPAIR KIT TRELLCHEM LIGHT & SPLASH 600 SUITS SUIT

L27763

Minor repairs at sea to Light T and Splash 600 Chemical suits can be overcome using a simple repair kit.

All parts are included ensuring usage of your chemical suits when at sea.

For major repairs and service we offer a global service network to keep you compliant at all times.

Features

- Simple but effective small repair system
- Complete kit with patches, glue, hardener, solvent and brush

Bene ts

- The kit reduces your downtime for minor repairs keeps you going while at sea
- No specialist knowledge is required by your crews as the easy to follow instructions explain how to carry out repairs
- If you have any major work required we fully support your Trellchem suits throughout our global service network

Ordering information

Product Number	Product name
L27763	SREPAIR KIT FOR LIGHT & SPLPASH 600 CHEMICAL SUITS

REPAIR KIT TRELLCHEM SUPER SUIT

L39499

Minor repairs at sea to Super T-ET Chemical & Gas tight suits can be overcome using this simple repair kit.

All parts are included ensuring usage of your chemical suits when at sea.

For major repairs and service we offer a global service network to keep you compliant at all times.

Features

- Simple but effective small repair system
- Complete kit with patches, glue, hardener, solvent and brush

Bene ts

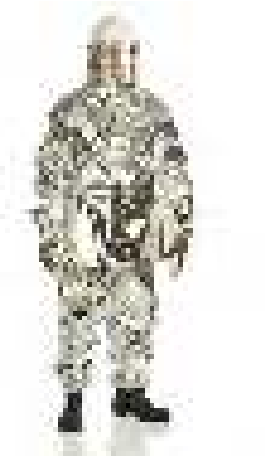
- The kit reduces your downtime for minor repairs keeps you going while at sea
- No specialist knowledge is required by your crews as the easy to follow instructions explain how to carry out repairs
- If you have any major work required we fully support your Trellchem suits throughout our global service network

Ordering information

Product Number	Product name
L39499	REPAIR KIT FOR TRELLCHEM SUPER SUIT

UNITOR FLAMEGUARD FIRE FIGHTERS SUIT SOLAS KIT

Recently approved to the latest EN1612 the Flameguard Solas is at the forefront of technology with this approval class.



Features

- Compliance with latest approvals
- New technology materials
- Complete kit for Non MED vessels
- One size t

Bene ts

- This suit has recently been approved so will give you compliance for years to come
- New materials which improve the bonding of aluminium and the cotton backing give longer product life and improved levels of usage performance
- Complete kit consist of suit, boots, helmet and gloves
- The size large is generously sized and with the braces and adaptable closures will cover a large proportion of your crew particularly if you change them regularly

Firemans Out t

- Helmet
- Jacket
- Trousers
- Boots
- Leather gloves
- Electrical gloves
- Bag

Our website contains all of the items to make up your complete re ghters out t.

Ordering information

Product Number	Product name	Height	Chest	Waist	Inside leg
775148	UNITOR FLAMEGUARD SOLAS KIT M	164-182cm	84-104cm	84-104cm	74cm
775155	UNITOR FLAMEGUARD SOLAS KIT L	170-188cm	96-116cm	96-116cm	79cm
775163	UNITOR FLAMEGUARD SOLAS KIT XL	176-194cm	112-132cm	112-132cm	84cm

Accessories

Product Number	Product name
Required	
777465	SOLAS FIREMAN BOOTS SIZE 42
777466	SOLAS FIREMAN BOOTS SIZE 43
777467	SOLAS FIREMAN BOOTS SIZE 44
777469	SOLAS FIREMAN BOOTS SIZE 46
777470	SOLAS FIREMAN BOOTS SIZE 47
If required	
534958	FIRE AXE W/INSULATED HANDLE
658310	SAFETY LAMP W/BATT

Product Number	Product name
176826	LIFELINE 30 M W/HOOK
790100	ATEX SAFETY TORCH W/LED

UNITOR FIRE FIGHTERS SUIT FIREBUDDY PLUS KIT

The Unitor Firebuddy Plus re ghters kit is a top of the range suit using softer, more exible materials to give you more freedom of movement.

Features

- The FireBuddy Suit is a two-piece garment with a four-layer construction
- Ships Wheel and Solas approved reman's out t
- Comprising of helmet, jacket, trousers, gloves and non-conductive gloves
- The jacket has a stand up collar, elasticated cuffs, and is closed by a zip covered by an overlapping front with touch and close fastening to the front and collar
- The trousers have wide elasticated braces with adjusters and quick-release buckles
- All gloves plus the boots and helmet are also EN approved in accordance with MED ships wheel
- Additionally you can complete your re ghter requirements from our range of breathing apparatus and rescue equipment

Bene ts

- The 4 layer construction ensures thermal protection whilst providing with high comfort factors using breathable materials
- Softer materials even with 4 layers give you exible movement which is a crucial element when you need to enter con ned spaces or be physically active
- The touch and close fastening and elasticated trouser braces allow you to don the suit quickly
- Suit sizing is generous, allowing you to wear additional clothing

Firemans Out t

- Helmet
- Jacket
- Trousers
- Leather gloves
- Electrical gloves
- Bag

Our website contains all of the items to make up your complete re ghters out t.

Ordering information

Product Number	Product name	Height	Chest	Waist	Inside leg
Size range					
775620	UNITOR FIREBUDDY PLUS KIT SIZE M	164-182cm	84-104cm	84-104cm	74cm
775621	UNITOR FIREBUDDY PLUS KIT SIZE L	170-188cm	96-116cm	96-116cm	79cm
775622	UNITOR FIREBUDDY PLUS KIT SIZE XL	176-194cm	112-132cm	112-132cm	84cm

Accessories

Product Number	Product name
Required	
766803	FIREMANS BOOTS SIZE 41
766804	FIREMANS BOOTS SIZE 42
766805	FIREMANS BOOTS SIZE 43
766806	FIREMANS BOOTS SIZE 44
766807	FIREMANS BOOTS SIZE 45
766808	FIREMANS BOOTS SIZE 46/47
If Required	
777539	LAMP HOLDER F/FIREMANS HELMET PAB
777538	LED LAMP F/FIREMAN HELMET PAB
534958	FIRE AXE W/INSULATED HANDLE
790100	ATEX SAFETY TORCH W/LED
658310	SAFETY LAMP W/BATT
176826	LIFELINE 30 M W/HOOK
Other sizes of Lifelines available	

Approvals

CABINET FOR FIRE FIGHTERS OUTFIT

394 592576

Our range of GRP cabinets is built to last the rigorous of the marine environment. Well proven through many years of supply in numerous markets from offshore and cruise to general marine, the cabinets offer exible options offering you a choice dependent on your stowage need.

Features

- GRP
- Stainless steel hinges and ttings
- Waterproof
- Clear labelling

Bene ts

- Offers a large capacity so you can stow multiple products if required
- Our manufacturing process and stainless steel tting means a longer product life
- Options include oor or wall mounted versions enabling you to optimise your space
- For total protection of your equipment you can choose internal ttings to be included

Technical Data

Length	595 mm
Width	630 mm
Height	1120 mm
Capacity	1 Fire Fighters kit

Ordering information

Product Number	Product name
592576	CABINET GRP F/FIREMANS OUTFIT

FIREMANS HELMET - PAB HT04

394 774943

The helmet is designed to protect the head in the most extreme conditions. Development of new composite technology in combination with established designs enable full protection even at shorter ash over ames reaching up to 1000 °C.

Features

- Includes visor and neck curtain
- Light-weight
- Visor approved for use in res
- High comfort

Bene ts

- You can use with any marine re ghting kits on board your vessel
- Visor folds inside helmet when not used for added protection and is not in your line of vision
- The helmet and visor both give you high impact resistance for clearing debris or during re ghting operations
- The generous sizing of 52 to 63cm will cover the majority of your crew
- Extremely lightweight (1.350 g) and tted lugs that support a wide selection of compatible accessories

Technical data

- Lightweight of only 1.350 g (including visor face shield and neck protector)
- Extreme temperature resistance (up to 1.000 °C) in a 10 seconds ash over ames
- Long-term resistance to 250°C / 30 min, radiant heat test 14 KW / m2
- More resistant to mechanical impacts than any standard helmet *Latest European standards conformity (EN 443/2008)
- Full head protection, including neck and face
- PES anti-scratch and anti-fog coated visor resistible to up to 300°C (EN 14458)
- Aluminized carbon- abre neck protection
- Interior shock absorber made of polyurethane foam
- Integrated adjustment system (ranging from 52 – 63cm)
- Interior ventilating channels enable safe and comfortable work
- Luminescent and re ective tapes visible from all sides and in all conditions
- Nomex chinstrap - tested to prevent skin irritations

Ordering information

Product Number	Product name
774943	PAB HELM. FIREHT04 RED COMP W/VISOR

Accessories

Product Number	Product name
777539	LAMP HOLDER F/FIREMANS HELMET PAB
777538	LED LAMP F/FIREMAN HELMET PAB

Approvals

LED LAMP F/FIREMAN HELMET PAB.

398 777538

Your job is faster and more ef cient when you are able to use both hands.

Holding a ashlight when attempting an important task is just not an option especially when re ghting.

Our simple click in LED lamp gives you usage option plus is quick to change batteries if needed.

Features

- Simple click t
- Lightweight
- ATEX approved

Bene ts

- You simply click it into the holder on your helmet
- It is extremely lightweight so does not restrict or reduce your head movement
- It is approved for use in hazardous zones so you can use it during rescues as well as re ghting duties

Technical data

Battery type	4 AA Alkaline / LR6
Output time	4-5 hours
Beam Distance	99.97 metres

Class I Div 2

UK4AA-AS2ZM

Ordering information

Product Number	Product name
777539	LAMP HOLDER F/FIREMANS HELMET PAB
774943	PAB HELM. FIREHT04 RED COMP W/VISOR

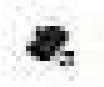
Approvals

AMERICAN standards

UL (US, Canada) Approved CL I, DIV 2, GP A, B, C, D, CL II, DIV 2 GP F, G, CL III, DIV 2 T4

LAMP HOLDER F/FIREMANS HELMET PAB.

394 777539



Our lamp holder extends the capabilities of your PAB re ghters helmet when tting an LED lamp.

Your job is faster and more ef cient when you are able to use both hands and by tting an optional LED lamp to the helmet the light beam follows your line of vision.

Ordering information

Product Number	Product name
777539	LAMP HOLDER F/FIREMANS HELMET PAB
777538	LED LAMP F/FIREMAN HELMET PAB
774943	PAB HELM. FIREHT04 RED COMP W/VISOR

FIRE AXE WITH INSULATED HANDLE 2KV

394 534958

When time matters this insulated re axe offers you suf cient rating to cover most ships electrical voltages.

Tested to 2kv with a separated handle you can be assured of performance when tackling res on board.

Features

- Insulated handle
- Corrosion resistant
- Ergonomic grip

Bene ts

- Non ageing insulated handle for longer life and giving you excellent protection
- It is impact proof so will not shatter when you are tackling solid metals
- The axe head is SAE1055 steel a proven workhorse of the rescue industry

Ordering information

Product Number	Product name
534958	FIRE AXE W/INSULATED HANDLE

COVER FOR FIRE AXE

398 525519

To be used as re axe cover separately or attach to a waist belt to free your hands when working.

Quick snap closure allows you instant access even with wearing re gloves.

Will t all of our re axe range.

Features

- Suits products 525535/176842/755314
- Toughened leather
- Riveted seams

Bene ts

- Can be used in storage or attached to your waist belt
- Prevents accidents when working whilst also giving instanst access
- Riveted seams for longer life and increased durability

Ordering information

Product Number	Product name
525519	COVER F/FIRE AXE 260/268

GLOVES FOR FIREBUDDY PLUS FIRE FIGHTERS SUIT

392 775361

The gloves have been designed to give you a comfortable and exible feel while maintaining a high degree of protection. The gloves have a waterproof, breathable lining which also provides chemical resistance.

Features

- Water resistant leather
- Knitted wrist
- Aramid lined
- Approved to EN659: 2003 +A1

Bene ts

- Can be washed with clothing after use
- Multi sized will t most, ensures most of your crew can wear them
- A knitted wrist ts well into your out t and will keep your hands dry
- The leather is a soft feel making these gloves comfortable to wear
- Protection against penetration and cuts is provided by the kevlar lining

Further Details

- Outer cow split suede
- Moisture barrier Hipora
- Lining fabric knitted kevlar
- Cuf ng knitted kevlar
- Weight - 250g

Ordering information

Product Number	Product name
775361	GLOVES FOR FIRE FIGHTING SUIT

Approvals

Tested and approved to EN659 and Marine Equipment Directive (MED) 96/98/EC as modi ed by Commission Directives 98/85/EC, 2002/75/EC and 2002/84/ EC also covered by PPE Council Directive 89/686/EC.

FIRE FIGHTERS SUIT INSULATED GLOVES

392 775379

The latex gloves provides a high dielectric performance for added protection when wearing leather gloves as part of a re ghters out t. To be used with outer leather gloves for mechanical protection.

Features

- Insulating gloves for personal protection against electrical shocks
- Comply with the IEC 60903 and EN 60903
- Good heat insulation

Bene ts

- Used in conjunction with your re ghters out t they will protect against electric shocks
- You will fully comply with the IEC regulations as these gloves are Class 00 one of the highest levels
- As an added bene t when re ghting they also offer extremely good heat insulation
- Soft latex and ergonomically shaped - they can be put on quickly and are comfortable to wear

Ordering information

Product Number	Product name
775379	FIREMANS GLOVES INSULAT

SOLAS FIRE FIGHTERS BOOTS

Unitor Fire- ghters Boots are for use with non-MED approved re ghters suits.

These re resistant wellingtons with exible rubber uppers, sanitised linings and slip resistant sole pattern are ideal for when you need to climbing ladders. You can use these boots for general working also.

Features

- For use on Solas only approved re ghters suits
- Generously sized
- Protective toe cap to EN20345
- Sanitised linings

Bene ts

- Approved to EN20345 ensures the quality of these boots to be used on your Non MED re ghter out ts
- Flexible uppers provides good levels of comfort and freedom of movement
- The sole pattern provides a good grip when climbing ladders or working on wet surfaces
- The sanitised linings help reduce foot odors

Ordering information

Product Number	Product name
777465	SOLAS FIREMAN BOOTS SIZE 42
777466	SOLAS FIREMAN BOOTS SIZE 43
777467	SOLAS FIREMAN BOOTS SIZE 44
777469	SOLAS FIREMAN BOOTS SIZE 46
777470	SOLAS FIREMAN BOOTS SIZE 47

Approvals

- For Solas only Fire Fighters suits

MED FIRE FIGHTERS BOOTS

Our re resistant wellingtons with exible rubber uppers, sanitised linings and slip resistant sole pattern, ideal for either emergency situations or as a general working boots.

Features

- Fire Proof Nitrile rubber
- Polymer toe cap
- Composite antiperforation mid-sole
- Chemical resistance
- Wide size range

Bene ts

- These boots are suitable for emergency situations, re ghting or incidents involving the release of hazardous chemicals
- They give protection against numerous other hazards including fuels, greases, solvents, weak and diluted acids
- Tough long lasting boots which boast excellent resistance to cuts and abrasions

Ordering information

Product Number	Product name
766803	FIREMANS BOOTS SIZE 41
766804	FIREMANS BOOTS SIZE 42
766805	FIREMANS BOOTS SIZE 43
766806	FIREMANS BOOTS SIZE 44
766807	FIREMANS BOOTS SIZE 45
766808	FIREMANS BOOTS SIZE 46/47

Approvals

CE

Comply with standards :

- EN 15090 type 3 Boots suitable for emergency situation or re involving release of hazardous chemicals that can cause loss of life.
- EN20345 S5 HRO SRC Heel energy absorption. Antistatic. Contact heat resistance (HRO)

- EN 13832-3 J K R Boots highly resistant to chemicals : n-Heptane (J) Sodium Hydroxide(K) Sodium Hypochloride (R)
- EN 13287 Sole slip resistance (SRC) :
- Ceramic oor.
- Steel oor.

FIRE FIGHTERS LIFELINE

For use with re ghter suits or as a general aid. The 30 m lifelines are attached by means of a snap-hook to either the harness of the breathing apparatus or belt. The lifelines provide users with the means to escape back following an entry route or for rescuers to follow a path.

Features

- Galvanized steel cable IRWC 6 x 19, PP bre core 5 mm with a Trevira CS braiding
- 6.6 kn breaking strength
- Snap hook and carabiner ttings
- Available in 30, 45, 60 or 90 m lengths

Bene ts

- In the event of a snag you can un-clip quickly
- These hard wearing lines will not wear away when rubbing against corners when you are moving around
- They are suitable for use in your helideck rescue equipment

Ordering information

Product Number	Product name	Breaking strength
176826	LIFELINE 30 M W/HOOK	6.6kn
176834	LIFELINE 45 M W/HOOK	6.6kn
781575	LIFELINE W/HOOK, 60 M	6.6kn
780029	LIFELINE W/HOOK 90 MTR	6.6kn

Approvals

OXY, TOXI & GAS-MATE

The Unitor range of single gas meters are compact and lightweight yet fully ruggedised for the toughest of maritne environments.

Featuring simple single button operation, they have a large easy to read display of gas concentration with audible, visual and vibrating alarms.

Features

- Bespoke for tough marine environment with IP 65 /67 protection
- Innovative sensors offering reduced operating cost
- High audible alarm with vibrate and visual dual colour ashing LED's.

Bene ts

- Rugged design ensures protection against impact and oil & chemicals thus offering longer onboard service life
- Sensors offer accuracy in readings, resistant against sensor poisoning ensuring longer service life
- The audible, visual alarm, vibrate and con dence blip allow you to concentrate on the job in hand

General Product Information

- 12 month calibration interval
- Lithium - Ion 12 hr battery life
- Versions available for ammable gas, oxygen and toxic gases
- Rechargeable versions for all gas types
- Non rechargeable versions for oxygen and toxic gases
- Ultra lightweight – just 85gm
- Loud 95dBA audible alarm
- Data and event logging as standard

Ordering information

Product Number	Product name
724880	OXY-MATE C PACKAGE, O2
724922	OXY-MATE CR PACKAGE, O2
724948	TOXI-MATE CR PACKAGE, CO
724963	TOXI-MATE CR PACKAGE, H2S
724989	GAS-MATE CR PACKAGE, CH4
777540	GAS-MATE CR PACKAGE, H2

Accessories

Product Number	Product name
Recommended	
If Required	
656819	ASPIRATOR HOSE - 10M
656835	ASPIRATOR PROBE - 1M

Product Number	Product name
656843	ASPIRATOR PROBE, TELESCOPIC - 1M

Approvals

COMBI-MATE

The Unitor Combi-mate is a exible multigas monitor for the detection of ammable gases, oxygen and a wide range of toxic gases. Available in rechargeable battery along-with an internal pump, it is used extensively in the marine market.

Standard Unitor range include the most common four gases - carbon monoxide, methane, oxygen and hydrogen sulphide. Other sensor combinations are available on request

Features

- Reliable sensor technology offers reduced operating cost
- Built in internal pump for pre tank entry checks
- Easy to read top mounted display

Bene ts

- Sensors offer accuracy in readings, resistant against sensor poisoning ensuring longer service life
- Internal pump with sampling tube up to 10 mtr enables pre-entry measurements into con ned spaces
- Top mounted display allows easy and quick reading for user

General Product Information

- Digital interchangeable i-module sensors for full exibility
- Loud 94dBA audible alarm with selectable tones
- Unique dual colour red/blue visual alarm
- Built in vibrating alarm as standard
- Rugged and robust, IP65 ingress protection
- Lithium - Ion battery offering 15 hour operation
- Peak mode operation
- TWA reading recall
- Data & event logging
- Simple IR interface to PC

Ordering information

Product Number	Product name
739413	COMBI-MATE PCK W/PUMP O2+CH4+H2S+CO
708875	COMBI-MATE PK. PUMP O2+C4H10+H2S+CO

Accessories

Product Number	Product name
Recommended	
656918	CARRY CASE FOR COMBI-MATE
656892	CHEST HARNESS KIT FOR COMBI-MATE
709436	COMBI-MATE GAS TEST KIT (PUMPED)
If Required	
656801	ASPIRATOR ASSEMBLY FOR COMBI-MATE
656819	ASPIRATOR HOSE - 10M

Product Number	Product name
656835	ASPIRATOR PROBE - 1M
656843	ASPIRATOR PROBE, TELESCOPIC - 1M
710954	BELT FOR CARRY CASE
708891	COMBI-M CALIBR. ADAPT. PLATE F/NON
656850	WATER TRAP FOR SAMPLING HOSE

Approvals

COMBI-MATE 3

The Combi mate 3 multi-gas monitor is a compact, robust and easy to use gas detector.

Single button operation, small size and clear top-mounted display make it a favourite with our customers working in demanding marine environments

Despite its compact size Combi mate 3 is ultra-rugged and water proof. Standard Unitor range include the most common four gases - carbon monoxide, methane, oxygen and hydrogen sulphide. Other sensor combinations are available on request

Features

- Reliable sensor technology offers reduced operating cost
- Optional external hand pump for pre tank entry checks
- Easy to read top mounted display

Bene ts

- Sensors offer accuracy in readings, resistant against sensor poisoning ensuring longer service life
- Optional external pump with sampling tube up to 20 mtr enables pre-entry measurements into con ned spaces
- Top mounted display allows easy and quick reading for user

General Product Information

- Up to 4 gases in a small and lightweight design
- Single button operation for all functions, can be operated with gloved hands
- Rugged impact resistant design provides extra shock and vibration protection
- Reliable Lithium-ion battery provides over 16 hours continuous operation from a single charge with no memory effects.
- Water and Dust resistant to IP67, can be submerged in water
- Rapid and effective warning with a 95 dBa audible alarm, an extremely bright red/blue visual alarm and vibrating alarm as standard.
- Top mounted, backlit display of all gas readings, diagnostics and battery life.

Ordering information

Product Number	Product name
725051	COMBI-MATE 3 PACK O2+CH4+CO
725077	COMBI-MATE 3 PACK O2+CH4+H2S+CO

Accessories

Product Number	Product name
Recommended	

Product Number	Product name
725134	GAS TEST KIT, COMBI-MATE 3
739101	CARRY CASE FOR CM3 INSTR.
656900	CARRY CASE AND BELT FOR TANK-MATE
If Required	
739077	ASPIRATOR ASSEMBLY FOR CM3, COMPL.
656827	ASPIRATOR HOSE - 20M
656819	ASPIRATOR HOSE - 10M
656835	ASPIRATOR PROBE - 1M
656843	ASPIRATOR PROBE, TELESCOPIC - 1M
725135	HARNESS PLATE FOR C/CR & CM3 INSTR
656850	WATER TRAP FOR SAMPLING HOSE

Approvals

CARRY CASE FOR OXY, TOXI & GAS-MATE SINGLE GAS PORTABLE GAS DETECTOR

381 725143

This is a specially designed carry case which allows you to connect it to our specially designed chest harness, shoulder strap, belt or hard hat harness or simply be used as a protector for your gas detector.

Features

- Made from durable leather
- Specially designed to t Unitor single gas detectors
- Plastic viewing window

Bene ts

- Protects the unit from wear and tear
- Fits perfectly around Unitor single gas detectors
- Prolongs the life of you gas detector

ASPIRATOR HOSE 10 METER FOR USE WITH UNITOR GAS DETECTORS

381 656819

This is a 10 meter aspirator hose that you can use with the Unitor Aspirator assembly for Unitor Gas Detectors.

Features

- Flexible rubber hose

Bene ts

- Can be used with any Unitor Oxy, Toxi or Gas-mate detectors

ASPIRATOR HOSE 20 METER FOR USE WITH UNITOR GAS DETECTORS

381 656827

This is a 20 meter aspirator hose that you can use with the Unitor Aspirator assembly for Unitor Gas Detectors.

Features

- Flexible rubber hose

Bene ts

- Can be used with any Unitor Combi-mate gas detectors

ASPIRATOR PROBE 1 METER, FIXED FOR GAS DETECTION

381 656835

This xed 1m aspirator probe can be used with our Unitor Gas Detectors when you are needing to sample inside an area with limited or restricted access.

Features

- Stainless steel construction

Bene ts

- Can be used with any Unitor Aspirator
- Allows for safe remote sampling

ASPIRATOR PROBE, TELESCOPIC - 1M

381 656843

This telescopic aspirator probe can be used with our Unitor Gas Detectors when you are needing to sample inside an area with limited or restricted access.

Features

- Stainless steel construction
- Telescopic adjustment

Bene ts

- Can be used with any Unitor Aspirator
- Allows for safe remote sampling

ASPIRATOR ASSEMBLY SINGLE GAS MONITOR

381 725127

Hand pumped aspirator assembly for use with personal single gas monitors Oxy-Mate Toxi-Mate and Gas-Mate detectors when needing to carry out remote sampling without entering the testing area.

Features

- Manual ball pump
- Rubber construction

Bene ts

- Designed for use with Unitor Single Gas Detectors
- Allows for remote safe sampling

CARRY CASE FOR UNITOR COMBI-MATE PORTABLE GAS DETECTOR

381 656918

This is a specially designed carry case which allows you to connect it to our specially designed chest harness, shoulder strap, belt or simply be used as a protector for your Combi-Mate Gas detector.

Features

- Made from durable leather
- Specially designed to t Unitor Combi-Mate gas detectors
- Plastic viewing window

Bene ts

- Protects the unit from wear and tear
- Fits perfectly around Unitor Combi-Mate gas detectors
- Connects with Unitor carry strap or chest harness
- Prolongs the life of you gas detector

CHEST HARNESS KIT FOR UNITOR COMBI-MATE GAS DETECTOR

381 656892

This chest harness kit enables you to attach your Unitor Combi-Mate and were the unit on your chest allowing you to have both hands free to concentrate on the task in hand.

Features

- Made from durable nylon
- Toughened plastic clips
- Adjustable straps

Bene ts

- Durable nylon ensures that the harness will not break under strain
- Tough plastic clips ensure that the unit is secured in position
- Adjustable straps ensure a comfortable t for the user

ASPIRATOR ASSEMBLY NON-PUMPED UNITOR COMBI-MATE GAS DETECTOR

381 656801

The hand pumped aspirator assembly can be used with the Unitor Combi-Mate personal gas detector when needing to carry out remote sampling without entering the testing area.

Features

- Manual Ball pump
- Rubber 2 meter hose

Bene ts

- Designed for use with Unitor Combi-Mate Gas Detectors
- Allows for safe remote sampling

GAS-TEST KIT, FOR UNITOR COMBI-MATE PUMPED UNIT WITHOUT GAS CYLINDER

381 709436

This gas test kit can be used with any Unitor SpanGas cylinder to carry out daily bump test for Unitor Combi-Mate Gas Detectors. The simple trigger operation ensures that the correct amount of calibration gas is used every time.

Features

- Connection place for connection leak tight connection to Combi-Mate
- Flexible rubber hose
- Trigger operation
- Pressure gauge

Bene ts

- Moulded connection plate ensures a leak tight seal
- Flexible rubber hose ensures no leakage of calibration gas
- Single trigger operation ensures that there is no wastage of calibration gas
- Pressure gauge ensures that the correct pressure of calibration gas is used every time
- Test kit is interchangeable with all Unitor span gas cylinder available globally

GAS TEST KIT FOR COMBI-MATE 3

381 725134

A gas test kit to be used with any Unitor SpanGas cylinder to carry out pre test or daily bump testing to verify your Unitor Combi-Mate 3 Gas detector is working correctly. The simple trigger operation ensures that the correct amount of calibration gas is used every time.

Features

- Connection place for connection leak tight connection to Combi-Mate
- Flexible rubber hose
- Trigger operation
- Pressure gauge

Bene ts

- Moulded connection plate ensures a leak tight seal
- Flexible rubber hose ensures no leakage of calibration gas
- Single trigger operation ensures that there is no wastage of calibration gas
- Pressure gauge ensures that the correct pressure of calibration gas is used every time
- Test kit is interchangeable with all Unitor span gas cylinder available globally

ASPIRATOR ASSEMBLY FOR UNITOR COMBI-MATE 3 GAS DETECTOR

381 739077

The hand pumped aspirator assembly can be used with the Unitor Combi-Mate 3 personal gas detector when needing to carry out remote sampling without entering the testing area.

Features

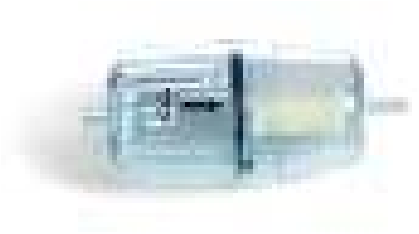
- Manual Ball pump
- Rubber 2 meter hose

Bene ts

- Designed for use with Unitor Combi-Mate gas detectors
- Allows for safe remote sampling

WATERTRAP FOR USE WITH GAS DETECTION ASPIRATOR TUBE

381 656850



A water trap to be installed between aspirator and your gas detector to ensure that you do not accidentally draw liquid in to the unit when sampling with the aspirator assembly.

Features

- Rigid clear plastic construction
- Replaceable Iter
- water line sight glass

Bene ts

- Made from strong plastic that will not easily break
- Clear plastic enables you to see any liquid in the line
- Water line sight glass prevents to much liquid build up
- Replacement Iters increase the lifespan of the product

CARRY CASE AND BELT FOR UNITOR TANK-MATE GAS DETECTOR

381 656900

A specially designed carry case and belt which allows you to wear your Unitor Tank-Mate around your waist and protect your instrument.

Features

- Made from durable leather
- Specially designed to t Unitor Combi-Mate gas detectors
- Plastic viewing window

Bene ts

- Protects the unit from wear and tear
- Fits perfectly around Unitor Combi-Mate gas detectors
- Connects with Unitor carry strap or chest harness
- Prolongs the life of you gas detector

Wilhelmsen Ships Service

LIFE SAVING

All our life saving equipment, whether its liferafts, immersion suits or lifejackets are tried, tested and SOLAS approved.

CABINETS

We offer a wide range of cabinets to store various types of lifesaving and re ghting equipment.

GRP, ABS or PE materials are used to best suit the environment you want to use them in.

Well proven through many years of supply in numerous markets from offshore and cruise to general marine, our cabinets offer exible options giving you a choice based on your stowage need.

Features

- GRP, ABS or PE materials
- Stainless steel, plastic or polythene hinges and ttings dependant on type of cabinet and area of storage
- All are waterproof, hard wearing and colour fast
- Clear labelling de nes usage

Bene ts

- Materials and design features best suited to your storage area
- We offer a wide range for you to choose from
- Options include oor or wall mounted enabling you to maximise your storage space
- Offshore approved ranges available on request

Ordering information

Product Number	Product name	Size (mm) L x W x H
Fire Fighting Equipment Storage Cabinets		
234799	CABINET FOR 18MT FIRE HOSE	170 x 455 x 537
605279	CABINET FOR 20MT FIRE HOSE	310 x 650 x 670
758557	CABINET FOR 25MT FIRE HOSE	815 x 680 x 240
723064	CABINET FOR 5KG TO 9KG FIRE EXTINGUISHERS	270 x 400 x 840
766827	CABINET FOR 6KG TO 9KG FIRE EXTINGUISHERS	270 x 400 x 840
592576	CABINET FOR FIRE FIGHTERS SUITS	595 x 630 x 1120
737320	FOAM STATION BOX	900 x 686 x 600
Lifesaving Appliance Cabinets		
576603	CABINET FOR 6 x LIFEJACKETS OR 4 IMMERSION SUITS	665 x 765 x 460
576611	CABINET FOR 18 x LIFEJACKETS OR 10 IMMERSION SUITS	1218 x 786 x 695
576629	CABINET FOR 24 x LIFEJACKETS OR 12 IMMERSION SUITS	1715 x 720 x 750
576637	CABINET FOR 32 x LIFEJACKETS OR 16 IMMERSION SUITS	2165 x 720 x 665
638395	CABINET FOR EEBD	282 x 762 x 211
Special sizes, colours, approvals can be quoted on request		
Please contact your local WSS Customer Sales of ce if your requirement is not listed		

CABINET FOR FIRE EXTINGUISHER FOR 6 TO 9 KG

295 766827

This top of the range cabinet allows you to store any type of re extinguishers ranging from 6 kg to 9 kg.

They are manufactured from PE, an environmentally friendly product, and you can fully recyclable them.

Features

- Polycarbonate windows
- Can be wall of oor mounted
- Plastic hinges and door catch
- Rubber door seal for additional protection

Bene ts

- Windows allow equipment to be checked quickly without removing it
- You can wall or oor mount these cabinets to suit your storage availability
- The plastic hinges and door catch give a longer life than traditional steel
- The rubber door seal gives you additional protection against moisture and dusts

Technical data

Length	253 mm
Width	320 mm
Height	700 mm

Ordering information

Product Number	Product name
766827	CABINET FOR FIRE EXTINGUISHER

CABINET FOR FIRE EXTINGUISHERS 5KG TO 9KG

295 723064

This re extinguisher cabinet gives you storage for a wide range of extinguisher sizes in tough red polystyrene box with quick and easy opening.

It is impact resistant making it ideal for external storage in busy places.

Features

- For all 6 to 9 kg powder and water extinguishers, and 5kg Co2 extinguishers
- Simple push button opening
- 316L Marine grade hinges and rivets
- Impact resistant and anti UV treated

Bene ts

- You can standardise your storage for most extinguishers on board your vessels
- It is impact resistant, has anti uv protection and is impervious to rain and spray cleaning so you can store externally in busy places
- Hinges and locks are 316L standard for effective resistance to saline and chemical corrosion giving you long life
- It is protected by dated, identi ed lead seal which you can quickly and easily break in an emergency

Length	253 mm
Width	320 mm
Height	700 mm

Ordering information

Product Number	Product name
723064	CABINET F/FIRE EXTINGUISHER

CABINET DECK MOUNTED FOAM STATION BOX

530 737320

Our range of GRP cabinets is built to last the rigours of the marine environment.

Well proven through many years of supply in numerous markets from offshore and cruise to general marine, our cabinets offer exible options offering you a choice dependent on your stowage need.

Features

- GRP
- Stainless steel hinges and ttings
- Waterproof
- Clear labelling

Bene ts

- We offer a large capacity so you can stow multiple products if required
- Our manufacturing process and stainless steel tting give strong colour fastness for a longer life
- Options include oor or wall mounted versions enabling you to maximise your space
- For total protection of your equipment you can choose internal ttings to be included

Technical data

Length	900 mm
Width	686 mm
Height	600 mm
Capacity	Standard set of Foam equipment

Ordering information

Product Number	Product name
737320	FOAM STATION BOX GRP, DECK MOUNTED

CABINET FOR 18M FIRE HOSE

298 234799

Our range of GRP cabinets is built to last the rigours of the marine environment.

Well proven through many years of supply in numerous markets from offshore and cruise to general marine, our cabinets offer exible options offering you a choice dependent on your stowage need.

Features

- GRP
- Stainless steel hinges and ttings
- Waterproof
- Clear labelling

Bene ts

- We offer a large capacity so you can stow multiple products if required
- Our manufacturing process and stainless steel tting give strong colour fastness for a longer life
- Options include oor or wall mounted versions enabling you to maximise your space
- For total protection of your equipment you can choose internal ttings to be included

Technical data

Length	170 mm
Width	445 mm
Height	537 mm

Ordering information

Product Number	Product name
234799	CABINET GRP F/18M FIRE HOSE

CABINET FOR 20M FIRE HOSE

298 605279

Our range of GRP cabinets is built to last the rigours of the marine environment.

Well proven through many years of supply in numerous markets from offshore and cruise to general marine, our cabinets offer exible options offering you a choice dependent on your stowage need.

Features

- GRP
- Stainless steel hinges and ttings
- Waterproof
- Clear labelling

Bene ts

- We offer a large capacity so you can stow multiple products if required
- Our manufacturing process and stainless steel tting give strong colour fastness for a longer life
- Options include oor or wall mounted versions enabling you to maximise your space
- For total protection of your equipment you can choose internal ttings to be included

Technical data

Length	310 mm
Width	650 mm
Height	670 mm
Capacity	Suitable for all standard 20m re hoses and ttings

Ordering information

Product Number	Product name
605279	CABINET GRP F/20M FIRE HOSE

CABINET FOR 25M FIRE HOSE

298 758557

Our range of GRP cabinets is built to last the rigours of the marine environment.

Well proven through many years of supply in numerous markets from offshore and cruise to general marine, our cabinets offer exible options offering you a choice dependent on your stowage need.

Features

- GRP
- Stainless steel hinges and ttings
- Waterproof
- Clear labelling

Bene ts

- We offer a large capacity so you can stow multiple products if required
- Our manufacturing process and stainless steel tting give strong colour fastness for a longer life
- Options include oor or wall mounted versions enabling you to maximise your space
- For total protection of your equipment you can choose internal ttings to be included

Ordering information

Product Number	Product name
758557	CABINET GRP FOR 25MTR FIRE HOSE

CONTAINER FOR SAFETY PLAN

298 546564

Our range of GRP cabinets is built to last the rigours of the marine environment.

Well proven through many years of supply in numerous markets from offshore and cruise to general marine, our cabinets offer exible options offering you a choice dependent on your stowage need.

Features

- Suitable for standard re plan sizes
- Waterproof
- Clear labelling for identi cation
- Complete with mounting brackets

Bene ts

- We offer a large capacity so you can stow multiple products if required
- Our manufacturing process and stainless steel tting give strong colour fastness for a longer life
- Options include oor or wall mounted versions enabling you to maximise your space
- For total protection of your equipment you can choose internal ttings to be included

Ordering information

Product Number	Product name
546564	CONTAINER F/SAFETY PLAN

CABINET FOR 6 LIFEJACKET OR 4 IMM SUITS

821 576603

Our range of GRP cabinets is built to last the rigours of the marine environment.

Well proven through many years of supply in numerous markets from offshore and cruise to general marine, our cabinets offer exible options offering you a choice dependent on your stowage need.

Features

- GRP
- Stainless steel hinges and ttings
- Waterproof
- Clear labelling

Bene ts

- We offer a large capacity so you can stow multiple products if required
- Our manufacturing process and stainless steel tting give strong colour fastness for a longer life
- Options include oor or wall mounted versions enabling you to maximise your space
- For total protection of your equipment you can choose internal ttings to be included

Technical data

Length	665 mm
Width	765 mm
Height	460 mm
Weight	13 kg
Capacity	4 standard Survival suits 4 Arctic Survival suits 6 Inherent foam lifejackets

Ordering information

Product Number	Product name
576603	CABINET GRP F/6 LIFEJACKETS

CABINET FOR 18 LIFEJACKETS OR 8-10 IMMERSION SUITS

821 576611

Our range of GRP cabinets is built to last the rigours of the marine environment.

Well proven through many years of supply in numerous markets from offshore and cruise to general marine, our cabinets offer exible options offering you a choice dependent on your stowage need.

Features

- GRP
- Stainless steel hinges and ttings
- Waterproof
- Clear labelling

Bene ts

- We offer a large capacity so you can stow multiple products if required
- Our manufacturing process and stainless steel tting give strong colour fastness for a longer life
- Options include oor or wall mounted versions enabling you to maximise your space
- For total protection of your equipment you can choose internal ttings to be included

Technical data

Length	1218 mm
Width	786 mm
Height	695 mm
Weight	25 kg
Capacity	10 standard Survival suits 8 Arctic Survival suits 18 Inherent foam lifejackets

Ordering information

Product Number	Product name
576611	CABINET GRP F/18 LIFEJACKETS

CABINET FOR 24 LIFEJACKETS OR 12 IMMERSION SUITS

821 576629

Our range of GRP cabinets is built to last the rigours of the marine environment.

Well proven through many years of supply in numerous markets from offshore and cruise to general marine, our cabinets offer exible options offering you a choice dependent on your stowage need.

Features

- GRP
- Stainless steel hinges and ttings
- Waterproof
- Clear labelling

Bene ts

- We offer a large capacity so you can stow multiple products if required
- Our manufacturing process and stainless steel tting give strong colour fastness for a longer life
- Options include oor or wall mounted versions enabling you to maximise your space
- For total protection of your equipment you can choose internal ttings to be included

Technical data

Length	1715 mm
Width	720 mm
Height	750 mm
Weight	32 kg
Capacity	12 standard Survival suits 10 Arctic Survival suits 24 Inherent foam lifejackets

Ordering information

Product Number	Product name
576629	CABINET GRP F/24 LIFEJACKETS

CABINET FOR 32 LIFEJACKETS OR 16 IMMERSION SUITS

821 576637

Our range of GRP cabinets is built to last the rigours of the marine environment.

Well proven through many years of supply in numerous markets from offshore and cruise to general marine, our cabinets offer exible options offering you a choice dependent on your stowage need.

Features

- GRP
- Stainless steel hinges and ttings
- Waterproof
- Clear labelling

Bene ts

- We offer a large capacity so you can stow multiple products if required
- Our manufacturing process and stainless steel tting give strong colour fastness for a longer life
- Options include oor or wall mounted versions enabling you to maximise your space
- For total protection of your equipment you can choose internal ttings to be included

Technical data

Length	2165 mm
Width	720 mm
Height	665 mm
Weight	47 kg
Capacity	16 standard Survival suits 14 Arctic Survival suits 32 Inherent foam lifejackets

Ordering information

Product Number	Product name
576637	CABINET GRP F/32 LIFEJACKETS

CABINET FOR FIRE FIGHTERS OUTFIT

394 592576

Our range of GRP cabinets is built to last the rigours of the marine environment.

Well proven through many years of supply in numerous markets from offshore and cruise to general marine, our cabinets offer exible options offering you a choice dependent on your stowage need.

Features

- GRP
- Stainless steel hinges and ttings
- Waterproof
- Clear labelling

Bene ts

- We offer a large capacity so you can stow multiple products if required
- Our manufacturing process and stainless steel tting give strong colour fastness for a longer life
- Options include oor or wall mounted versions enabling you to maximise your space
- For total protection of your equipment you can choose internal ttings to be included

Technical data

Length	595 mm
Width	630 mm
Height	1120 mm
Capacity	1 Fire Fighters kit

Ordering information

Product Number	Product name
592576	CABINET GRP F/FIREMANS OUTFIT

CABINET FOR UNISCAPE EEBD

391 638395

Our wall mountable cabinet for Unitor Uniscape protects and ensures it is available for use when and where required.

The clear fascia allows users to check the Uniscape cylinder without having to the remove the unit from the cabinet whilst the security tags give you an immediate visual if it has been tampered with.

The polycarbonate hinges and door locks give you a longer life than traditional steel hinges.

Features

- Lloyds approved
- IP54 rated
- Clear door for checking cylinder gauges
- Can be security tagged to stop tampering

Bene ts

- This cabinet is approved for use on your offshore rigs
- Exceptional waterproofness through the IP rating
- No need to remove your equipment simply look through the clear front to check your cylinder gauges
- It has a security tag to protect your equipment which is quick to break in the event of an emergency

Technical data

Length	282 mm
Width	762 mm
Height	211 mm
Capacity	1 Standard EEBD

Ordering information

Product Number	Product name
638395	CABINET F/UNISCAPE 15H

Approvals

Lloyds

HYDROSTATIC RELEASE UNIT DK2004 FOR LIFERAFTS 4 YEAR

800 777869

The DK2010 4 year disposable hydrostatic release unit offers you excellent value through an extended lifespan.

It is easy to install and approved by the worlds leading maritime authorities and of particular use when you use 30 month service liferafts.

Manufactured from high grade materials to withstand the rigours of the marine environment the DK2010 offers you exceptional value.

Features

- 4 year lifespan
- Operates from 1.5 - 4 metres
- Fits any installation
- Electric release systems available

Bene ts

- You do not have to service these units
- When the 4 years is expired you dispose of them
- Comes complete with easy to understand instructions so your crew can install them
- Global service Local support

Ordering information

Product Number	Product name
777869	HYDROSTATIC RELEASE UNIT DK2010.

Electronic remote station ring options also available

Approvals

UNITOR IMMERSION SUIT - NON PILLOW

Our Unitor Non Pillow range is made of 7mm neoprene insulation as a standard giving you exceptional protection for a standard type Immersion suit. Your standard Solas life jackets onboard will be required to use in conjunction with this non pillow version.

Unitor's Immersion suits are approved by many of the world's leading maritime authorities and offer you exceptional properties for surviving cold water immersion even in Arctic conditions.

They are fast to put on with the large zip handle for easy closure and include pre-attached hood and gloves so you are prepared when you enter the water.

Features

- Sizes to cover heights from 155 - 205cm
- Glued, stitched and heat taped seams for exceptional seam strength
- Easily donned in under 2 mins
- Colour coded storage bags

Bene ts

- The 7mm insulation with re retardant properties increase your levels of survival
- You can choose from a standard non pillow version and use your existing life jackets
- High manufacturing standards provide you with secure in water thermal properties and a long life product
- We offer you an expansive height range each size identi ed with a different coloured stowage bag to ensure your crews don correctly tting suits
- To support your maintenance programmes we provide an on board test kit with all the parts required to test and repair your suits

Including

- Waterproof Zip with easy grip handle
- Non slip soles
- High grip gloves
- Ankle adjustment for good t
- Retro re ective Tape
- Buddy line (L07802)

Ordering information

Product Number	Product name	Height Range
778206	UNITOR IMMERSION SUIT 7MM NP SIZE M	155 - 175 CM
778208	UNITOR IMMERSION SUIT 7MM NP SIZE U	175 - 195 CM
778210	UNITOR IMMERSION SUIT 7MM NP SIZEXL	195 - 215 CM

Accessories

Product Number	Product name
On-board Maintenance	
758201	TEST KIT EDP REQUIRED
Lifejacket options	
764977	SEAGUARD 2010 ADULT WITH LIGHT
764548	SEAGUARD 2010 ADULT W/O LIGHT
769687	LIFEJACKET CHALL. INTERLOCK 275-111
769679	LIFEJACKET CHALLENGER FLEXI-WING150
If required	
777423	W3 AUTOMATIC LIFEJACKET LIGHT
576603	CABINET GRP F/6 LIFEJACKETS
576611	CABINET GRP F/18 LIFEJACKETS
576629	CABINET GRP F/24 LIFEJACKETS
576637	CABINET GRP F/32 LIFEJACKETS

Approvals

UNITOR IMMERSION SUIT - PILLOW

Our Unitor Pillow range is made of 7mm neoprene insulation as a standard giving you exceptional protection and value.

You will not need a life jacket as the unique design of the head support ensures in-water high mouth free-board performance. Unitor Immersion suits are ame retardant and approved by many of the world's leading maritime authorities giving you exceptional properties for surviving cold water immersion even in Arctic conditions.

They are fast to put on with the large zip handle for easy closure and include pre-attached hood and gloves so you are prepared when you enter the water.

Features

- Sizes to cover heights from 155 - 205cm
- Glued, stitched and heat taped seams for exceptional seam strength
- Easily donned in under 2 mins
- Colour coded storage bags

Bene ts

- The 7mm insulation with re retardant properties increase your levels of survival
- We offer you an expansive height range each size identi ed with a different coloured stowage bag to ensure your crews don correctly tting suits
- High manufacturing standards provide you with secure in water thermal properties and a long life product
- To support your maintenance programmes we provide an on board test kit with all the parts required to test and repair your suits

Including

- Harness
- Waterproof Zip with easy grip handle
- Non slip soles
- High grip gloves
- Ankle adjustment for good t
- Whistle
- Retro re ective tape
- Emergency Light - ON REQUEST ITEM PLEASE ASK SEPERATELY

Ordering information

Product Number	Product name	Height
778212	UNITOR IMMERSION SUIT 7MM P SIZE M	155 - 175 CM
778214	UNITOR IMMERSION SUIT 7MM P SIZE U	175 - 195 CM

Product Number	Product name	Height
778216	UNITOR IMMERSION SUIT 7MM P SIZE XL	195 - 205 CM

Accessories

Product Number	Product name
On-board Maintenance	
758201	PORTABLE TEST KIT FOR IMMERSION SUITS
Lifejacket options	
764548	SEAGUARD 2010 ADULT W/O LIGHT
769687	LIFEJACKET CHALL. INTERLOCK 275-111
769679	LIFEJACKET CHALLENGER FLEXI-WING150
If required	
777423	W3 AUTOMATIC LIFEJACKET LIGHT
576603	CABINET GRP F/6 LIFEJACKETS
576611	CABINET GRP F/18 LIFEJACKETS
576629	CABINET GRP F/24 LIFEJACKETS
576637	CABINET GRP F/32 LIFEJACKETS

Approvals

IMMERSION SUIT PORTABLE TEST KIT

820 758201

The Unitor Immersion Suit Portable Test Kit meets IMO/MSC 1114 requirements for the periodic testing of immersion kits onboard, in order for air pressure tests to be carried out.

Easy to use kit complete with test equipment and repair materials allowing you to maintain your immersion suits on board.

Features

- PVC face insert with outer neoprene
- Strap tightens the suit onto the face piece
- Hose with valve and pressure gauge
- Comprehensive instruction manual

Bene ts

- Onboard maintenance kit to increase the lifespan of your immersion suits
- Complete kit provided enabling you to test and make small repairs to your immersion suits
- Comprehensive instruction manual to guide you through the process is included in the kit
- We can provide training for the testing and maintenance of your suits on board

INFLATABLE LIFEJACKETS

Our comprehensive range of life jackets and ancillaries gives you numerous options to comply with regulations or meet your own speci cations.

We can also tailor solutions to meet offshore criteria or your speci c needs through any of our sales of ces.

Features

- SOLAS and ISO compliant life jackets
- Full spares and ancillary options
- Tailored solutions
- Global service Local support

Bene ts

- We give you a wide choice of working single chamber life jackets or twin chamber Solas life jackets
- Our list of spares and accessories covers from life jacket repacking to meeting hazardous environments with our new range of personal safety lights
- We work closely with our suppliers to tailor solutions to meet your individual requirements
- Our life jacket range is supported throughout our service network globally so you can always be assured of ef cient service

5 Yearly service options available for the Offshore industry

Ordering information

Product Number	Product name
769687	LIFEJACKET CHALL. INTERLOCK 275-111
769679	LIFEJACKET CHALLENGER FLEXI-WING150
750199	WORKSAFE - INFLATABLE LIFEJACKET

Accessories

Product Number	Product name
Recommended for onboard maintenance	
632737	RECHARGE KIT F/OFFSHORE
632752	RECHARGE KIT F/INTERLOCK
632745	RECHARGE KIT F/WORKSAFE
NEW recommended for use on Tankers, Offshore, Explosive environments	
777804	LIFEJACKET LIGHT L6A-EX AUTO ATEX
If required	
777423	W3 AUTOMATIC LIFEJACKET LIGHT

Life Saving Appliances
Life Jackets and Lights

Approvals

CE

UNITOR SEAGUARD LIFEJACKETS

The Unitor Seaguard 2010 foam lifejacket uses a single block design for increased in-water performance by reducing waves being directed towards the mouth. The neat folding action even with a 150n buoyancy allows you to t it into most existing storage spaces. From infant to an adult with 75cm chest tting you can standardise your requirements and do not need additional belts or special sized life jackets to meet the larger size regulations.

Features

- Approved to MSC81(70) July 2010
- 150n Adult buoyancy rating
- Adult chest sized upto 75 cm as standard
- Compact size

Bene ts

- Our approval gives you the ability to meet the additional life jackets required under later regulations
- The 150n minimum buoyancy and unitary block design gives you far superior in water performance
- Our 75cm chest size as standard means you not having to carry additional extension belts or specially sized life jackets on board
- Even though it is 150n buoyancy, it is one of the smallest sizes available when folded and will t into many of your existing lockers

Ordering information

Product Number	Product name
Lights listed below to meet regulations	
764548	SEAGUARD 2010 ADULT W/O LIGHT
764555	SEAGUARD 2010 CHILD W/O LIGHT
764837	SEAGUARD 2010 INFANT W/O LIGHT
764977	SEAGUARD 2010 ADULT WITH LIGHT

Accessories

Product No	Product name
Lifejacket lights	
NEW recommended for use on Tankers, Offshore, Explosive environments	
777804	LIFEJACKET LIGHT L6A-EX AUTO ATEX
If required	
777423	W3 AUTOMATIC LIFEJACKET LIGHT
If required	

Product No	Product name
576603	CABINET GRP F/6 LIFEJACKETS
576611	CABINET GRP F/18 LIFEJACKETS
576629	CABINET GRP F/24 LIFEJACKETS
576637	CABINET GRP F/32 LIFEJACKETS

Approvals

LIFEJACKET ANCILLARIES

Our comprehensive range of life jackets and ancillaries gives you numerous options to comply with regulations or meet your own speci cations.

We can also tailor solutions to meet offshore criteria or your speci c needs through any of our sales of ces.

Features

- SOLAS and ISO compliant life jackets and ancillaries
- Full spares and ancillary options
- Tailored solutions

Bene ts

- Our list of spares and accessories covers from life jacket repacking to meeting hazardous environments with our new range of personal safety lights
- We work closely with our suppliers to tailor solutions to meet your individual requirements
- Our life jacket range is supported throughout our service network globally so you can always be assured of ef cient service and spare parts supply

Ordering information

Product Number	Product name
NEW recommended for use on Tankers, Offshore, Explosive environments	
777804	LIFEJACKET LIGHT L6A-EX AUTO ATEX
Required for onboard maintenance	
632737	RECHARGE KIT F/OFFSHORE
632752	RECHARGE KIT F/INTERLOCK
632745	RECHARGE KIT F/WORKSAFE
754838	HR BOBBIN (SUPER)
If required	
777423	W3 AUTOMATIC LIFEJACKET LIGHT
576603	CABINET GRP F/6 LIFEJACKETS
576611	CABINET GRP F/18 LIFEJACKETS
576637	CABINET GRP F/32 LIFEJACKETS

LIFEJACKET LIGHT L6A-EX AUTO ATEX

821 777804

All Daniamant Lifejacket lights are designed to deliver, as a minimum standard, the 0.75cd output speci cation and 8 hour duration required by IMO SOLAS regulations.

NOTICE! This new range of lifejacket lights also offers, for the rst time in the world, a lifejacket light that is also intrinsically safe (ATEX,IECEx) and which you can use in hazardous installations where you have potentially explosive atmospheres.

Features

- Intrinsically safe
- Min 0.75cd output for max visibility
- Approved to Atex/Iecx requirements for use in zones,0,1,2

Bene ts

- You can t and forget for 5 years
- In the water you will bene t from 8 hour duration
- You can use in potentially explosive atmospheres
- A multi approval allows you to use on MED/ USCG/CG approved vessels

Technical Data

Output	Min 0.75cd
Duration	Min 8 hours
Light type	Flashing
Storage Temp	-30° C to + 65° C
Operating Temp	-1° C to + 30° C
Storage life	5 Years
Weight	66g
Activation	Auto

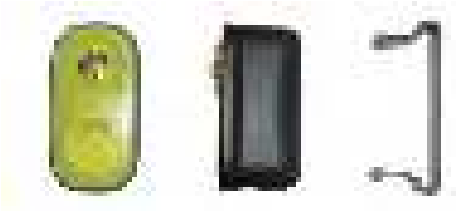
Ordering information

Product Number	Product name
NEW recommended for use on Tankers,Offshore,Explosive environments	
777804	LIFEJACKET LIGHT L6A-EX AUTO ATEX

Approvals

LIFEJACKET LIGHT W3 AUTO MED/USCG

821 777423



This new, low pro le light is a single compact ashing unit. Light is emitted through an ultra-low pro le dome so it less susceptible to damage when you are evacuating.

Features

- SOLAS/MED/USCG approved.
- Automatic with manual overide.
- 5 year life
- Minimum 0.75 cd light output and 8 hour duration.

Bene ts

- Multiple approvals allow you to standardise on your eet of vessels
- Comes complete with two clips for multiple ttings to suit your range of life jackets
- You can t and forget with the 5 year lifespan
- Now classed as non hazardous for shipping so no problems sending them to your vessels

Technical Data

Output	min 0.75cd
Duration	min 8 hours
Light Type	Flashing LED
Storage Temp	-30°C to + 65°C
Operating Temp	-1°C to + 30°C
Weight	35g
Activation	Water/Manual

Ordering information

Product Number	Product name
777423	W3 AUTOMATIC LIFEJACKET LIGHT

Approvals

LIFEJACKET SOLAS TWIN CHAMBER INTERLOCK 275N (2010)

821 769687

The patented Challenger Interlocking lobe design of the bladder on the 275-III lifejacket self-rights in less than 5 seconds and provides you with an effective wave barrier preventing water from being channeled into your mouth. MED Solas approved with twin chambers the high buoyancy is an effective survival aid particularly if you are wearing heavy clothing.

Features

- Twin independent chambers
- Automatic in ation system with manual back up
- 275N buoyancy
- Fast self-righting
- SOLAS Chapter 3 2010 compliant MED approved

Bene ts

- The high comfort levels reduces your stress in the water and allows you to use it as a constant wear life jacket
- The wave barrier technology ensures you do not suffer from water constantly lapping at the mouth
- In the event you are unconsciousness the fast self righting capability ensures you are in the correct position in the water
- The higher buoyancy levels makes it ideal for you to use when carrying tools or workwear

Technical Data

Bouyancy	275N
Cylinders	2 x 60g
Auto In ation	2 Chambers
Manual/Oral In ation	2 Chambers
Whistle	Yes
Light	Yes
Visor	Optional
Crotch Strap	Optional
Buddy Line	Yes
Harness	Yes

Ordering information

Product Number	Product name
769687	LIFEJACKET CHALL. INTERLOCK 275-111

Accessories

Product Number	Product name
Recommended for onboard maintenance	
632752	RECHARGE KIT F/INTERLOCK
NEW recommended for use on Tankers, Offshore, Explosive environments	
777804	LIFEJACKET LIGHT L6A-EX AUTO ATEX
If required	
777423	W3 AUTOMATIC LIFEJACKET LIGHT

Approvals

LIFEJACKET SOLAS TWIN CHAMBER FLEXIWING 150N (2010)

821 769679

The Flexi-Wing 150 Lifejacket has been designed as either an emergency abandonment or you can use it as a constant wear lifejacket.
The interlocking lobe design self rights you in under 5 seconds and provides you with an effective wave barrier preventing water from being channelled into your mouth.

Features

- Twin independent chambers
- Automatic in ation system with manual back up
- 150N buoyancy in each chamber
- SOLAS Chapter 3 2010 compliant MED approved

Bene ts

- High comfort levels reduce your stress in the water and allow you to use it as a constant wear life jacket
- Wave barrier technology ensures you do not suffer from water constantly lapping at the mouth
- In the event you are unconsciousness the fast self righting capability ensures you are in the correct position in the water
- Global service, local support

Technical Data

Bouyancy	150N
Cylinders	2 x 36g
Auto In ation	2 Chambers
Manual/Oral In ation	2 Chambers
Whistle	Yes
Light	Yes
Visor	Optional
Crotch Strap	Optional
Buddy Line	Yes
Harness	Yes

Ordering information

Product Number	Product name
769679	LIFEJACKET CHALLENGER FLEXI-WING150

Accessories

Product Number	Product name
Recommended for onboard maintenance	

Product Number	Product name
632737	RECHARGE KIT F/OFFSHORE
NEW recommended for use on Tankers, Offshore, Explosive environments	
777804	LIFEJACKET LIGHT L6A-EX AUTO ATEX
If required	
777423	W3 AUTOMATIC LIFEJACKET LIGHT

Approvals

WORKSAFE INFLATABLE LIFEJACKET W/O LIGHT

821 750199

NEW 170N Buoyancy

Challenger Worksafe lifejackets are designed to be easy to don, comfortable and un-restrictive to wear when performing heavy manual work.

The Challenger Worksafe incorporate the patented interlocking lobe design bladder which self-rights the wearer in under ve seconds, even if they are unconscious and providing an effective Wave Barrier which prevents water from being channelled into the wearers airways.

Features

- Heavy duty wipe clean cover
- Single chamber 170N Interlock bladder
- High Visibility bladder
- Waistbelt version

Bene ts

- Complies with ISO 12402 Regulations
- Heavy duty cover to protect the internal bladder
- High Visibility bladder for easier identi cation
- Light, comfortable and easy to wear

Standard Features	
Buoyancy	170N
Cylinders	1 x 33g
Auto In ation	Yes
Manual/Oral In ation	Yes
Whistle	Yes
Re ective Tape	Yes
Harness	Yes

Our Challenger Worksafe life jacket offers numerous optional bespoke designs for eets to standardise;

- Additional lights
- Crotch straps
- Covers for welders
- Manual in ation
- Harness versions
- Visors
- Corporate branding

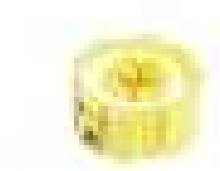
Ordering information

Product Number	Product name
750199	WORKSAFE - INFLATABLE LIFEJACKET
Recommended for onboard maintenance	
632745	RECHARGE KIT F/WORKSAFE
Suggested	
777423	W3 AUTOMATIC LIFEJACKET LIGHT

LIFEJACKET HR BOBBIN (SUPER) FOR AUTO LIFEJACKETS

236 754838

The HR Bobbin is designed for use on automatic life jackets using the Halkey Roberts in ation systems. It disintegrates when exposed to water allowing the mechanism to puncture the Co2 cylinder and ll your life jacket. Easy to t, we recommend carrying spares on board in the event of an inadvertent in ation so you can repack your life jackets.



Features

- For use on all HR type Pro1F,Mk IV and alpha in ators
- One year service lifespan

Bene ts

- A 4 year shelf life allows you plenty of time for use
- They are simple to t into the life jacket mechanisms as they only go in one way
- A date on the outside allows you to manage the storage and use life
- You must always keep them in a cool dry storage area

Ordering information

Product Number	Product name
754838	HR BOBBIN (SUPER)

LIFEJACKET RECHARGE KIT CHALLENGER INTERLOCK 275N

236 632752

If you have an inadvertent in ation of your in atable life jackets at sea this spares kit allows you to repack and put your equipment back into service.

This kit contains suf cient spares to repack your twin chamber Interlock 275N SOLAS life jackets.

Can also be used on other manufacturers life jackets with compatible in ation systems and cylinder sizes.

Features

- 2 x 60 g cylinders
- 2 x Safety Clip
- 2 x Auto actuator
- Suitable for 632729 Interlock & 769687 Interlock 2010 lifejackets

Bene ts

- Onboard maintenance
- Reduces emergent requirements
- No Hassles- no Delays
- WSS global service support

Ordering information

Product Number	Product name
632752	RECHARGE KIT F/INTERLOCK

LIFEJACKET RECHARGE KIT CHALLENGER FLEXI WING /OFFSHORE 150N

236 632737

If you have an inadvertent in ation of your in atable life jackets at sea this spares kit allows you to repack and put your equipment back into service.

This kit contains suf cient spares to repack your twin chamber Flexi Wing 150N SOLAS life jackets.

Can also be used on other manufacturers life jackets with compatible in ation systems and cylinder sizes.

Features

- 2 x 33 g cylinders
- 2 x safety clip
- 2 x auto actuator
- Suitable for 632111 Offshore & 769679 Flexi Wing lifejackets

Bene ts

- Allows you to repack your life jackets on board in the event of an inadvertent in ation
- No need to carry additional life jackets to cover for emergencies
- We can if you require train your crew to repack life jackets
- WSS global service, local support

Ordering information

Product Number	Product name
632737	RECHARGE KIT F/OFFSHORE

LIFEJACKET RECHARGE KIT CHALLENGER WORKSAFE 150N

236 632745

If you have an inadvertent in ation of your in atable life jackets at sea this spares kit allows you to repack and put your equipment back into service.

This kit contains suf cient spares to repack your single chamber Worksafe 150n life jackets.

Can also be used on other manufacturers life jackets with compatible in ation systems and cylinder sizes.

Features

- 33 g Cylinder
- Safety Clip
- Auto actuator
- Suitable for 632703 Worksafe lifejacket

Bene ts

- Onboard maintenance
- Reduces emergent requirements
- No Hassles - no Delays
- WSS global service support

Ordering information

Product Number	Product name
632745	RECHARGE KIT F/WORKSAFE

CABINET FOR 6 LIFEJACKETS

821 576603

Our range of GRP cabinets is built to last the rigours of the marine environment.

Well proven through many years of supply in numerous markets from offshore and cruise to general marine, our cabinets offer exible options offering you a choice dependent on your stowage need.

Features

- GRP
- Stainless steel hinges and ttings
- Waterproof
- Clear labelling

Bene ts

- We offer a large capacity so you can stow multiple products if required
- Our manufacturing process and stainless steel tting give strong colour fastness for a longer life
- Options include oor or wall mounted versions enabling you to maximise your space
- For total protection of your equipment you can choose internal ttings to be included

Technical Data

Length	665 mm
Width	765 mm
Height	460 mm
Weight	13 kg
Capacity	4 standard Survival suits 4 Arctic Survival suits 6 Inherent foam lifejackets

Ordering information

Product Number	Product name
576603	CABINET GRP F/6 LIFEJACKETS

CABINET FOR 18 LIFEJACKETS

821 576611

Our range of GRP cabinets is built to last the rigours of the marine environment.

Well proven through many years of supply in numerous markets from offshore and cruise to general marine, our cabinets offer exible options offering you a choice dependent on your stowage need.

Features

- GRP
- Stainless steel hinges and ttings
- Waterproof
- Clear labelling

Bene ts

- We offer a large capacity so you can stow multiple products if required
- Our manufacturing process and stainless steel tting give strong colour fastness for a longer life
- Options include oor or wall mounted versions enabling you to maximise your space
- For total protection of your equipment you can choose internal ttings to be included

Technical Data

Length	1218 mm
Width	786 mm
Height	695 mm
Weight	25 kg
Capacity	10 standard Survival suits 8 Arctic Survival suits 18 Inherent foam lifejackets

Ordering information

Product Number	Product name
576611	CABINET GRP F/18 LIFEJACKETS

CABINET FOR 24 LIFEJACKETS

821 576629

Our range of GRP cabinets is built to last the rigours of the marine environment.

Well proven through many years of supply in numerous markets from offshore and cruise to general marine, our cabinets offer exible options offering you a choice dependent on your stowage need.

Features

- GRP
- Stainless steel hinges and ttings
- Waterproof
- Clear labelling

Bene ts

- We offer a large capacity so you can stow multiple products if required
- Our manufacturing process and stainless steel tting give strong colour fastness for a longer life
- Options include oor or wall mounted versions enabling you to maximise your space
- For total protection of your equipment you can choose internal ttings to be included

Technical Data

Length	1715 mm
Width	720 mm
Height	750 mm
Weight	32 kg
Capacity	12 standard Survival suits 10 Arctic Survival suits 24 Inherent foam lifejackets

Ordering information

Product Number	Product name
576629	CABINET GRP F/24 LIFEJACKETS

CABINET FOR 32 LIFEJACKETS

821 576637

Our range of GRP cabinets is built to last the rigours of the marine environment.

Well proven through many years of supply in numerous markets from offshore and cruise to general marine, our cabinets offer exible options offering you a choice dependent on your stowage need.

Features

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- Stainless steel hinges and ttings
- Waterproof
- Clear labelling

Bene ts

- We offer a large capacity so you can stow multiple products if required
- Our manufacturing process and stainless steel tting give strong colour fastness for a longer life
- Options include oor or wall mounted versions enabling you to maximise your space
- For total protection of your equipment you can choose internal ttings to be included

Technical Data

Length	2165 mm
Width	720 mm
Height	665 mm
Weight	47 kg
Capacity	16 standard Survival suits 14 Arctic Survival suits 32 Inherent foam lifejackets

Ordering information

Product Number	Product name
576637	CABINET GRP F/32 LIFEJACKETS

LIFEBUOY'S AND ANCILLARIES

Our range of lifebuoys and ancillaries give you practical solutions to comply or extend your safety requirements.

Designed for commercial applications, our high quality lifebuoys feature a bright orange polyethylene outer shell with a high density foam ll that will not rot or mould and is unaffected by extreme weather or prolonged outdoor exposure. Our lifebuoys are now plugged for your added protection against the elements.

Features

- 2.5kg and 4.3kg sizes
- Storage cradles and brackets
- Full range of lifebuoy lights
- Buoyant lines from 30 to 50 metre length

Bene ts

- We off both sizes of approved lifebuoy so you can standardise on one make onboard
- You can choose from a range of storage options to suit your vessels requirements
- Whether you require ATEX approved for tanker use or standard lifebuoy lights we offer a full range with many having 76mt drop height approval
- Buoyant lines from 30 to 50metres are offered to give you optional installations

Ordering information

Product Number	Product name	Use
637991	LIFEBUOY 2.5KG 28.5" DIA	General
638007	LIFEBUOY 4.3KG 30" DIA	For tting to an MOB smoke and light

Accessories

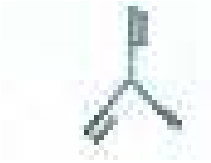
Product Number	Product name
NEW recommended for use on Tankers, Offshore, Explosive environments	
768408	LIFEBUOY LIGHT L161 ATEX/IECEx
New for USCG vessels	
777803	LIFEBUOY LIGHT L162 USCG
777802	LIFEBUOY LIGHT L163 ATEX/IECEX/USCG
If required	
576702	LIFEBUOY LIGHT L90 WITH BATTERY
777805	LIFEBUOY LIGHT L160 MED
When replacing older McMurdo/Danimant lights	
777801	LIFEBUOY LIGHT L16 X ADPTER PLATE
606208	FLOATING LIFELINE 30MTR

Product Number	Product name
606209	FLOATING LIFELINE 45MTR
606210	FLOATING LIFELINE 50MTR
606206	RETROREFLECTIVE SOLAS TAPE (MED)
735985	Y BRACKET FOR LIFEBUOY
Pyrotechnics	
781595	LIGHT-SMOKE SIGNAL (MAN OVER BOARD)

Approvals

LIFEBUOY Y-BRACKET FOR MOUNTING ON DECK

821 735985



This galvanised steel Y Bracket for 30" lifebuoys is in high steel for a longer life. If you want you can paint it as part of your colour scheme. It will take all standard 30" Solas lifebuoys and can be mounted anywhere where quick access to a lifebuoy is required.

Features

- Can be welded or bolted to bulkhead
- You can paint it to match your vessel

Bene ts

- The galvanised coating gives you a long life, to extend it further you can paint it
- The central boss can be tted with a lifebuoy light bracket
- Fitting is simple allowing you to either bolt, screw or welding it to a bulkhead

Ordering information

Product Number	Product name
735985	Y BRACKET FOR LIFEBUOY

LIFEBUOY LIGHTS

Our range of lifebuoys and ancillaries give you practical solutions to comply or extend your safety requirements.

We now have you a full range of lifebuoy lights covering standard as well as USCG and ATEx versions for use on tankers, offshore industry and hazardous area's.

Features

- Easy to install
- MED and USCG versions
- ATEx versions
- 76mt Drop height approvals

Bene ts

- All our lifebuoy lights have back plates as standard so are simple to install
- Whether you need to meet USCG or MED we offer both types in standard and ATEx versions
- Most of our range has a 5 year life, so no need to annually change batteries

*Remember to order your mounting plate to ensure easy xing when
replacing your L41B or L120 Part No 777801

Ordering information

Product Number	Product name	
NEW recommended for use on Tankers,Offshore,Explosive environments		
768408	LIFEBUOY LIGHT L161 ATEX/IECEx	NSN: 6230-99-366-5928
777802	LIFEBUOY LIGHT L163 ATEX/IECEX/USCG	
New for USCG vessels		
777803	LIFEBUOY LIGHT L162 USCG	
For MED vessels		
777805	LIFEBUOY LIGHT L160 MED	NSN: 6230-99-613-4941
576702	LIFEBUOY LIGHT L90 WITH BATTERY	
When replacing older McMurdo/Danimant lights		
777801	LIFEBUOY LIGHT L16 X ADPTER PLATE	

Accessories

Product Number	Product name
606206	RETROREFLECTIVE SOLAS TAPE (MED)
735985	Y BRACKET FOR LIFEBUOY
Pyrotechnics	
781595	LIGHT-SMOKE SIGNAL (MAN OVER BOARD)

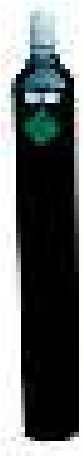
Life Saving Appliances
Lifebuoys, bracket, lines and light

Approvals

LIFEBOAT AIR CYLINDERS

As part of the cylinder range we supply a standard lifeboat air cylinder complete with the air regulator.

You also have the option ll the cylinder using our Bauer range of compressors with the range of hoses we offer.



Features

- 50 litre / 200 bar
- Standard tting for many type of lifeboats
- Bauer compressors

Bene ts

- Our cylinders will t most of your standard type installations
- As well as your BA set cylinders you can also re ll your lifeboat cylinders with our range of Bauer compressors

Working pressure according to BS5045 / DOT3AA

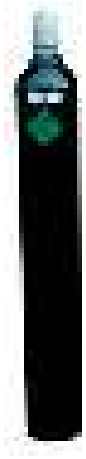
Note To have a complete lling hose from a Bauer compressor to the cylinder with 5/8'' female thread you need the lling hose, adapter, connection stub and air nut.

Ordering information

Product Number	Product name
653386	L-50 AIR CYL.,HWO VLV 200 BAR FILLED
619221	REGULATOR R 510 FOR AIR
233494	CONNECTING STUB OX/N2/AIR
Also available	
Filling hose 10 metre - female connection on both ends	
Filling hose 25 metre - female connection on both ends	
Filling hose 40 metre - female connection on both ends	
Ask your local WSS Sales of ce for more information	

LIFEBOAT CYLINDERS 50LT 200BAR

396 653386



As part of our cylinder range we supply a standard lifeboat air cylinder complete with the air regulator.

You also have the option ll the cylinder using our Bauer range of compressors with the range of hoses we offer.

Features

- 50 litre / 200 bar
- Standard tting for many types of lifeboats
- Bauer compressors

Bene ts

- Our cylinders will t most of your standard type installations
- As well as your BA set cylinders you can also re ll your lifeboat cylinders with our range of Bauer compressors

Working pressure according to BS5045 / DOT3AA

Note
To have a complete lling hose from a Bauer compressor to the cylinder with 5/8'' female thread you need the lling hose, adapter, connection stub and air nut.

Ordering information

Product Number	Product name
653386	L-50 AIR CYL.HWO VLV 200 BAR FILLED
619221	REGULATOR R 510 FOR AIR
233494	CONNECTING STUB OX/N2/AIR
Accessories	
Filling hose 10 metre - female connection on both ends	
Filling hose 25 metre - female connection on both ends	
Filling hose 40 metre - female connection on both ends	
Ask your local WSS Sales of ce for more information	

LIFEBOAT CYLINDERS OX/NS/AIR CONNECTION STUB

396 233494

This connection stub is for use on lifeboat air cylinders when connecting to a compressor.

LIFEBOAT CYLINDERS REGULATOR

234 619221

Our 0 - 10 bar regulator is used in many applications but primarily for your lifeboat cylinders.

They give you clear readings of volumes and pressures giving you total control over your air supply.

Features

- Clearly marked hand wheel
- Standard cylinder thread ttings

Bene ts

- The hand wheel is clearly marked + or - for air pressure regualtion
- Fits most standard cylinders
- Clear dials for cylinder pressure and ow rates

LIFERAFT RENTAL

WSS introduced the innovative Liferaft Rental Exchange (LRE) concept in 2007 and since then we have re-shaped the liferaft industry and caused traditional processes to be outdated.

Manage, monitor or maintain are key functions at the heart of our offers regardless of your preference for the problem-free LRE solution or the traditional ownership method.

Features

- Global life raft supply,rental or service solutions
- Full range of sizes and types available
- New 2012 MSC81(70) life rafts for supply or rental
- Global service and local support

Bene ts

- Tailored solutions to meet your needs
- Our range of liferafts is extensive with stocks in over 40 locations globally
- We always supply the latest approved liferafts
- Regardless of the solution chosen you will always bene t from an appointed local contact person and global service support

MSC81(70)

All liferafts meet the requirement of 82.5 kg per person. All new vessels delivered after 1st January 2012 must have MSC81(70) liferafts tted.

Class Requirements

All existing vessels who have a liferaft condemned must replace with a MSC81(70) liferaft.

Markets

- Merchant marine
- Offshore
- Cruise
- Ferry
- Fishing
- New buildings
- Retro ts
- Military

Ordering information

Product Number	Product name
Throwoverboard	
759092	6P TOB LRE LIFERAFT
759118	10P TOB LRE LIFERAFT
759126	12P TOB LRE LIFERAFT
759134	16P TOB LRE LIFERAFT
759142	20P TOB LRE LIFERAFT
759159	25P TOB LRE LIFERAFT
Davit Launchable	
759167	12P DL LRE LIFERAFT
759175	16P DL LRE LIFERAFT

Product Number	Product name
759183	20P DL LRE LIFERAFT
759191	25P DL LRE LIFERAFT

Accessories

Single and Double Ramp cradles available on request

Product Number	Product name	
777869	HYDROSTATIC RELEASE UNIT DK2010.	4 Year disposable

Electronic and Vacuum systems available on request

Approvals

THROWOVERBOARD LIFERAFTS

The Unitor liferaft range uses the latest technology materials to increase durability in the marine environment, reducing your ownership costs and are approved to MSC81(70).

Our global service network is Z17 approved by the worlds leading class societies as well as local ag administrations giving you unrivalled after sales service quality.

For other speci cations please contact your local WSS sales of ce.

Features

- Full range of sizes and types available
- New 2012 MSC81(70) life rafts
- Global service and local support

Bene ts

- We are able to tailor solutions to meet your needs
- Our range of life rafts is extensive with stocks in over 40 locations globally
- We always supply the latest approved liferafts
- You will bene t from an appointed local contact person and global service support

Range

Throwoverboard from 6 to 50 persons
Standard or Self Righting versions available
Davit Launch from 12 to 37 persons
Up to 40 metre freeboard heights
MED Ships Wheel approved
For other approvals please contact your local WSS sales of ce

MSC81(70)

All liferafts meet the requirement of 82.5kg per person. All new vessels delivered after 1st January 2012 are required to install MSC81(70) liferafts

Class Requirements

All existing vessels who have a liferaft condemned must replace with a MSC81(70) liferaft.

Markets

- Merchant marine
- Offshore
- Cruise
- Ferry
- Fishing
- New buildings
- Retro ts
- Military

Ordering information

Product number	Product name	Freeboard	Weight (kg)	Width	Length	Emergency Pack type
758024	LIFERAFT 6P. TOB UNITOR OP A-PACK	40 meters	80	55	110	A Type
758026	LIFERAFT 10P. TOB UNITOR OP A-PACK	40 meters	102	62	110	A Type
758027	LIFERAFT 12P. TOB UNITOR OP A-PACK	40 meters	117	62	115	A Type
758028	LIFERAFT 16P. TOB UNITOR OP A-PACK	40 meters	135	67	115	A Type
758029	LIFERAFT 20P. TOB UNITOR OP A-PACK	40 meters	164	70	130	A Type
758030	LIFERAFT 25P. TOB UNITOR OP A-PACK	40 meters	186	73	144	A Type

Accessories

Single and Double Ramp cradles available on request

Product Number	Product name	
Choice of required accessories		
777869	HYDROSTATIC RELEASE UNIT DK2010.	4 Year disposable
Electronic and Vacuum systems available on request		

Approvals

DAVIT LAUNCH LIFERAFTS

The complete range of Unitor davit launch liferafts boasts one of the highest freeboard stowage heights available as standard at 40 metres.

Choose from 12 to 37 person rafts both standard or self righting for use on any type of vessel.

Features

- Up to 40 metre stowage height as standard
- Full range of sizes and types available
- New 2012 MSC81(70) liferafts
- Global service and local support

Bene ts

- Tailored solutions to meet your needs
- Our range of liferafts is extensive with stocks in over 40 locations globally
- Latest approved liferafts being supplied
- You will bene t from an appointed local contact person and global service support

MSC81(70)

All liferafts meet the requirement of 82.5kg per person. All new vessels delivered after 1st January 2012 must have MSC81(70) liferafts tted

Class Requirements

All existing vessels who have a liferaft condemned must replace with a MSC81(70) liferaft.

Markets

- Merchant marine
- Offshore
- Cruise
- Ferry
- Fishing
- New buildings
- Retro ts
- Military

Ordering information

Range
Throwoverboard from 6 to 50 persons
Davit Launch from 12 to 37 persons
Standard or Self Righting versions available
Up to 40 metre freeboard heights
MED Ships Wheel approved
For other approvals please contact your local WSS sales of ce

Ordering information

Size	Freeboard	Weight (kg)	Diameter (Cm)	Length (Cm)	Emergency Pack type
Unitor 12 person KHD Davit launch	40 metres	137	70	130	A Type
Unitor 16 person KHD	40 metres	155	70	130	A Type
Unitor 20 person KHD	40 metres	178	79	139	A Type
Unitor 25 person KHD	40 metres	200	79	139	A Type

Accessories

Single and Double Ramp cradles available on request

Product Number	Product name	
Choice of required accessories		
777869	HYDROSTATIC RELEASE UNIT DK2010.	4 Year disposable

Approvals

PYROTECHNICS

Our global distribution network supplies a range of quality approved brands to suit your requirements for pyrotechnics

Speci c brands and delivery time must be checked with the port of delivery due to compliance with local transport rules and regulations.

Features

- Approved products
- Local sales of ce support
- Compliance to local transport regulations

Bene ts

- WSS global supply network will ensure you only recieve quality approved pyrotechnics
- We can dispose of your old pyrotechnics(can vary in some ports) according to local regulations
- We can supply approved alternatives to ensure you comply due to availability or local transport regulations

Technical data

Uses	Lifeboats
Red Para Rocket	4 per lifeboat
Red Handflare	6 per lifeboat
3 minute Buoyant orange smoke	2 per lifeboat
Man overboard smoke and light	
Linethrowing device	

Ordering information

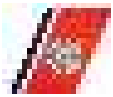
Product Number	Product name	Liferafts	Lifeboats	Bridge Set	General
790754	HANDFLARE, RED	6	6		
790758	PARACHUTE SIGNAL ROCKET, RED	4	4	12	
790760	SMOKE SIGNAL, ORANGE, 3 MINUTES	2	2		
781595	LIGHT-SMOKE SIGNAL (MAN OVER BOARD)				1 per bridge wing
790390	LINE THROWING DEVICE COMET				1 set per vessel (4 Rockets and lines)

These are general guidelines and may vary according to differing Class or National Flag requirements

Accessories

Product Number	Product name	
638007	LIFEBUOY 4.3KG 30" DIA	1 per Smoke & Light unit

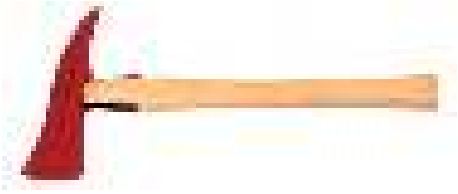
Approvals



RESCUE EQUIPMENT

Whether you require a complete helideck equipment set or individual rescue tools and equipment, we offer a range that ensures the rigours of rescue are carried out ef ciently and effectively.

We can also tailor your requirements to meet varying regulations and offer you a range of cabinets to store them in.



Bene ts

- High quality rescue tools for durable and long lasting life
- Approvals by necessary authorities where required

Ordering information

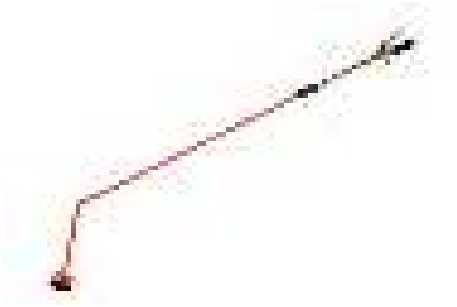
Product Number	Product name
716951	HELIDECK EQUIPMENT BASIC SET
Safety	
777603	FULLY BODY HARNESS REAR ATTACHMENT
176826	LIFELINE 30 M W/HOOK
546663	HOOK WITH ALU TELESCOPIC SHAFT 2MTR
546671	KNIFE QUICK RELEASE W/SHEATH
606206	RETROREFLECTIVE SOLAS TAPE (MED)
527515	CROWBAR 60 CM
546648	HACKSAW 300MM
546655	SPARE BLADE F/HACKSAW
546747	PLIERS, SIDE CUTTING
Fire axes	
525535	FIRE AXE WITH 17 INCH SHAFT
176842	FIRE AXE WITH 24 INCH SHAFT
755314	FIRE AXE WITH 32 INCH SHAFT
534958	FIRE AXE W/INSULATED HANDLE
525519	COVER F/FIRE AXE 260/268
Torches and lamps	
790100	ATEX SAFETY TORCH W/LED
658310	SAFETY LAMP W/BATT
638726	WOLFLITE SAFETY LAMP H-251A
588301	WOLFLITE LAMP CHARGER C-251 HVE
638973	BULB FOR H-251A LAMP

UNITOR HELIDECK CO2 LANCE 2.2 METRE WITHOUT HOSE

230 766840

The CO_2 lance gives you greater re ghting ef ciency through extending your reach on a helideck.

The Unitor lance is easy to connect and is compatible with all types of Unitor wheeled CO_2 extinguishers.



Features

- 2.2m length
- Trigger mechanism

Bene ts

- Able to maintain distance from res due to long reach
- Simple operation
- Easy to use

Easy to use: Disconnecting the discharge horn on the wheeled CO2 extinguisher and connect the lance to the discharge hose of the extinguisher.

Technical data

Length	2.2 Mtr

Ordering information

Product Number	Product name
766840	UNITOR CO2 LANCE 2.2M FOR HELIDECK

MOB RECOVERY CRADLE RANGE

822 737014

The SOLAS approved MOB Recovery Cradle is a maritime recovery system that can be operated by a single crew member.
The Cradle can also serve as a boarding ladder, scramble net and stretcher and has no parts to corrode or degrade in seawater This Cradle is lighter, more compact than any comparable devices only requiring regular inspections and minimal maintenance every three years and are amazingly lightweight, a 3 metre cradle weights as little as 5 kilograms

Features

- Unique manufacturing methods
- Carbon ber rods
- Low maintenenace
- Light weight

Bene ts

- Lower cost maintenance and a stronger Cradle are just 2 of the bene ts of the unique manufacturing system
- Carbon ber rods enhance the strength with loading's up to 900 kg per rung during tests
- Can be inspected on board, No need for annual service after 3 years
- The unique manufacturing method and lightweight carbon rods give you a unit which is an extremely low weight

Regulation: SOLAS regulation III/17-1 requires that “All ships shall have ship-speci c plans and procedures for recovery of persons from the water, taking into account the guidelines developed by the Organization.
The plans and procedures shall identify the equipment intended to be used for recovery purposes and measures to be taken to minimize the risk to shipboard personnel involved in recovery operations.
Time line: Ships with Keels laid on/after 1 July 2014 will be required to comply with this resolution
Ships constructed before 1 July 2014 shall comply with this requirement by the rst periodical or renewal safety equipment survey of the ship to be carried out after 1 July 2014 whichever comes rst.”
General Info: The recovery plans and procedures should be considered as a part of the emergency preparedness plan required by paragraph 8 of Part A of the International Safety Management (ISM) Code.

Ordering information

Product Number	Product name	Weight (kg)
737014	MOB RECOVERY CRADLE 2MTR x 1.3MTR	4.25
737016	MOB RECOVERY CRADLE 3MTR x 1.3MTR	5.5
737018	MOB RECOVERY CRADLE 4MTR x 1.3MTR	6.75
737020	MOB RECOVERY CRADLE 5MTR x 1.3MTR	8.0
737022	MOB RECOVERY CRADLE STROPS	
546663	HOOK WITH ALU TELESCOPIC SHAFT 2MTR	

Product Number	Product name	Weight (kg)
S.W.L. 300kg		
Rungs load tested to 900kg		
Approved to SOLAS SAS S1001501/M1 Novel lifesaving device		

RETROREFLECTIVE SOLAS TAPE WITH MED APPROVAL

805 606206

Retrore ective SOLAS tape enhances the visible aspects of your life saving equipment such as life vests, jackets and liferafts.

Our tape is highly exible making it easier for you to t. The self adhesive backing means no messy adhesives or specialist surface preparation is required.

Features

- MED/USCG approved
- Anti de lamination

Bene ts

- The self adhesive backing allows you to t it quickly and easily
- The durable outer coating is designed to withstand the rigours of the marine environment
- If you are in the water the performance is not affected by being wet

Technical data

Size	55 mm X 45 mtr

Ordering information

Product Number	Product name
606206	RETROREFLECTIVE SOLAS TAPE (MED)

Approvals

SAFETY TORCH ATEX

394 658310

The Responder 2 cell torch is ideal for use in Hazard Zones 1 & 2. Dual switching allows you to signal as well as have a constant light source.

Tough, strong and highly durable the 30,000 candela gives you a simple but effective torch for the harshest of work.

Features

- UL Division 1 & 2 listed
- Non-conductive
- 30,000 candlepower
- Pre-focused spot beam

Bene ts

- Keyring lanyard and belt clip supplied so no need for you to to hand carry
- Xenon bulb giving a direct beam of 30,000 candelas making it ideal for you to use as a marshalling baton
- Submersible up to 100ft and able to withstand up to 30ft drop for those occasions you may need to enter the water
- Our lifetime warranty extends the reasons you should consider the Responder C

Technical data

Power Source	2 off C Cell batteries
Bulb Life	15 Hours
Replacement Bulb	XPR2C
Approx Max use	5 Hours
Approvals	UL: Class I, Div 1, Group D / Class I, Div 2 Group A, B, C & D Class II, Div 2, Group G Operating Temp T3A CSA: Class I, Div 2 Group A, B, C & D / Class II, Div 2 Group G Operating Temp T3A

Ordering information

Product Number	Product name
658310	SAFETY LAMP W/BATT

Approvals

WOLFLITE SAFETY LAMP H-251A

A general purpose safety lamp for inspection and work tasks in explosive atmospheres. Ideal for use onboard tankers where you could be working in highly gaseous or volatile atmospheres and need a exible light source.

Features

- Up to 7 hours usage time
- Up to 500 recharge cycles
- Bulb life of 100 hours
- Ingress Protection to IP66
- The handlamp body and lens ring is moulded in a highly resilient thermoplastic material able to withstand the drop and impact expected from heavy industrial use, even at sub-zero temps

Bene ts

- You can use in hazardous zones 1 & 2,Gas Groups IIA,IIB,IIC,Temp class T4 giving a wide range of hazardous area's you can operate in
- It is a very simple hand lamp to operate, no need for training or specialist skills to operate it
- The ATEX II 2 GD EEx e ib IIC T4 IP66 35 gives you extremely high levels of protection both in hzzard zones and as a waterproof handlamp
- The electric current is limited so as not to over power your battery

Technical data

Light Type	Halogen filled filament bulb
Light Volts	3.75V
Light Watts	2.8W
Light Output	39 lm (at 3.75V)
Bulb Life	100 hrs
Power Type	Rechargeable battery, sealed lead acid
Power Volts	4V
Power Capacity	5Ah
Power Life	Up to 500 recharge cycles

Accessories

Product Number	Product name
Required	
588301	WOLFLITE LAMP CHARGER C-251 HVE
Recommended for onboard maintenance	
638965	BATTERY PACK F/H-251A
638973	BULB FOR H-251A LAMP

Approvals

CE

WOLFLITE SAFETY LAMP H-251A CHARGER

394 588301

The mains charger for the Wol ite H-251A will suit all your vessel voltages.

Batteries are charged internally via charging studs on the base of the handlamp.

Chargers are designed to hold handlamps whilst charging ensuring your hand lamps are constantly ready for use.

Features

- Recharges in 8-10 hours
- 120/230VAC
- Rig voltages of 254Vac 60hz

Bene ts

- You can wall or wall or bench mount the charger
- The charger gives you options for other wolf lites also particularly types H-251 Mk2, H-251E, H251A
- As well suiting ship voltages it is also for use on oil rigs

Technical data

Voltage Input	110-120V 50/60Hz. 220-240V 50/60Hz
Current input	130mA
Voltage output	10V DC Max.
Current output	800mA Max
Fuse	F1.25AH
Degree of protection	IP 20

Accessories

Product Number	Product name
638726	WOLFLITE SAFETY LAMP H-251A
638965	BATTERY PACK F/H-251A
638973	BULB FOR H-251A LAMP

WOLFLITE SAFETY LAMP H-251A BATTERY

394 638965

This pare battery pack for the Wol ite H-251A can be simply tted with no specialist knowledge.

Ideal for you to back up charging batteries when your Wol ite H251A is in constant use.

Features

- Quick change

Bene ts

- You can quickly change batteries and place your spent units back on charge

Technical data

Type	H-66
Battery	Rechargeable battery, sealed lead acid
Volts	4v
Capacity	5ah
Life	500 Recharges
Charger	Part No 588301

Accessories

Product Number	Product name
638726	WOLFLITE SAFETY LAMP H-251A
638973	BULB FOR H-251A LAMP
588301	WOLFLITE LAMP CHARGER C-251 HVE

WOLFLITE SAFETY LAMP H-251A BULB

394 638973

This spare Bulb for your H-251A Wol ite hand lamp is simply changed and requires no specialist knowledge.

Technical data

Bulb	H69
Type	Halogen lled lament bulb
Volts	3.75v
Watts	2.8w
Output	39 lm (at 3.75v)
Life	100 hours

Accessories

Product Number	Product name
638726	WOLFLITE SAFETY LAMP H-251A
588301	WOLFLITE LAMP CHARGER C-251 HVE
638965	BATTERY PACK F/H-251A

NEIL ROBERTSON STRETCHER

825 184390

Lightweight and compact compared to other stretchers, provides more freedom of movement and exibility of use.

Ideal for use in engine-rooms, cargo holds and boiler rooms where access or hatch sizes are limited.

Features

- Flexible semi-rigid canvas design
- Lightweight
- Vertical recovery
- High quality materials for longer product life

Bene ts

- You can neatly fold it to store away
- No specialist training is required to use
- The strapping holds the casualty rmly even when you need to recover vertically

Technical data

Length	150cm
Width	100 cm
Folded dimensions	
Weight	10 kg
Lifting capacity	120 kg

PARAMEDIC STRETCHER AND RESCUE UNIT

825 537357

The Paramedic Rescue Pack secures your patient even in the most dif cult rescue situations.

The PRP is manufactured from strong PVC coated fabrics with breglass for strength and security reasons.

Features

- Includes straps to secure arms and legs
- Sectioned head guard with adjustable bands

Bene ts

- Side rods allows horizontally lift
- Possibility to X ray patients without removing them from the stretcher
- Ideal for lifting patients clear of hazardous area
- Lightweight and compact

Further Technical data

	In use
Length	205 cm
Width	55 cm
Height	
Weight	

Technical data

Material	Double coated PVC
Bottom plate	Polyester reinforced with bre glass
Rods	Aluminium
Straps	Polyester
Max load	140 kg

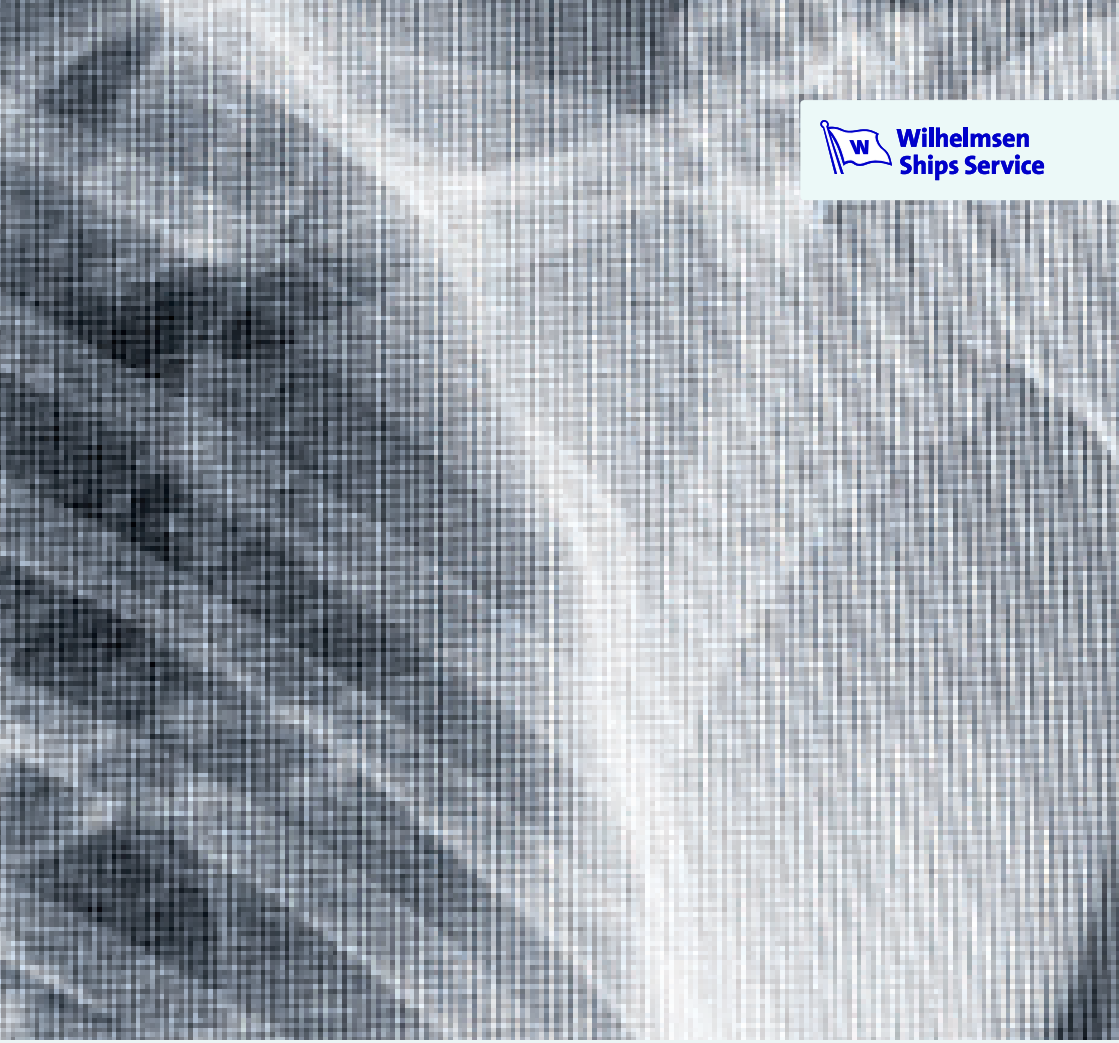
CE-marked according to the European directive for Medical Device 93/42/EEC and registered by the Swedish Medical Products Agency

Ordering information

Product Number	Product name
537357	STRETCHER AND RESCUE UNIT

Approvals

CE



Wilhelmsen Ships Service

MEDICAL

Our medical range includes medical oxygen systems, resuscitators, and de brillators.

DEFIBRILLATOR HEARTSTART FRX INCLUDES PADS AND SOFTCASE

825 755942

The Philips HeartStart FRx De brillator is designed to be easy to use, rugged, and reliable for those who get there rst.

Features

- Philips SMART Biphasic technology delivers a highly effective de brillation shock while also gentle to the heart
- Philips SMART Analysis Device only shocks when required, even if the shock button is pressed
- SMART Pads II enable the FRx to keep pace with the responder by adjusting to their actions
- Self testing

Bene ts

- Protects crew and passengers
- Easy to set-up and use
- Clear instructions, step by step guidance through the screen

Technical Data

Waveform	Truncated Exponential Biphasic
Single energy output	Adult: nominal 150 Joules into a 50-ohm load Infant/ Child: nominal 50 Joules into a 50-ohm load
Battery	Type 9 Volt DC, 4.2 Ah
Dimensions	6 x 18 x 22 cm (H x D x W)
Weight	1.5 kg

Ordering information

Product Number	Product name
755942	DEFIBRILATOR HEARTSTART FRx COMPL.

OUTSIDE MED OX SYSTEM IMO EXCLUDING MOX-40 CYLINDER

826 610253

Our complete outside medical oxygen system ensures you meet the latest IMO IMDG/MFAG regulations for shipboard use to supply oxygen to two persons at the same time.

Features

- PiSS Valve (Pin Index Safety System) connection
- Complete system supplied in one box
- Complete installation instructions

Bene ts

- Compatible with Unitor Mox-40 cylinders exchange system
- Easy installation
- Two separate ow meters allow for independent ow rates to each patient

Why not take advantage of the WSS MOX cylinder exchange offer guaranteeing you medical standard Oxygen supplies globally

Ordering information

Product Number	Product name	Item no.	Quantity
Supplied with:			
320358	RACK FOR 1 CYLINDER.	1	1
596221	ADAPTOR WITH BRACKET	3	1
510021	REGULATOR 520 OX PRESSURE 0-16 BAR	4	1
682435	ADAPTOR 8MM >3/8" BSP	4a	1
596445	GAS OUTLET MC 70 02	5	1
596403	RAIL 1-SLIT	6a	2
617886	FLOWMETER F/RAIL MOUNTING 0-15	6	2
596361	HUMIDIFIER 0,25 L	7	2
610188	OX THERAPY MASK DISPOSABLE (10 PCK)	8	1
625038	HIGH PRES. HOSE OX	9	1
606124	T-PIECE W/OX. QUICK	10	1
763581	SIGN MEDICAL OXYGEN	11	1
638387	CABINET IMO MEDOX F/1 CYL	Opt.	1

Ordering information

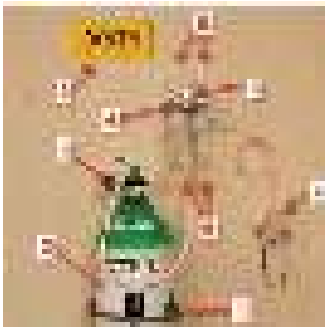
Product Number	Product name	Item no.	Quantity
Additionally required:			
905617	BREATHING OXYGEN MOX-40 FILLING	2	1

Approvals

- IMO/MFAG approved

BEDSIDE MED OX SYSTEM IMO EXCLUDING MOX-40 CYLINDER

826 610261



Complete bedside medical oxygen system that meets the latest IMO IMDG/MFAG regulations for shipboard use to supply oxygen to two persons at the same time.

Features

- PiSS Valve (Pin Index safety system) connection as standard
- Complete system supplied in 1 box
- Complete installation instructions

Bene ts

- Easy installation
- Two separate ow meters allow for independent ow rates to each patient
- Compatible with Unitor Mox 40 cylinders cylinder exchange system

Why not take advantage of the WSS MOX cylinder exchange offer guaranteeing you medical standard Oxygen supplies globally

Ordering information

Product Number	Product name	Item no.	Quantity
Supplied with:			
320358	RACK FOR 1 CYLINDER.	1	1
608414	REGULATOR W/QUICK COUPLING	3	1
608406	DOUBLE OUTLET 02. F/RAIL	4	1
596379	FLOWMETER FOR GAS OUTLET 0-15 L/MIN	5	2
596361	HUMIDIFIER 0,25 L	6	2
610188	OX THERAPY MASK DISPOSABLE (10 PCK)	7	1
596403	RAIL 1-SLIT	8	1
763581	SIGN MEDICAL OXYGEN	9	1

Ordering information

Product Number	Product name	Item no.	Quantity
Additionally required:			
905617	BREATHING OXYGEN MOX-40 FILLING	2	1

Approvals

- IMO/MFAG approved

NORWEGIAN TYPE MED OX SYSTEM IMO EXCLUDING MOX-40 CYLINDER

826 653295

Complete bedside medical oxygen system that meets the latest IMO IMDG/MFAG regulations for shipboard use to supply oxygen to two persons at the same time. In the event of a cylinder leakage the IMO Norwegian system ensures the safety of a vented air pipe.

Features

- PiSS Valve (Pin Index safety system) connection as standard
- Complete system supplied in 1 box
- Complete installation instructions

Bene ts

- Compatible with Unitor Mox 40 cylinders cylinder exchange system
- Easy installation
- Two separate ow meters allow for independent ow rates to each patient

Why not take advantage of the WSS MOX cylinder exchange offer guaranteeing you medical standard Oxygen supplies globally

Ordering information

Product Number	Product name	Item no.	Quantity
Supplied with:			
320358	RACK FOR 1 CYLINDER.	1	1
625038	HIGH PRES. HOSE OX	3	1
596221	ADAPTOR WITH BRACKET	4	1
510021	REGULATOR 520 OX PRESSURE 0-16 BAR	5	1
608406	DOUBLE OUTLET 02. F/RAIL	6	1
653287	QUICK COUPLING OXYGEN TO G 3/8" F	7	1
596403	RAIL 1-SLIT	8	2
596379	FLOWMETER FOR GAS OUTLET 0-15 L/MIN	9	2
596361	HUMIDIFIER 0,25 L	10	2
610188	OX THERAPY MASK DISPOSABLE (10 PCK)	11	1
763581	SIGN MEDICAL OXYGEN	12	1

Ordering information

Product Number	Item no.	Quantity	Product name
Additionally required:			
905617	2	1	BREATHING OXYGEN MOX-40 FILLING

Approvals

- IMO/MFAG Approved

ADAPTER YOKE FROM PISS (PIN INDEX SAFETY SYSTEM) TO W21.8 OXYGEN THREAD

825 630244

Features

Threading W21.8mm x 1/14"

Accessories

Product Number	Product name
691808	SPARE SEAL F/PISS VALVE 10 PCS

SPARE SEAL FOR PISS (PIN INDEX SAFETY SYSTEM) VALVE (10 PCK)

825 691808

The seal is also called BODOK seal

OXYGEN RESUSCITATOR WITHOUT CYLINDER

825 652131

The Unitor Oxygen Resuscitator ful ls your needs on board your vessels to manually provide medical oxygen as required by the medical rst aid guide.

This resuscitator is designed to enable you to concentrate on looking after the patient and not on operating the equipment. There is no danger of you in ating the patients lungs.

The MOX cylinder is part of the Unitor global cylinder exchange system (Unitrak) and is available for exchange in most ports.

Features

- Numerous sizes of guedel airways
- Manual ventilator with different sizes of oxygen masks
- Complete kit with bag

Bene ts

- Unitor cylinder exchange program helps ensure compliance
- Simple to use and requires no specialist training
- You do not have to make judgements on the lung capacity of the patient to select a tidal volume, only the basic size or type of patient being cared for
- Fail-safe ensures proper use by venting excess gas whilst giving the operator an audible warning that the equipment is not being used correctly

Technical data

Length	530 mm
Height	220 mm
Weight	5.1 kg

It is designed to meet BS6850:1987 for ventilatory resuscitators.

Ordering information

Product Number	Product name
The following components are included:	
763967	OXYGEN REGULATOR + YOKE FOR (PISS)
691808	SPARE SEAL F/PISS VALVE 10 PCS

Ordering information

Product Number	Product name
Additionally required:	
905638	BREATHING OXYGEN MOX-2 FILLING

MEDICAL SUCTION UNIT

825 589937

The V-VAC manual Medical Suction Unit is ideal for rst responder emergency kits and as back-up suction.

Features

- One-handed operation, one-piece disposable cartridge and unique no-clog suction tip
- Adjustment for high and low pressure suction
- Features a unique no-clog suction tip (intake valve)
- Ef cient: maximum suction exceeds 380 mm Hg
- Peak air ow over 70 litres per minute

Bene ts

- The versatile catheter connection gives you the scope to use on it for many different persons
- The disposable one-piece cartridge provides a new, clean pump, valve and suction tube each time you use it
- You simply immerse the reusable handle for cleaning
- All parts are latex free to prevent any reactions

Technical data

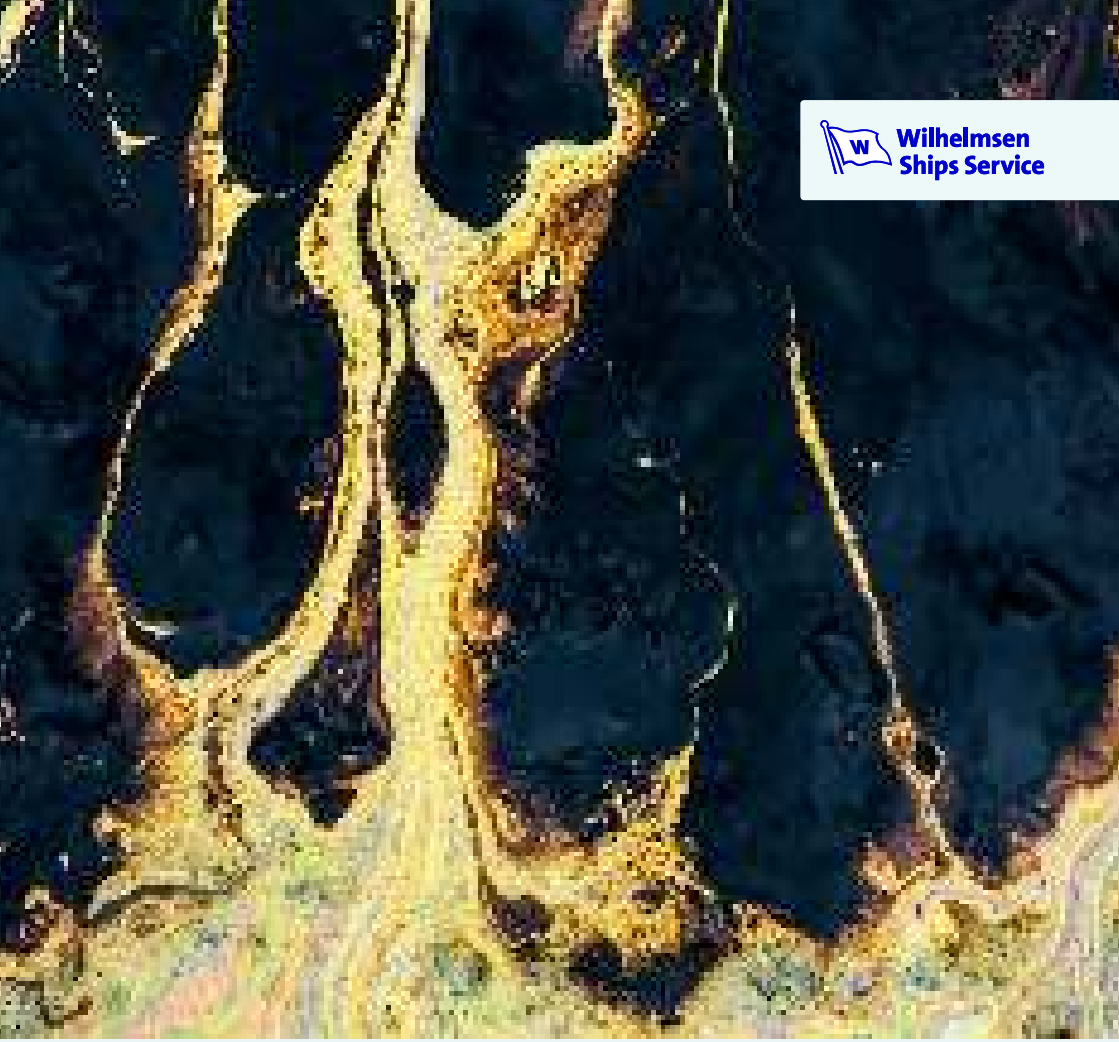
Vacuum range	170 - 380 mmHg (23 - 51 kPa)
Flow rate	70 LMP
Cartridge capacity	425 ml canister
Weight	0.292 kg (0.644 ibs)

To clean

- Reusable handle
- Throughly clean handle after each use by scrubbing in warm soapy water
- Rinse and dry
- Single use Disposable cartridge (canister)
- All parts except the handle is designed for single use only

Approvals

CE marked - this product is in compliance with the essential requirements of Council Directive 93/42/EEC as amended by Council Directive 2007/47/EC.



Wilhelmsen Ships Service

ENVIRONMENTAL

Our spill kits, sorbents and booms are speci cally designed for tackling marine oil spills in accordance with the vessel's response plan, as required by IMO and OPA90.

OIL SPILL KITS

Unitor oil spill kits are designed as a marine oil spill response measure to be deployed easily and effectively. They must be used in conjunction with your vessels response plan as required by IMO and OPA90. Whether you use them as spill control or maintenance protection our absorbents will take in up to 25 times their own weight.

Features

- Complete kit
- Waterproof box
- Full range of spares available

Bene ts

- All kits are designed to meet the IMO and OPA90 recommendations
- As well as providing the tools for tackling the spill the we also include personal protection equipment either as standard or an option
- The waterproof box allows for storage on deck, ready for an emergency

Technical data

Contents Vary depending on size of kit
Yellow storage box
Roll of plastic bags
Sorbent pads U94200
Spill kit gloves
Once only use one piece suits
Aqaubreak PX a waterbased cleaning chemical
Jet spray tool
1 oil spill kit bag **ContainingSorbent booms
1 oil spill kit bag **ContainingSorbent pads U9450 -Sorbent rolls U94150S
1 Barrel kit does not include an oil spill kit bag

Unitor oil spill kits come in 3 sizes:

- 12 barrel to handle 1900 litres of deck spill for tankers 400 ft or greater carrying bulk oil
- 7 barrel to handle 1000 litres of deck spill for tankers under 400 ft
- 1 barrel for inland oil barges

Ordering information

Product Number	Product name
592717	OIL SPILL KIT 12 BARREL (3 PALLETS)
597237	OIL SPILL KIT 7 BARRELS (2 PALLETS)
597245	OIL SPILL KIT 1 BARREL (1 PALLET)
604314	UNITOR SORBENT KIT

OIL SPILL CARE AND MAINTENANCE TOOLS

Oil spill cleanup requires proper precaution and having the correct non sparking tools to do the job properly is essential.

Our range includes plastic tools for scrapping, collecting and gathering oil spills.

Features

- Non-sparking
- Tough plastics

Bene ts

- The non sparking features gives you a higher level of safety
- Made from tough plastic these tools are durable and long lasting
- Reusable after cleaning

Ordering information

Product Number	Product name
607440	PLASTIC BUCKET 10 LTR
607441	SQUEEGEE W/WOODEN HANDLE
607442	PLASTIC SCOOP-MEDIUM SIZE
607443	PLASTIC SPATULA
607439	SAFETY SHOVEL

OIL SPILL KIT 1900 LT 12 BARREL

940 592717

Unitor oil spill kits are designed as a marine oil spill response measure to be deployed easily and effectively. They must be used in conjunction with the vessel's response plan as required by IMO and OPA90. Whether you use them as spill control or maintenance protection, our absorbents will take in up to 25 times their own weight.

Features

- Complete kit
- Personal protection
- Waterproof box

Bene ts

- This is a 12 barrel complete kit for a 1900 litre deck spill
- As well as providing the tools for tackling the spill the kit also includes personal protection equipment
- The box is waterproof so you can store it on deck, ready for an emergency

Unitor oil spill kits come in 3 sizes:

- 12 barrel to handle 1900 litres of deck spill for tankers 400 ft or greater carrying bulk oil
- 7 barrel to handle 1000 litres of deck spill for tankers under 400 ft
- 1 barrel for inland oil barges

Ordering information

Supplied with:
Yellow storage box
1 roll of plastic bags
2 sorbent pads U94200
6 pairs spill kit gloves
6 once only use one piece suits
25 litres aqaubreak PX a waterbased cleaning chemical
1 jet spray tool
1 oil spill kit bag with 1000 litre capacity. Contains 8 sorbent booms U94410S
1 oil spill kit bag with 1000 litres capacity. Contains 1 pack sorbent pads U9450 sorbent rolls U94150S

Accessories

Product Number	Product name
Required after use	
606026	ROLL OF PLAST.BAGS 20 PCS
592758	SORBENT PADS U 94200
592790	OIL SPILL KIT 1 TIME SUIT XL

Product Number	Product name
592733	SORBENT PADS U9450
592741	SORBENT ROLLS U94150 S
575613	AQUABREAK PX 25 LTR
571752	NATURAL HANDCLEANER 4X5 LTR
572099	JET SPRAY UNIT 10 LTR STEEL
592774	OIL SPILL KIT BAGS 1000
592782	OIL SPILL KIT GLOVES - ONE PAIR..
Safety boots	
571018	SAFETY BOOT YELLOW SIZE42
571026	SAFETY BOOT YELLOW SIZE43
571034	SAFETY BOOT YELLOW SIZE44
571042	SAFETY BOOT YELLOW SIZE45

OIL SPILL KIT 1100 LT 7 BARREL

940 597237

Unitor oil spill kits are designed as a marine oil spill response measure to be deployed easily and effectively. They must be used in conjunction with the vessel's response plan as required by IMO and OPA90. Whether you use them as spill control or maintenance protection our absorbents will take in up to 25 times their own weight.

Features

- Complete kit
- Personal protection
- Waterproof box

Bene ts

- This is a 7 barrel complete kit for a 1100 litre deck spill
- As well as providing the tools for tackling the spill the kit also includes personal protection equipment
- The box is waterproof so you can store it on deck, ready for an emergency

Unitor oil spill kits come in 3 sizes:

- 12 barrel to handle 1900 litres of deck spill for tankers 400 ft or greater carrying bulk oil
- 7 barrel to handle 1000 litres of deck spill for tankers under 400 ft
- 1 barrel for inland oil barges

Ordering information

Supplied with:
Yellow storage box
1 roll of plastic bags
2 sorbent pads U94200
6 pairs spill kit gloves
6 once only use one piece suits
6 pairs safety boots
25 litres aqaubreak PX a waterbased cleaning chemical
1 jet spray tool
1 oil spill kit bag with 1000 litres capacity. Contains 8 sorbent booms U94410S

Accessories

Product Number	Product name
Required after use:	
606026	ROLL OF PLAST.BAGS 20 PCS
592758	SORBENT PADS U 94200
592790	OIL SPILL KIT 1 TIME SUIT XL

Product Number	Product name
592733	SORBENT PADS U9450
592741	SORBENT ROLLS U94150 S
575613	AQUABREAK PX 25 LTR
571752	NATURAL HANDCLEANER 4X5 LTR
572099	JET SPRAY UNIT 10 LTR STEEL
592774	OIL SPILL KIT BAGS 1000
592782	OIL SPILL KIT GLOVES - ONE PAIR..
Safety boots	
571018	SAFETY BOOT YELLOW SIZE42
571026	SAFETY BOOT YELLOW SIZE43
571034	SAFETY BOOT YELLOW SIZE44
571042	SAFETY BOOT YELLOW SIZE45

OIL SPILL KIT 1 BARREL

940 597245

Unitor oil spill kits are designed as a marine oil spill response measure to be deployed easily and effectively. They must be used in conjunction with the vessel's response plan as required by IMO and OPA90. Whether you use them as spill control or maintenance protection our absorbents will take in up to 25 times their own weight.

Features

- Complete kit
- Personal protection
- Waterproof box

Bene ts

- This is a 1 barrel complete kit for a 1 barrel deck spill
- As well as providing the tools for tackling the spill the kit also includes personal protection equipment
- The box is waterproof so you can store it on deck, ready for an emergency

Unitor oil spill kits come in 3 sizes:

- 12 barrel to handle 1900 litres of deck spill for tankers 400 ft or greater carrying bulk oil
- 7 barrel to handle 1000 litres of deck spill for tankers under 400 ft
- 1 barrel for inland oil barges

Ordering information

Supplied with:
Yellow box
1 roll of plastic bags
2 sorbent pads U94200
6 pairs spill kit gloves
6 pairs safety boots
6 once only one piece suits
25 litres Aquabreak PX waterbased cleaning chemical
1 jet spray tool
5 litres natural handcleaner

Accessories

Product Number	Product name
Required after use	
606026	ROLL OF PLAST.BAGS 20 PCS
592758	SORBENT PADS U 94200
592790	OIL SPILL KIT 1 TIME SUIT XL

Product Number	Product name
575613	AQUABREAK PX 25 LTR
572099	JET SPRAY UNIT 10 LTR STEEL
571752	NATURAL HANDCLEANER 4X5 LTR
592782	OIL SPILL KIT GLOVES - ONE PAIR..
Safety boots	
571018	SAFETY BOOT YELLOW SIZE42
571026	SAFETY BOOT YELLOW SIZE43
571034	SAFETY BOOT YELLOW SIZE44
571042	SAFETY BOOT YELLOW SIZE45

OIL SPILL KIT 1/2 BARREL

941 604330

The Unitor 1/2 barrel portable mini oil spill kit is ideal for placing around your vessel where minor spills may occur and can be quickly carried over to the spillage area.

Features

- Complete kit
- Weather proof packing

Bene ts

- Ideal for small spills around your vessel

Technical data

Size	54 X 16 X 18 CM

Ordering information

Product Number	Product name
604330	UNITOR MINI KIT 1/2BARREL
Supplied with:	
40 pads U94200	
1 pillow U94200	
2 pairs of chemical resistant gloves	
2 disposable bags 70 x 110 cm	

OIL SPILL SORBENT KIT 1100LT 7 BARREL

941 604314

The Unitor 7 barrel sorbent kit contains suf cient sorbent materials to handle a spill of approximately 7 barrels of oil (1100 litres). The kit contains various sorbents to tackle differing spills on your vessel. Also included are special absorbing pads so you can clean up chemical spills.

Features

- Flexible oil spill cleaning

Bene ts

- Whether you require booms, pads, sweeps or pillows our kit will cover most oil spills
- Stored in a waterproof box enabling you to store it where required

Technical data

Supplied with:
2 Unitor 1/2 barrel mini kit containing1 set sorbent pads U94200 - 1 sorbent pillow U9410P
1 sorbent pillow U9440P
1 set sorbent pads U94200U
1 sorbent sweep U941800
1 sorbent boom U94410S
1 ser sorbent pads U94200

Ordering information

Supplied with:
2 Unitor 1/2 barrel mini kit containing1 set sorbent pads U94200 - 1 sorbent pillow U9410P
1 sorbent pillow U9440P
1 set sorbent pads U94200U
1 sorbent sweeo UP941800
1 sorbent boom UP94410S
1 set sorbent pads U94200

Accessories

Product name	Product name
Required after use	
SORBENT BOOMS U 94410 S	SORBENT BOOMS U 94410 S
SORBENT SWEEP U941800	SORBENT SWEEP U941800
SORBENT PADS U94200 U	SORBENT PADS U94200 U
SORBENT PILLOWS U9440 P	SORBENT PILLOWS U9440 P

Oil spill kits
Oil spill products

Product name	Product name
SORBENT PILLOWS U9410 P (10 PCS)	SORBENT PILLOWS U9410 P (10 PCS)
SORBENT PADS U 94200	SORBENT PADS U 94200
OIL SPILL KIT BAGS 1000	OIL SPILL KIT BAGS 1000
Safety boots	
SAFETY BOOT YELLOW SIZE42	SAFETY BOOT YELLOW SIZE42
SAFETY BOOT YELLOW SIZE43	SAFETY BOOT YELLOW SIZE43
SAFETY BOOT YELLOW SIZE44	SAFETY BOOT YELLOW SIZE44
SAFETY BOOT YELLOW SIZE45	SAFETY BOOT YELLOW SIZE45

OIL SPILL KIT SPARE STORAGE BOX

940 592725

Waterproof for on deck stowage and use for storing Unitor oil spill kits. Can be used stand alone for other storage requirements.

Features

- Bright yellow colour for easy identi cation
- Waterproof

Bene ts

- Multi-use

Technical Data

Width	114 cm
Depth	67 cm
Height	85 cm

Ordering information

Product Number	Product name
592725	OIL SPILL KIT PLASTIC BOX

OIL SPILL KIT SPARE WASTE BAG 1000 LITRE

940 592774

For use with Unitor oil spill kits or as a stand alone product, the waste bag allows you to collect oil waste, store it and dispose when in port. The sealed top keeps the contents enclosed until you are ready to dispose of it.

Features

- 1000 litre capacity
- Fold away

Ordering information

Product Number	Product name
592774	OIL SPILL KIT BAGS 1000

OIL SPILL KIT - SINGLE USE SUIT

940 592790

Single use, two piece suit for light protection during oil spill cleaning operations.

Technical data

Size; Extra Large

Ordering information

Product Number	Product name
571018	SAFETY BOOT YELLOW SIZE42
571026	SAFETY BOOT YELLOW SIZE43
571034	SAFETY BOOT YELLOW SIZE44
571042	SAFETY BOOT YELLOW SIZE45
If required	
592782	OIL SPILL KIT GLOVES - ONE PAIR..

OIL SPILL KIT SPARE PLASTIC BAGS ROLL OF 20

940 606026

For use in the UNITOR oil spill kits or you can keep as spares to add extra capacity to your cleaning operations.

These 20 bags will give you a storage capacity of 1000 litres.

Technical data

size; 70 cm X 110 cm – volume 50 ltr each.

OIL SPILL KIT GLOVES - ONE PAIR..

940 592782

The gloves are ideal for the petrochemical industry,re neries and public services. Manufactured in pvc with a sandy nish in a gauntlet style.

These gloves have been designed to protect the hands against chemical hazards. They comply with the European guideline 89/686/E EC and to the applicable European standards.

Features

- 35cm length for a good t
- Oil and grease proof
- Jersey lining
- Colour: green

Use them only for their proper purpose. The gloves may not be used as protection against toothed blades or when ther e is a risk of them becoming trapped in a moving component. The results are based on laboratory tests and are only of an advisory nature. Only those gloves with test results 6 are suitable. In all other cases, their use must be limited to protection against splashes and/or brief contact.

Do not wear gloves which are dirty on the inside, they can irritate the skin and cause dermatitis or worse. If the gloves tear or are pierced during use, throw them away immediately. These gloves are not known to contain ingredients which can result in allergies. Contaminated gloves must be cleaned or washed before removal.

Ordering information

Approval	Level
EN420	General requirements
EN388	4121 ABCD
EN374	Methanol (0-6) Acetone (0-6) Acetonitrile (0-6) Dichloromethane (0-6) Carbon disulfide (0-6) Toluene (0-6) Diethylamine (0-6) Tetrahydrofuran (0-6) Ethylacetate (0-6) Heptane (0-6) Sodium hydroxide (0-6) Sulphuric acid (0-6)

SPILL KIT SORBENT PADS

Our range of sorbent pads can be used for cleaning up oily, chemical or ammable liquids after a spill. Extremely high absorption rates ensure you contain and clean as quickly as possible.

Features

- Wide range of absorption pads
- High absorbtion rates

Bene ts

- Regardless of your spill whether oily, ammable or chemical we can offer you a solution for your cleaning requirements
- They offer a fast and ef cient way of ensuring a quick containment of your spill, saving you time and costs.
- Even when fully saturated the sorbents will keep their shape for easier handling.

Ordering information

Product Number	Product name	Size	Absorption rate
592733	SORBENT PADS U9450	97 x 86cm	310 litres
603167	SORBENT PADS U94100	48 x 43cm	155 litres
592758	SORBENT PADS U 94200	48 x 43cm	155 litres
603175	SORBENT PADS U94230	30 x 30cm	65 litres

SORBENT ROLLS

Our range of sorbent rolls can cut it to the size you want for use in various applications.

Features

- For multiple applications
- High absorbency rate
- Keeps shape even when fully saturated

Bene ts

- Regardless of your spill whether oily, ammable or chemical we can offer you a solution for your cleaning requirements
- They offer a fast and ef cient way of ensuring a quick containment of your spill, saving you time and costs.
- Even when fully saturated the sorbents will keep their shape for easier handling.

Ordering information

Product Number	Product name	Size each	Absorption rate
592741	SORBENT ROLLS U94150 S	44 metres x 48cm	310 litres
603183	SORBENT ROLLS U94150	44 metres x 97cm	310 litres
603191	SORBENT ROLLS U94300	88 metres x 97cm	310 litres
Static resistant			
603209	SORBENT ROLLS U94300 S	88 metres x 48cm	310 litres
603324	SORBENT ROLLS U943601 S	44 metres x 48cm	310 litres

SORBENT PARTICULATE U94

941 603274

Our sorbent particulates makes it easier to clean spills by absorbing any residues and providing you with a solid to clean up rather than liquid.

You can spread it over walkways and oors or throwing over open water to absorb spills.

Features

- High absorption rates
- Flexible use
- High absorption rates up to 25 times its own weight and does not absorb water

Bene ts

- Easy to handle and recover- its 100% chopped polypropylene materials absorbs oil based liquids so you can simply shovel up the spill or use a net in the water
- Easy to dispose

Technical data

Description	Oil spill particulate U94
Weight	11.3 kg
Quantity	1 -
Absorb. Capacity	202

SORBENT PILLOWS

These absorbent pillows give you many options to contain, clean and protect vulnerable areas from oil spills. They absorb all types of oils and hydrocarbons while repelling water.

Features

- High absorption rates
- Flexible use
- Absorbtion up to 25 times their own weight

Bene ts

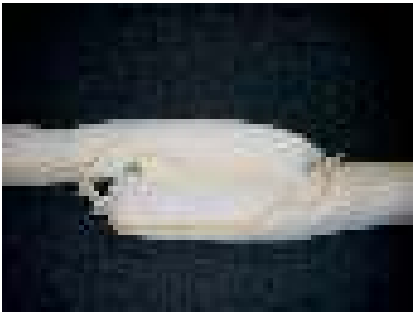
- The absorption materials are held in a sock making them ideal for stopping spills from going under doorways or cupboards
- Can be used for cleaning oil spills
- Flexibility allows you to lay them along an area making them easier to handle than oil booms
- Easy to dispose
- Easy to handle

Ordering information

Product Number	Product name	Size each	Absorption rate
603258	SORBENT PILLOWS U9410 P (10 PCS)	46cm x 20cm dia	155 litres
603266	SORBENT PILLOWS U9440 P	46cm x 20cm dia	310 litres
604322	SORBENT PILLOWS U9440 P	46cm x 20cm dia	93 litres

SORBENT BOOMS

Our range of absorbent booms gives you exible options to contain oil spills giving you the ability to link them together into any length. Booms prevent spreading and stop contaminants getting into the sea so are a vital part of your oil spill kit.



Features

- Highly absorbent
- Filled with 100% polypropylene contained in a net sock
- Metal hooks at either end can be linked

Bene ts

- Contained absorbant ensures you do not lose any spill when recovering
- Linkable ends allows customization for your required length
- Easy disposal

Ordering information

Product Number	Product name	Size each	Absorption rate
592766	SORBENT BOOMS U 94410 S	3 metres x 13cm	114 litres
603217	SORBENT BOOMS U94410	3 metres x 10cm	228 litres
603233	SORB.BOOM W/NET U94810 SN	3 metres x 20cm	392 litres

WILHELMSEN TECHNICAL SOLUTIONS

Wilhelmsen Technical Solutions has over many years supplied safety solutions for newbuilds and retro ts in the maritime and offshore markets. By offering the best available safety technologies for re prevention, detection and suppression solutions, and portable safety equipment we help you stay safe and compliant for the lifetime of your vessels and offshore structures.

Based on a range of extinguishing agents including water, clean agent, high and low expansion foam, dry chemical powder and CO_2 we offer systems to protect your complete range of applications.

UNITOR XFLOW® WATER MIST SYSTEM

The Unitor XFlow® water mist system gives the opportunity to integrate local and full protection in a single system. The solution can be applied for total ooding, local application re ghting (LAFF) and accommodation areas. The system has the unique XFlow® water mist nozzle, which spreads ne water mist that extinguishes the re fast, without risk to the crew or equipment.

Applicable to

- Machinery spaces total ooding
- Local application re protection
- Accommodation areas
- Cabins
- Balconies

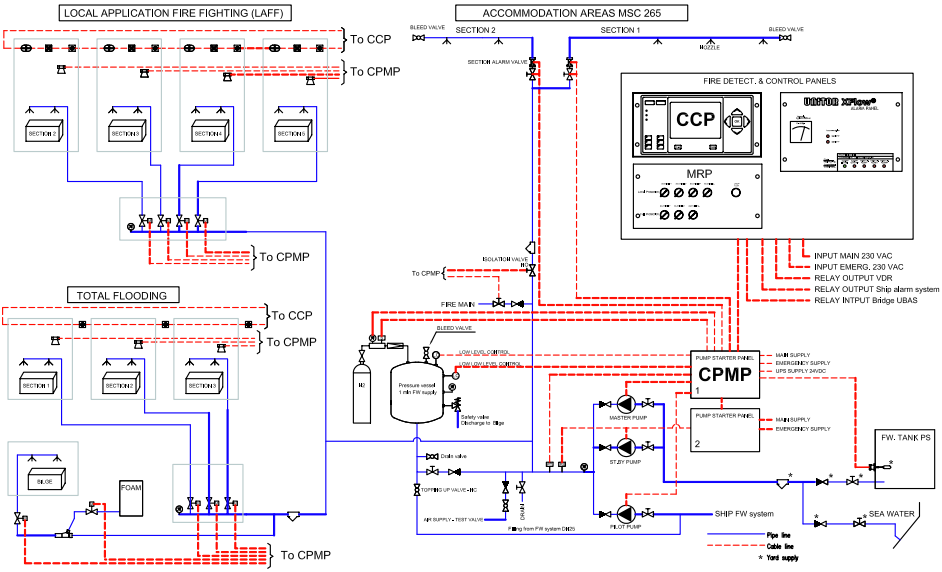
Features

- Compact design, small footprint
- Standard components
- Customised layouts
- Low water consumption and low pressure
- Standard centrifugal pumps
- Use fresh water, and continue with sea water if needed

Bene ts

- Harmless to people, machinery and environment
- Immediate release when re is detected reduce damages to equipment and structure
- No hazardous decomposition products
- Low maintenance needs
- Less risk of clogging
- Less installed power is required, may reduce the size of the emergency generator.
- Fast and effective re suppression
- Simple and reliable system

Common con gurations



Technical data

Nozzle

	LAFF	Main ooding	Accommodation
Types	open	open	closed
Material	brass	brass	brass
Water capacity	1.2 to 1.4 l/min/m² @ 6.7 to 7.7 bar(g)	1.4 to 1.8 l/min/m² @ 9 bar(g)	1.5 to 2.0 l/min/m²
Installation height	up to 16.5 m	up to 6.6 m	NA

Pump

	LAFF	Main ooding	Accommodation
Type	centrifugal multistage	centrifugal multistage	centrifugal multistage
Material	cast iron / stainless steel	cast iron / stainless steel	cast iron / stainless steel
Voltage/frequency	3x400/50 and 3x440//60 (or on request)	3x400/50 and 3x440//60 (or on request)	3x400/50 and 3x440//60 (or on request)
Insulation and enclosure	Class F, IP55	Class F, IP55	Class F, IP55

System description

Engine room

For engine room systems, the patented nozzles are mounted in a dry pipe system and released in sections through the total ooding system or for individual objects through the local re ghting systems. The system activation for a section is done manually from release stations in connection with the protected area or remotely from a release panel located at a re control station, ECR or wheelhouse. For the local application re ghting system, the release can be automatic and manual.

Accommodation areas

For accommodation areas, the patented nozzles are mounted in a wet pipe system and each water mist nozzle works automatically and independently. The nozzles activate when the re reaches a certain temperature. The water mist is con ned to the area or object affected by the re, and the system can be activated without closing all vents and full evacuation of staff. When a water mist nozzle is activated, water starts owing through the pipes, causing the pressure to drop and the pumps to start. This triggers an optical and acoustic alarm on the bridge.

Compliance

The Unitor XFlow® water mist systems are approved by international marine authorities and classi cation societies. Wilhelmsen Technical Solutions is certi ed according to ISO 9001.

Extinguishing re using water mist

The Unitor XFlow® water mist system creates a mist of ne water droplets. Droplets in variable sizes circulate in the air ow, suppressing the supply of oxygen and absorbing the heat energy. In that way it breaks the chain of combustion. Water is an effective agents for re ghting as it is readily available and environmentally friendly. When water is added as mist it is most ef cient at reducing and dissipating heat and thereby controlling, suppressing and extinguishing a re.

Low water consumption

The secret of the XFlow® technology is the combination of very ne water droplets and water mist using small water consumption. The droplets cool down the re and extinguish it while the water mist encapsulates and suffocates the re by keeping out the oxygen.

UNITOR XFLOW® WET PIPE AND DELUGE SYSTEM

The Unitor XFlow® wet pipe system is designed to protect closed ro-ro and special category spaces against res. The Unitor XFlow® deluge system is developed for protection of small open ended ro-ro spaces and special category spaces. Both systems have prescriptive based design and meet the latest IMO MSC.1/Circ.1430 regulation, providing improved re protection for ro-ro and ro-pax vessels.

Nozzel - open

Nozzel - automatic with glass bulb

Applicable to

- Open ro-ro spaces, open at both ends or an opening at one end
- Closed ro-ro spaces
- Special category spaces are enclosed spaces where vehicles can be driven and passengers have access
- Typical vessels for this applications are car and passenger ferries

Features and bene ts

- Systems comply with IMO and are type approved. This makes them applicable for all types of ro-ro and ro-pax vessels
- Tested up to 6.5 meter, and approved up to 9 meters
- Low pressure system using low pressure components and piping
- Systems developed by experienced industry experts and extensively tested at SP laboratory in Sweden
- Standardised product range reduce delivery time
- Low pressure means easy installation and low maintenance cost
- Systems do not require full distribution spray test during commissioning, saving time and cost
- Standardized commissioning and service procedures
- Full range of standard spare part kits
- Systems can also be combined with XFlow water mist systems for machinery spaces, local application re ghting and accommodation

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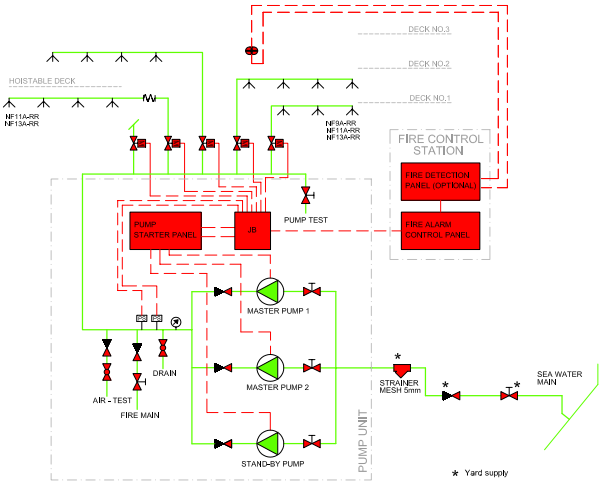
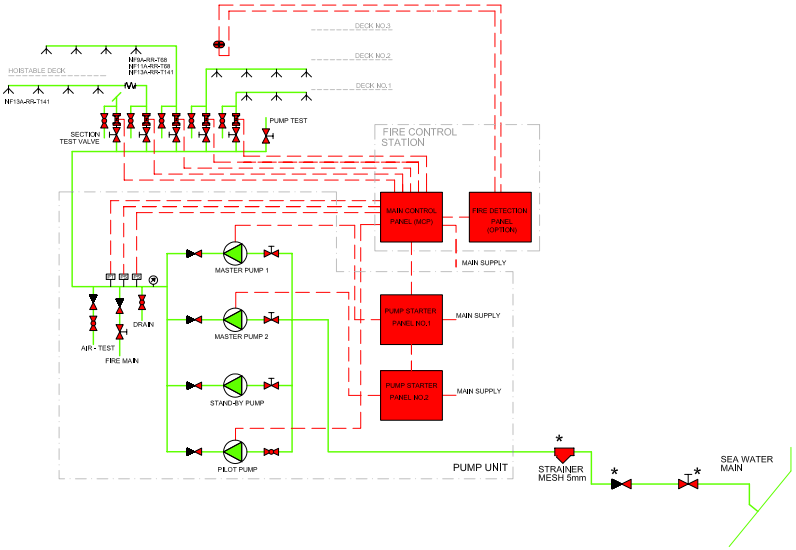
Common con gurations

Remote operated deluge system with optional Fire Detection system for automatic activation



Wet pipe system



Technical data

Deluge nozzles

Nozzle type	Deck height ≤ 2.5m		2.5m < deck height ≤ 6.5m		6.5m < deck height ≤ 9m		Data sheet no.
	Min. nozzle pressure [bar]	Discharge density [mm/min]	Min. nozzle pressure [bar]	Discharge density [mm/min]	Min. nozzle pressure [bar]	Discharge density [mm/min]	
NF9A-RR	1.2	6.1	X	X	X	X	56-09-451
NF11A-RR	X	X	1.9	10.8	3.8	15.3	56-09-452
NF13A-RR	X	X	1.2	12.3	2.1	15.9	56-09-453

Automatic sprinklers

Nozzle type	Deck height ≤ 2.5m		2.5m < deck height ≤ 6.5m		6.5m < deck height ≤ 9m		Data sheet no.
	Min. nozzle pressure [bar]	Discharge density [mm/min]	Min. nozzle pressure [bar]	Discharge density [mm/min]	Min. nozzle pressure [bar]	Discharge density [mm/min]	
NF9A-RR-T68	1.5	6.8	X	X	X	X	56-09-551
NF11A-RR-T68	0.8	7.0	3.8	15.3	X	X	56-09-552
NF11A-RR-T141	0.8	7.0	3.8	15.3	X	X	56-09-554
NF13A-RR-T141	X	X	1.9	15.5	3.2	20.1	56-09-553

System description

The Unitor XFlow® wet pipe and deluge systems for ro-ro spaces and special category spaces are designed to protect both open ro-ro spaces and closed ro-ro spaces for vehicles containing cargo and fuel hazard. The systems can be installed independently or in combination. However, the systems cannot be combined in the same protected space.

The Unitor XFlow® wet pipe system is an automatic system, primarily designed for closed ro-ro spaces. The nozzles have glass bulbs, and are attached to a pressurized piping system connected to water pumps. The glass bulb is filled with a liquid and an air bubble. When the bulb is heated, the liquid absorbs the air bubble and expands until it breaks the glass, releasing the water.

The Unitor XFlow® deluge system is primarily designed to protect open ro-ro spaces, using open nozzles attached to a piping system connected to water pumps. The protected space is divided into sections, each with a section valve located outside of the protected area. In case of fire in a section, the section valve is opened, and water will flow from all nozzles in that section.

Compliance

Both systems have prescriptive system design and meet the latest IMO MSC.1/Circ.1430 regulation, providing improved fire protection for ro-ro and ro-pax vessels. The nozzles are type approved and MED certified.

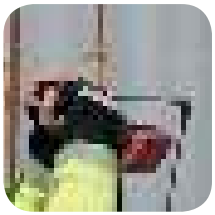
UNITOR XFLOW®
MOBILE WATER MONITOR AND WATER LANCE

The mobile water monitor and water mist lance are designed to protect ships carrying containers on or above weather deck. Such vessels, constructed on or after January 2016 shall carry at least one water mist lance. In addition, vessels designed to carry ve or more tiers of containers on or above the weather deck, shall carry a number of mobile water monitors.

Applicable to
- Container ships
- Multi purpose vessels with containers
- Supply vessels
- Other ships carrying one or more containers on deck

Optional use:
Water mist lance
- Waste bins
- Cabins

Water monitor
- Cool, suppress or extinguish re in any object on deck



Features and benefits

Mobile water monitor

- The Unitor XFlow® mobile water monitor is designed to create effective water barriers between the affected container bay and its adjacent container bays containing re within the respective stack(s) of containers and preventing re from spreading to unaffected areas
- The monitor has a dual purpose nozzle for spray and jet functionality. That combined with an easy elevation feature ensure precise and ef cient re ghting
- The monitor is easy to carry and can be quickly assembled and operated by one crew member
- One waterway connection means fast response time from alarm to operation as crew only needs to roll out one hose. Hydrant adaptors are available to meet customer demands
- Based on the proven XFlow® technology, the low pressure water monitor is developed with large bores to avoid clogging
- There are no moving parts in the nozzle. This makes the water monitor reliable and easy to maintain
- Ability of unattended operation

Water mist lance

- The Unitor XFlow® water mist lance is developed to penetrate a container wall enabling discharge of water mist into an affected container
- The lance and its equipment comes in a practical tool case for easy storage and use
- For fast re response, the lance kit is equipped with a drill to penetrate the container wall quickly and safely, mitigating extra re damage.
- The lance can be operated by one crew member
- The lance is designed and tested for optimised re suppression by cooling and oxygen depletion
- The water spray is discharged both vertically to protect crew from the heat, and horizontally to supress the re
- The lance is developed with a holder that enables it to be left unattended in operation allowing crew to focus on other tasks

Technical data

Water mist lance

Portable case	
Case size (W x H x D)	760 x 520 x 220 mm
Length of assembled lance	1180 mm
Length of drill with extension(s)	680 - 1100 mm

Lance	
Inlet lance	Storz D
Inlet hose	Storz D or C (Adapter)
Nominal ow and pressure	25 lpm @ 4 bar
Max. working pressure	16 bar
Nozzle K-factor	11.1
Drill power	18V
Drill size	Ø 30mm
Battery charger connection	Europlug (CEE 7/16)
Weight	15 kg

Kit content	
Aluminium portable case	1pc
Spray gun with storz D cupling and lance section	1pc
Lance section with water mist nozzle	1pc
Drilling machine 18V (IP23)	1pc
Drill extension	2pc
Hex key for drill extensions	1pc
Cup drill	1pc
Extra battery and charger	1pc
Fire hose with Storz D couplings	1pc
Assembly / operations guide	1pc

Mobile water monitor

Monitor	
Inlet (re hose connection)	1 x adapter Storz 75 (B - 2½")
Outlet (nozzle connection)	G 2½" male thread
Max. working pressure	16 bar
Pivoting area	
Horizontal (rotation)	200°
Elevation range (up and down movement)	+35° to +90°
Safety stop at	+35°
Elevation range beyond safety stop	-15° to +35°
Nominal working pressure	4 bar
Nominal capacity	80 m3/h
Nominal throwing length	40 m
Nominal throwing height	28 m @ nozzle pressure 4 bar

Product description

In case of re in a container, the water mist lance and the water monitor can be used together or independently. The water mist lance tool case contains a battery operated drill, a re hose and the lance itself. The equipment can easily be carried, mounted and operated by one person.

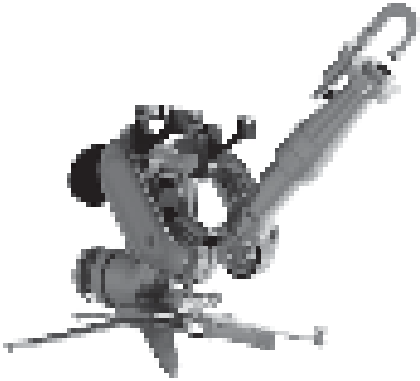
The lance is connected to the re main using the hose in the tool case, and water is released by pushing the valve handle. With the drill, it is easy and fast to drill a hole in the container wall, preferably quite high up on the wall. The lance is then inserted in the hole, and the groove in the xing sleeve fastens in the container wall. The lance can then operate unattended as long as needed.

The monitor can be placed on deck or other horizontal surface without any straps or fastening devises. It is however tted with a strap that can be used if the ship is rolling or pitching in heavy seas. The monitor is connected to the re main with a standard re hose, and start operating as soon as the hydrant valve is opened. The angle of the water jet is easily adjusted by a turning wheel, from 0° to 90°, and the direction is set by turning the monitor. With nominal nozzle pressure of 4 bar, the throwing distance is 40 m and the monitor can protect up to 10 tiers of containers, and even more at higher pressure. The monitor stays stable by itself, and can operate unattended as long as needed.

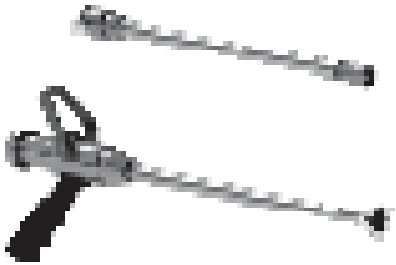
Compliance

The products are type approved according to IMO regulations under SOLAS II-2/10.7.3 and the mobile monitor is tested and approved to meet the SOLAS regulations IMO MSC.1/ Circ. 1472.

Mobile water monitor



Water mist lance



UNITOR 1230 CLEAN AGENT FIRE EXTINGUISHING SYSTEM

Unitor 1230 Clean agent re extinguishing system is a total ooding system for machinery spaces of category A, cargo pump rooms on tankers, cargo compressor rooms, electronic and storage spaces.

Unlike Halon-based systems, the Unitor 1230 has no environmental impact and is safe to use in areas where the crew works. Because of the system's low stored pressure of 34.5 bar and small pipe dimensions, it can even be retro tted directly on existing piping arrangement previously used for Halon.

Applicable to

- Engine rooms
- Pump rooms
- Compressor rooms
- Swithboard rooms
- Engine control rooms

Features

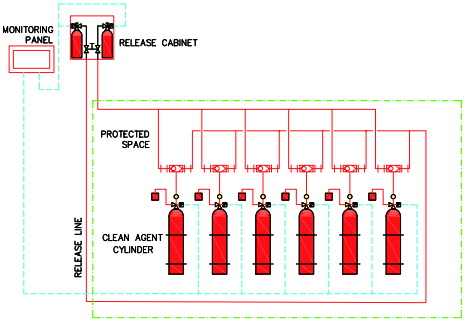
- Unitor 1230 system uses Novec 1230 uid* (*developed and manufactured by 3M.) It is stored as liquid and discharged as gas, suppressing re by a combination of heat absorption and chemical interference with the ame
- Large nozzle coverage with a unique discharge pattern especially developed for maritime and offshore industries
- No measureable impact on climate change:
  - Ozone Depletion Potential (ODP) is zero
  - Global Warming potential (GWP) is 1
  - Atmospheric life time of only ve days
- Low design concentration of 5.5% to 6% in combination with a safety margin of up to 100%.
- The US EPA Signi cant New Alternatives Program (SNAP) classi es Novec 1230 uid as acceptable for use as a total ooding agent in occupied spaces.

Bene ts

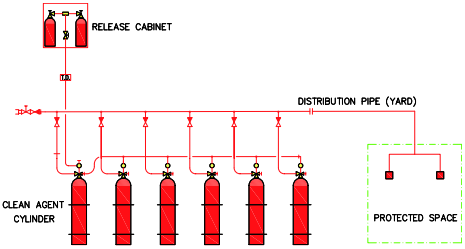
- Harmless to people and the environment
- Small pipe dimensions saves installation space, weight and lowers total installation cost
- Flexible installation options, smaller footprint than for CO_2 systems
- Replacement uid is available worldwide

Common con gurations

Modular



Central



Technical data

Cylinders	
Volume	14 to 345 litres
Storage	pressure 34.5 bar at 21 °C
Material	steel
Standards	EN or US DOT
Certi cates	all major classi cation societies

Nozzles	
Material	brass, suitable for application up to 925 °C
Size	1/2" to 2 1/2"

System description

The Unitor 1230 system uses Novec 1230 uid, which is stored in steel cylinders, pressurised with nitrogen to 34.5 bar at 21°C. The cylinder valve outlets are connected to distribution pipes with discharge nozzles via exible hoses. The cylinder valve assembly can be equipped with burst discs and a supervisory pressure switch for monitoring the pressure drop in the cylinder. The valves can be activated electronically, pneumatically or manually.

Flexible installation

- Modular system – cylinders are stored inside the protected compartments
- Central system – central bank of cylinders outside of the protected spaces, extinguishing uid distributed through piping network
- Combination of the above

All components are designed for optimum system performance. Time delay and pre-discharge alarm are provided as per Rules requirement.

Compliance

- IMO MSC/Circ. 848
- IMO MSC/Circ. 1267
- Equivalent to Fire extinguishing systems required by SOLAS 1974 as amended, Chapter II-2.

The system is in accordance with SOLAS and the IMO MODU code and can be used on merchant marine and offshore structures.

UNITOR INERGEN® CLEAN AGENT FIRE EXTINGUISHING SYSTEM

The Unitor INERGEN® Clean Agent system is a total ooding system for machinery spaces of category A, cargo pump rooms, cargo compressor rooms, storage rooms and other enclosed spaces. It is excellent for use in rooms with electrical or electronic equipment.

INERGEN® is a clean agent consisting of atmospheric gases only, providing a safe solution for crew, equipment and environment. INERGEN® has no Ozone Depletion Potential (ODP) and no Global Warming potential (GWP).

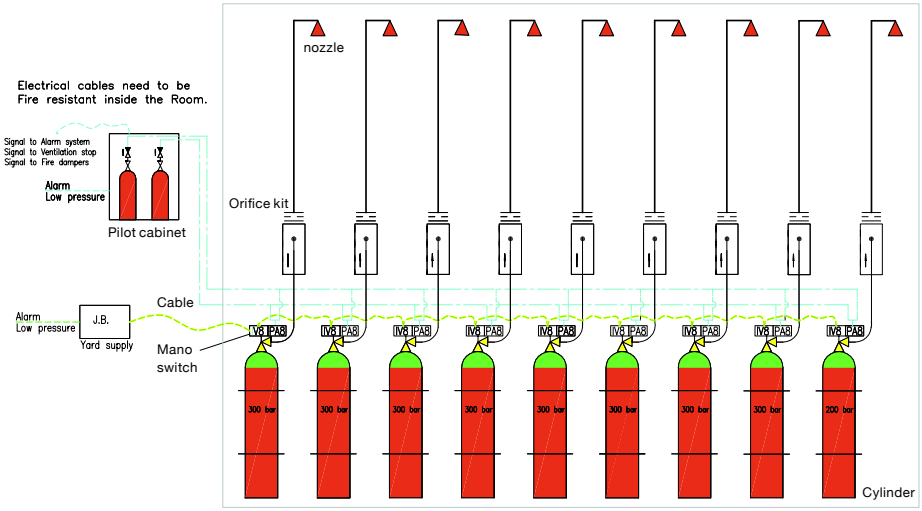
Features

- Extinguishes the fire by displacing oxygen in the atmosphere
- Contains CO_2, which stimulates the breathing of humans
- No impact on climate
- No harm to people at extinguishing concentration
- Does not produce toxic or corrosive decomposition products
- 3D extinguishing effect, meaning that INERGEN® works inside cabinets boxes etc. which are located in the protected space
- Stored as a gas
- Does not fog the room during release
- Modular or central system

Bene ts

- Easy to breath at extinguishing concentration
- Room can be accessed without pre-ventilation
- No harm to equipment when released
- No residue to clean up
- Requires minimal maintenance

Common con gurations



Technical data

Inergen gas	
INERGEN®	Extinguishing gas for xed installations
Gas composition	52% nitrogen (N_2) 40% argon (Ar) 8% carbon dioxide (CO_2)
NFPA designation	IG541
Discharge time after release [s]	120

Inergen Cylinders	
Volume [litre]	5 to 80
Pressure [bar@ 15 °C]	200/300
Gas volume [Nm^3]	1 to 24
Weight empty [kg]	9 to 108
Weight lled [kg]	11 to 140
Test pressure [bar]	300/450
Colour	Red, with green shoulder
Height [mm]	465 to 1780
Diameter [mm]	140 to 267
Standard & approval	EN1964-2, π TPED EC1999/36

System description

Inergen is stored as a gas in steel cylinders. The cylinders are mounted on a supporting rack inside or outside the protected space. The cylinders in a multiple cylinder system are connected to a manifold, by hoses, for common distribution and discharge of all the gas. It is possible to protect multiple areas with one cylinder bank.

The system can be tted with manual or electrical release.

Compliance

The system can be applied on merchant marine and offshore structures, as the design is in accordance to SOLAS and IMO MODU Code. It is tested to the IMO test standards and has approvals from Classi cation Societies, UL, FM as well as other national authorities around the world. Inergen is approved according to NFPA 2001 as a Halon gas alternative.

About Inergen gas

INERGEN® is an extinguishing gas for xed installations
INERGEN® extinguished by reducing oxygen levels
INERGEN® is medically formulated to maximize personal safety

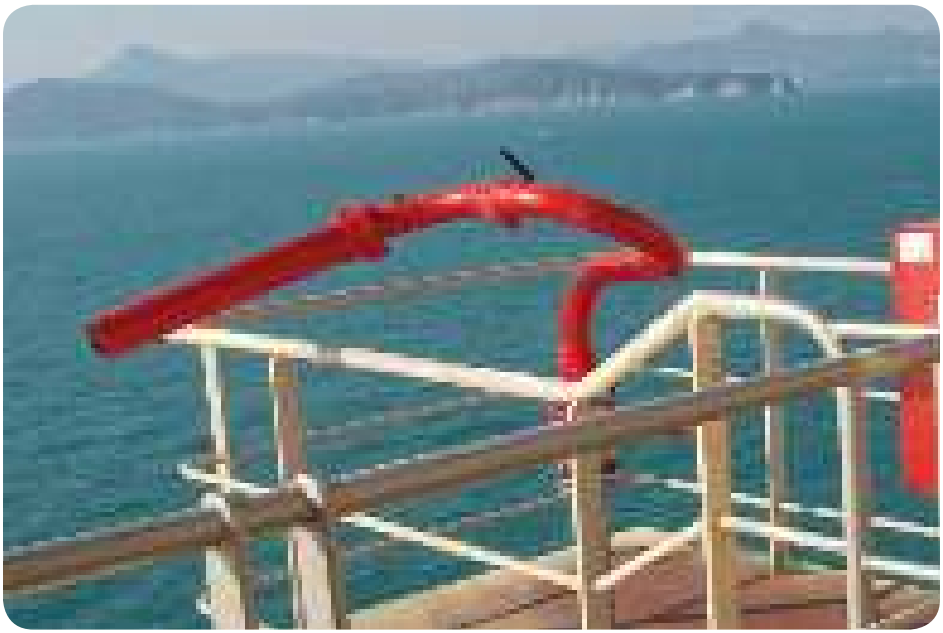
The gas is a mixture of

- 52% Nitrogen (N2)
- 40% Argon (Ar)
- 8% Carbon dioxide (CO2)

All these gases are naturally present in the atmosphere
Hence ODP= 0 and GWP=0
None of the gases are involved in the combustion - no decomposition products

INERGEN® Fire Extinguishing System is known as IG 541 in NFPA 2001.

UNITOR DRY CHEMICAL POWDER FIRE EXTINGUISHING SYSTEM



The Unitor Dry chemical powder system is a highly effective re extinguishing system especially developed for cargo decks, cargo manifold areas and tank areas on gas carriers. It can be installed as a central, modular or hybrid system to ensure complete reach even in small or partially covered areas. All three versions comply with the IMO Code for the construction and equipment of ships carrying lique ed gases in bulk.

The system is type approved and holds an MED certi cate as required on all EU Flagged vessels. The certi cates also covers long pipe lines and low temperatures

Applicable to

- Gas carriers' cargo decks, cargo manifold areas and tank areas
- LNG fuelled vessels' bunker stations
- Other merchant marine and offshore structures

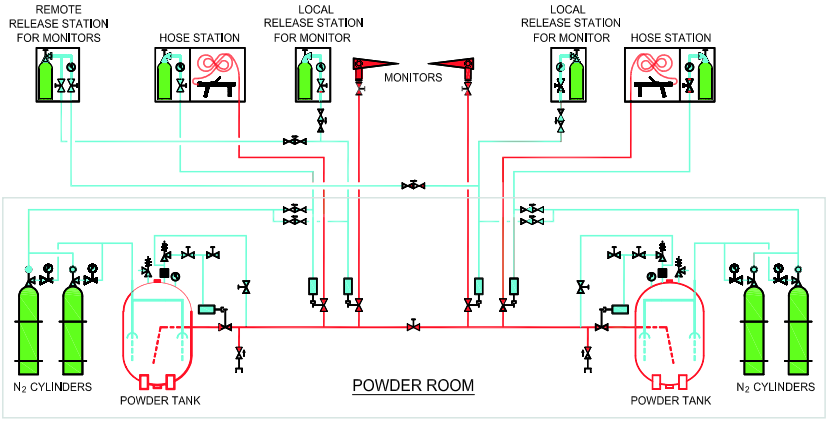
Features

- Flexible and high quality re extinguishing system
- Easy to install and operate
- Extensively and independently tested system, regulatory compliant
- Powder monitors and non-kinking hoses with pistols ensure complete reach of all areas on deck, including small and/or partially covered areas
- Central system with DCP units from 500 to 2500 kg, tested with long pipe lines
- The modular system options are self-contained. Each hose/ monitor unit has its own powder storage vessel, no need for powder pipework
- Modular unit sizes range from 160kg to 1000kg capacity.
  - Modular units can also be used for extra protection of car decks, heli decks and cargo decks on chemical tankers.
  - DCP system for protection of LNG Bunkering station. Capacity 175kg.
- Flexible piping options

Bene ts

- Non-toxic Potassium based powder as required by MED certi cation, harmless to both crew and environment, and compatible with Foam re ghting systems
- Non-toxic Sodium based powder where accepted by class and ag, harmless to both crew and environment
- Almost immediate re extinction as the powder breaks the chain of combustion
- Standardised system components minimise maintenance and operational costs
- Skid unit solution available, reducing installation time and cost
- Custom made solutions in accordance with rules and regulations

Common con guration



Technical data

Tanks

Material	steel
Capacity (kg)	160– 2500
Pressure class	PN16

Powder

Potassium Sulphate powder (BC Karate) to comply with IMO MSC.1/Circ.1315, DNV-GL type approval and MED approval

25kg bag	Prod.no. 762711
50kg bag	Prod.no. 762712

Sodium Bicarbonate powder (BC Jet) if above compliance is not required

25 kg bag	Prod.no. 589226

Cylinders

Material	steel
Capacity (ltr)	50
Pressure (bar)	200

Monitor

Material	stainless steel
Capacity (kg/s)	10 - 25
Flange connection	DN50 and DN65

Pistol

Material	stainless steel
Capacity (kg/s)	3,5

Cabinets

Material	GRP (glass bre)
Type of operation	pneumatic

Approvals

- MED –B & -D (EC) certi ed, ful lling the mandatory IMO MSC.1/Circ. 1315
- GL type approval certi cate
- DNV QS - Certi cate of assessment – EC
- Tested and approved for operation in temperature -28°C
- Pipe length + exible hose total 223 m

System description

Using nitrogen as propellant, the system ejects dry powder from monitors and hose stations. The system can be deployed using xed monitors, hand held hoses or a combination of both ensuring complete reach even into the smallest areas. It can be remotely operated from the release boxes via pilot cylinders, or manually at the dry powder central. To meet the ow rate and capacity requirement of your vessel, each project is calculated especially. There are three installation options: central, modular or hybrid

Compliance

For use on merchant marine and offshore structures, compliant with IGC and IBC codes and in compliance with IMO, Class requirements and EU ag requirements

Powder bank

Hose station and pistol

UNITOR HIGH EXPANSION FOAM FIRE EXTINGUISHING SYSTEM

Unitor High expansion foam fire extinguishing system is a total flooding system ideal for protecting machinery spaces (category A) such as engine rooms, purifier rooms and incinerator rooms, as well as pump rooms. It can be installed as a total flooding system for the entire engine room or for individual compartments. It is highly effective and safe both for your crew and the environment, making it a viable alternative to CO_2.

Applicable to

- Engine rooms
- Pump rooms
- Compressor rooms
- Electronic and storage spaces

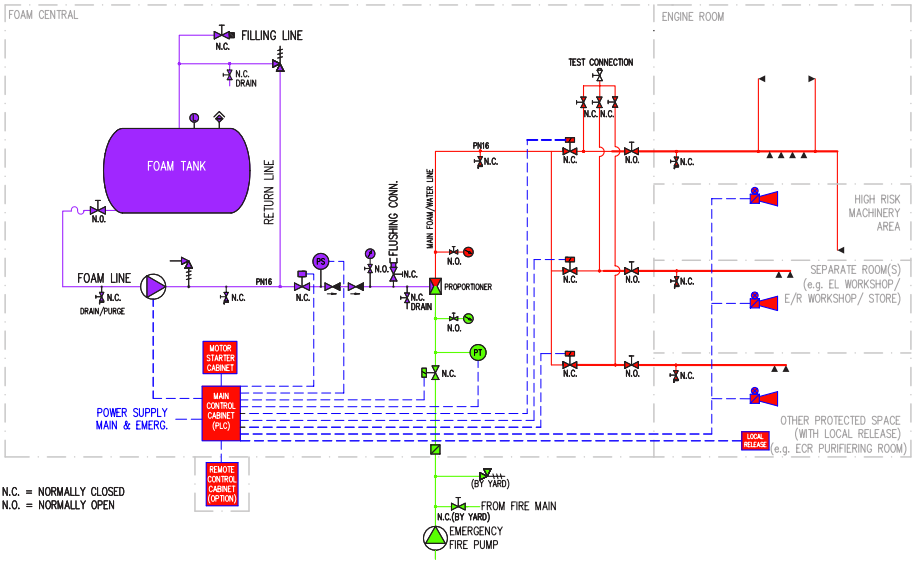
Features

- Foam expansion rate of 1:666 using the air in the installation space, no need for air ducting and fans for external air supply
- Sequential release design - optimised protection and reduced water capacity needed
- Quick release reduces re and heat damage to equipment and structure
- Foam generators come in three sizes, giving exibility in design and installation onboard
- The foam is generated in situ, no need for external foam generating room

Bene ts

- Safe and harmless for crew
- Can run on fresh or sea water
- Space saving, lightweight and cost ef cient alternative to CO_2
- Foam leaves no hazardous decomposition products
- Minimal and easy maintenance
- Low service and maintenance cost

Common con guration



Technical data

Generators

Foam capacity:	
UFG-90 (m³/min)	60
UFG-60 (m³/min)	40
UFG-30 (m³/min)	20
Material	stainless steel
Nom.working pressure	6 bar (@generator)
Expansion ratio	1:666
Connection flange	DN20

Mixing equipment

Type	balanced pressure proportioner or inductor
Capacity (l/min)	75 to 20.000
Material	stainless steel and bronze

Tank

Type	cylindrical
Material	GRP (glass fibre) stainless steel on request
Opening	full size manhole for inspection

Foam concentrate

Type	synthetic
Viscosity (cSt) @ -2°C	< 60
Lowest working temp.	-2°C
Storage temp.	-10°C to +45°C
Approval	MED certi ed

Pump

Type	centrifugal multi-stage
Material	stainless steel
Voltage/frequency (v/H2)	3 x 400/50 or on request
Insulation and enclosure	class F, IP55

System description

The system can be installed both as a total flooding and a local system protecting machinery spaces such as engine rooms, purifier rooms, incinerator rooms, as well as pump rooms.

The system consists of a storage tank for foam liquid, foam pump and proportioner located in the foam central room. The foam is mixed with water in the proportioner and discharged through the foam generators. These generators are installed at the highest level in the protected space, at strategic locations above high risk areas. The water/ foam mixture blends with air in the generators. Unlike other systems, the Unitor High expansion foam system uses the air in the protected space, meaning no ducting or fans are required. The foam falls directly down from the generators, covering the entire protected space, quenching the fire.

The system can be remotely operated by the main control cabinet, or via the local control cabinets. Manual operation is also possible by opening the valves and starting the water and foam pump manually.

Installation

- Dry pipe system using PN16 standards
- Components can be delivered in modular units, for faster installation
- Space saving and easy installation

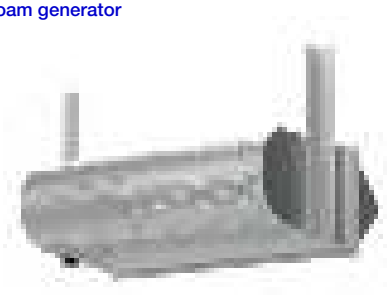
Options

The Unitor High expansion foam system can be designed for sequential release by splitting the system and spaces in several distribution lines. This unique operation feature optimises protection of high risk areas and reduces the required water capacity. The system can also be combined with Unitor Local application fire fighting system providing a total safety solution in the protected space.

Compliance

- Complies with SOLAS and approved by major classification societies
- Extensive independent testing in accordance with IMO MSC/Circ. 1384
- Foam testing according to IMO MSC/Circ. 670
- Foam concentrate complies with requirements of European Council Directive 96/98 on Marine Equipment Directive (MED)

Foam generator



UNITOR LOW EXPANSION FOAM FIRE EXTINGUISHING SYSTEM

Unitor Low expansion foam re extinguishing system effectively protects open space areas like the cargo deck from res. Foam is lighter than combustion materials such as oil or petrol, and forms a stable blanket on top of these, sealing against oxygen, effectively extinguishing the re and reducing radiated heat.

Designed for simple, reliable operation the new generation foam monitor changes from jet to fog operation in one smooth movement, giving better control of the foam coverage area.

Applicable to

- Cargo tank areas
- Tanker stern
- Bow loading areas
- Helidecks
- Open spaces on offshore supply vessels and oil, product and chemical tankers
- Bilge areas
- Puri er rooms
- Floating storage facilities and offshore structures

Features

- Simple and rapid operation
- Ef cient extinguishing of res on hydrocarbons
- Stable foam blanket on extinguishing surface
  - Minimises re-ignition hazard
  - Heat radiation reduction
- Good cool down ability
  - Minimises re damage
- Wide range of foam concentrates available
  - Cover needs of extinguishing for most of liquid cargoes

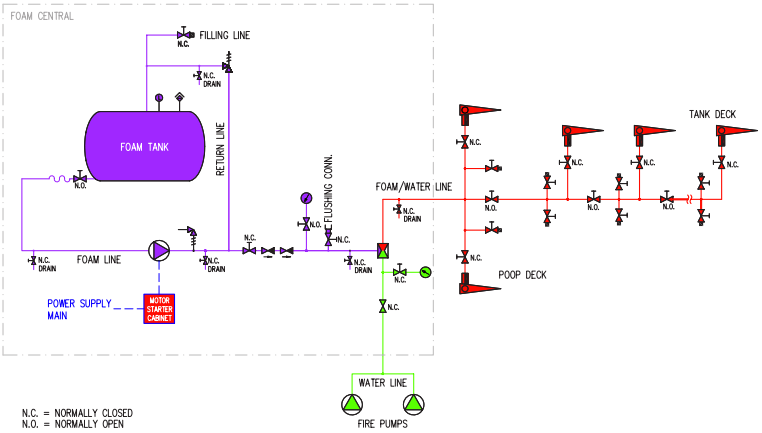
Foam monitor

- Monitors available with manual or remote, hydraulic operation
- Unique moulded housing with specially developed fog/jet nozzle
- Made of stainless steel, increased durability and reduced need for maintenance
- Fast and effective re extinction despite wind and constant supply of oxygen
- Corrosion protected components for a robust, low maintenance system
- Balanced pressure proportioner guarantees reliable foam mixing

Bene ts

- Harmless to people and the environment
- Monitors placed at safe distance, improved throwing length helps keep the crew and vessel safe
- Easy operation due to compact design and low weight
- System operation can be integrated with bridge systems
- Modular skid units make footprint small and installation easy
- Custom made solutions in accordance with rules and regulations
- For service purposes, foam concentrate replacement is delivered worldwide

Common con guration



Technical data

Monitor	
Capacity (l/min)	1000 – 12500
Material	stainless steel
Max working pressure	16 bar

Applicator	
Capacity (l/min)	400
Material	stainless steel
Pressure (bar)	3 or 6

Foam concentrate	
Types	uoro-protein foam
	aqueous film-forming foam (synthetic)
	uoro-protein alcohol resistant foam
	aqueous film-forming alcohol resistant foam (synthetic)

Tank	
Type	cylindrical
Material	glass fibre reinforced polyester (GRP)
	stainless steel part of material on request
Opening	full size manhole for inspection

Mixing equipment	
Type	balanced pressure proportioner or inductor
Capacity (l/min)	75 to 20 000
Material	stainless steel and bronze

Pump	
Type	centrifugal multi stage (& positive displacement)
Material	stainless steel
Voltage/frequency (V/Hz)	3 x 400/50
	3 x 440/60 or on request
Insulation and enclosure	Class F, IP55

Technical description

The system consists of a reinforced foam tank, foam pump, proportioner, foam monitors and portable foam applicators or foam spray nozzles. All components are sturdy and corrosion resistant.

The monitors, portable applicators and foam spray nozzles are used either individually or in conjuntion to effectively put out the re. Portable applicators cover shadow areas not reachable by the monitors.

The Unitor low expansion foam system can also be used in machinery spaces as an addition to a total ooding system. Foam will then be discharged from xed outlets like foam spray nozzles. For this set up inductor type portable foam applicators are also required.

Foam monitors

The Unitor foam monitors represent a new generation in its eld. The manually adjustable fog/jet nozzle is easy to operate giving increased operational exibility. With one simple movement, the operator can adjust the spray pattern from fog to jet operation. The result is better control of the foam coverage area.

Foam central

The foam central is located outside the protected area, adjacent to accommodation spaces and readily accessible in the event of a re. The main components are: a foam tank with foam concentrate, foam pump and proportioner.

The foam tank is available in a range of sizes, the size is determined by application area and calculated period of operation. The tank is normally made from glass bre reinforced plastic (GRP). There are three advantages to this:

- Non-corrosive, some foam concentrates corrodes steel for instance
- Chemically stable, protecting the foam from contamination
- Strong, lightweight material

Installation

The foam central components can be delivered on skids, reducing installation time and cost. Monitors are placed at a safe distance from the protected area along the deck, with two monitors on the poop deck. Number and spacing of the monitors, foam tank capacity and system pressure/capacity is dependant on vessel type and protection area.

Options

Remotely operated valves
Remote, hydraulic operation of monitors from the central control panel or the bridge

Compliance

- In accordance with SOLAS and IMO MODU code as well as class requirements
- The system is approved by all major classi cation societies
- The monitor is type approved by a number of classi cation societies

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Foam monitor

Extinguishing re using foam

The low expansion foam is made from protein or synthetic foam concetrates mixed with water and air. When discharged, it forms a stable, heat resistant and secure foam blanket, separating the re from the air supply and cooling down the area preventing further outbreak. Low expansion foam effectively extinguishes large res of hydrocarbon, polar solvents or mixtures of both.

The foam concentrate works well with either fresh or sea water.

Foam testing

Foam concentrate supplies used to top up xed systems should be of the same generic type and come from the same manufacturer as the original one to ensure compatibility. For more information, please contact Wilhelmsen Ships Service Customer Services.

Foam test stations are available in ve ports. To request a free of charge foam sample can, please contact your WSS Customer Services. Product no. 530 576496. The sample cans are marked with the ve addresses where the testing service is offered, so you can choose where best to send it. Results will be sent to you via email within ve days after we receive the sample can.

UNITOR PORTABLE FOAM APPLICATORS

The Unitor portable foam applicators are a supplement to foam monitors, used to cover sheltered areas not reachable by the monitors. The lightweight applicators are easy to carry and operate, giving greater exibility in re ghting on deck and in the engine room.

Note
It is vital that the foam concentrate used is suited to the cargo onboard. Water alone is ineffective, since the burning liquid will oat on it and spread further.

Features

The applicator is made of stainless steel and has a self-suction hose as an option, which eliminates the need for an additional proportioner.

Wilhelmsen Technical Solutions offers a complete annual service program for the system, which meets all relevant requirements.

Bene ts

- Light weight, easy to carry and operate
- Rapid connection to re mains
- Can be used even with a low-pressure water supply because the mixer is tted on the end of the line, assuring less loss of pressure
- Optionally with self-suction hose, no need for additional proportioner

Compliance

MSC.217 (82), Ch. 4, Sec. 3.

Ordering information and product number (UFA type Approved by DNV)

Foam applicator with valve: 740621, 740639
Foam applicator with valve/inductor: 740662, 740670

UNITOR FIRE FIGHTING FOAM CONCENTRATES

Wilhelmsen Technical Solutions supplies a range of different types of foam concentrates for all kind of purposes with several approvals. Most foam concentrates are available from key ports.

In key ports Wilhelmsen Technical Solutions have foam concentrate specialists available. These specialists can be contacted through our Customer service centres.

Bene ts

- Foam available in key ports
- Technical expertise worldwide available
- Foam concentrate test stations in key ports
- Free sample bottles can be ordered: Product no. 530 576496

Foam products for hydrocarbon res

Product no.	Description	Type	Packaging
530 556084	FLUORO-PROTEIN	UNIROL 3%	200 liter per drum
530 592204	FLUORO-PROTEIN	UNIROL 3%	20 liter per can
530 778489	FLUORO-PROTEIN	UNIROL 3%	1000 liter per drum
530 777691	SYNTHETIC	AFFF3% F-25	200 liter per drum
530 777692	SYNTHETIC	AFFF3% F-25	20 liter per can
530 777695	SYNTHETIC	AFFF1% F-25	200 liter per drum
530 777696	SYNTHETIC	AFFF1% F-25	20 liter per can
530 777685	SYNTHETIC	AFFF3% F-15	200 liter per drum
530 777686	SYNTHETIC	AFFF3% F-15	20 liter per can
530 772384	SYNTHETIC	Hydral 3%(S3)	200 liter per drum
530 772392	SYNTHETIC	Hydral 3%(S3)	20 liter per can
530 777693	SYNTHETIC	AFFF6% F-35	200 liter per drum
530 777694	SYNTHETIC	AFFF6% F-35	20 liter per can

Foam products for Polar solvent and Hydrocarbon res

Product no.	Description	Type	Packaging
530 778008	SYNTHETIC ALCOHOL RESISTANT	Uniral AR 3-3 M	200 liter per drum
530 778009	SYNTHETIC ALCOHOL RESISTANT	Uniral AR 3-3 M	20 liter per can
530 778493	SYNTHETIC ALCOHOL RESISTANT	Uniral AR 3-3 M	1000 liter per drum
530 777927	SYNTHETIC ALCOHOL RESISTANT	APS3%- Moussol	200 liter per drum
530 777688	SYNTHETIC ALCOHOL RESISTANT	APS3%- Moussol	20 liter per can
530 784067	SYNTHETIC ALCOHOL RESISTANT	Uniral AR 3-6 M	1000 liter drum
530 784066	SYNTHETIC ALCOHOL RESISTANT	Uniral AR 3-6 M	200 liter drum
530 784065	SYNTHETIC ALCOHOL RESISTANT	Uniral AR 3-6 M	20 liter can
530 764986	FLUORO-PROTEIN ALCOHOL RESISTANT	Univex Super 3-6%	200 liter per drum
530 764988	FLUORO-PROTEIN ALCOHOL RESISTANT	Univex Super 3-6%	20 liter per can
530 778490	FLUORO-PROTEIN ALCOHOL RESISTANT	Univex Super 3-6%	1000 liter per drum
530 764985	FLUORO-PROTEIN ALCOHOL RESISTANT	Univex Super 3-3%	200 liter per drum
530 764987	FLUORO-PROTEIN ALCOHOL RESISTANT	Univex Super 3-3%	20 liter per can
530 778491	FLUORO-PROTEIN ALCOHOL RESISTANT	Univex Super 3-3%	1000 liter per drum

UNITOR HIGH PRESSURE CO_2 FIRE EXTINGUISHING SYSTEM

The Unitor high pressure CO_2 fire extinguishing system is a total flooding system for enclosed spaces. CO_2 is the quickest and most cost effective way of extinguishing fire in enclosed spaces with minimal risk to equipment and the environment. It is commonly used in machinery spaces of category A, engine rooms, pump rooms and cargo holds onboard vessels and offshore installations. CO_2 suppresses the oxygen content in the room, thereby asphyxiating the fire almost immediately.

Applicable to

- Machinery spaces of category A
- Cargo spaces for dangerous goods
- Sealed ro-ro cargo spaces
- Cargo pump rooms on tankers (oil and chemical)
- Cargo compressors rooms on gas tankers (LNG & LPG)
- Spaces containing flammable liquids (paint stores)
- Galley range exhaust duct
- Main engines scavenge boxes

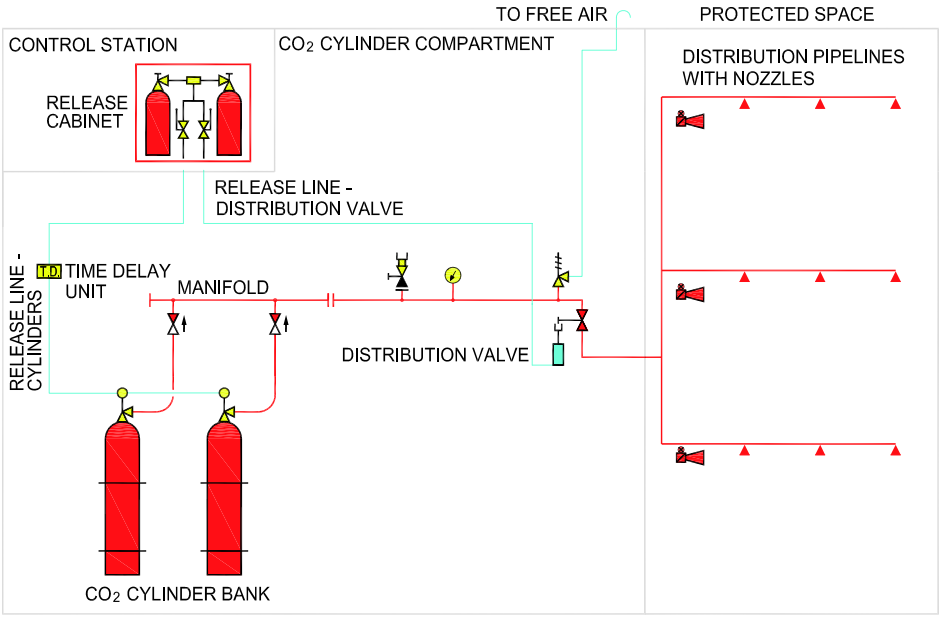
Features

- Pressure operated cylinder top valves ensure quick discharge of CO_2, and almost instantaneous extinguishing of the re reducing potential cost of damages
- A manual release system is available for individual or sequential release of the CO_2 cylinders
- The system is equipped with alarms and a safe release delay function to ensure the safety of your crew

Bene ts

- CO_2 leaves no residue to clean up
- High quality system, easy to install and operate
- Requires minimal maintenance, keeping operating costs low
- Aftersales services and re lling of the CO_2 cylinders is available worldwide

Common con guration



Technical data

Cylinders	
Volume (ltr)	67,5 / 80
Weight of CO_2 gas (kg)	45 / 54
Storage pressure@20°C (bar)	58,5
Certificates	All major classes
Standard	ISO, EN or US DOT

Release cabinet	
Cylinders	2,68 ltr with 1,72 kg CO_2
Degree of protection	IP55

Distribution valves	
Sizes	DN20 to DN150
Nominal pressure	PN100 and PN160

Material of construction	
Body	steel
Stem and ball	stainless steel
Certi cates	all major class certi cates or according to speci cation

System description

The Unitor CO_2 system consists of a high pressure cylinder bank, a release cabinet, a piping system leading to a grid of nozzles in the protected area. Each high pressure cylinder is connected via exible high pressure hoses to a common manifold. The cylinder bank can have either manual or pressure operated cylinder top valves, depending on the vessel's application.

For safety reasons the release cabinet is located outside the protected space, and must be operated manually. When the cabinet is opened, microswitches activate CO_2 alarms to allow for evacuation. After a de ned time delay, the cylinder valves open and gas is spread rapidly into the protected areas, quickly extinguishing the re.

Installation
The system can be supplied on rack modules saving installation time and cost. The cylinder bank must be installed in a well-ventilated and insulated room.

Options
The system can be combined with the Unitor XFlow Local application re ghting system, providing total re protection for engine rooms. Local systems for paint lockers and galley ducting are available. Smoke sampling systems for cargo holds can also be incorporated into the CO_2 system package.

Compliance
The system is in accordance with SOLAS and the IMO MODU code and can be used on merchant marine and offshore structures. The system is approved by all major classi cation societies.

About CO_2
CO_2 is a colourless, non-corrosive gas that causes no damage or chemical reaction to metals, electrical equipment, applied surfaces or oil. The gas is usually compressed to liquid state in high pressure cylinders for storage. Its shel ife is inde nite.

The gas is highly suffocative and hazardous to humans. The Unitor CO_2 system is designed with a pre-alarm system and time delay function to allow evacuation prior to system release.

Unitor CO_2 system

UNITOR SAMPLE EXTRACTION SMOKE DETECTION SYSTEM

The Unitor sample extraction smoke detection system provides early detection of fires in cargo holds, by continuous smoke monitoring in up to 48 cargo holds simultaneously. Air samples are drawn from the cargo holds via already existing piping and automatically monitored for smoke contamination. To minimise installation costs, the smoke detection system normally uses the same pipe work as the CO_2 fire extinguishing system.

Applicable to

- Dry cargo holds

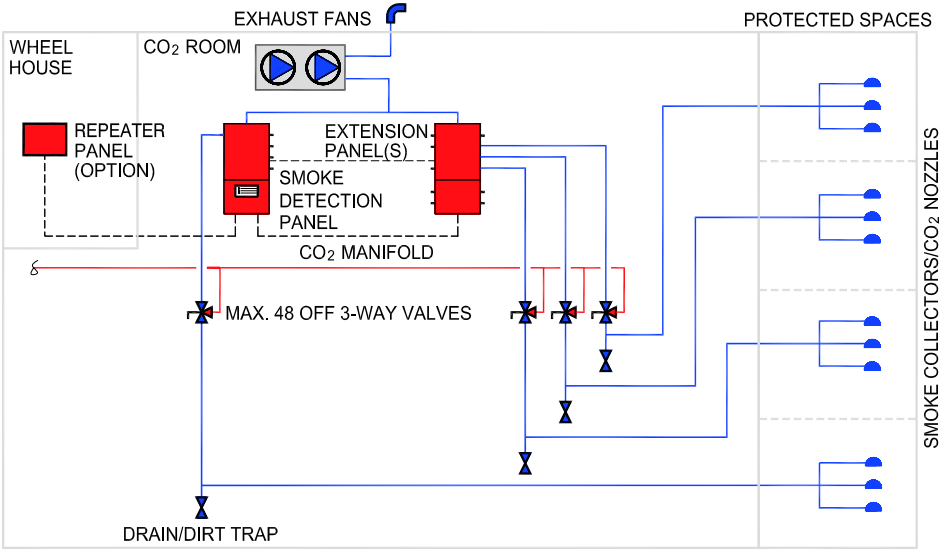
Features

- Automatic air sampling and monitoring of up to 48 cargo holds simultaneously
- Utilises existing CO_2 pipework
- Completely automated and self-adjusting
- Explosion protected to IEC79 and EN 50 020
- Fans switch automatically every 24 hours to give even load on motors

Bene ts

- Repeater panels allow for monitoring from key locations onboard
- One button control for simple testing and resetting
- Cost ef cient compact and modular design

Common con guration



Technical data

Smoke detection panel
SDS-0 smoke detection panel without built-in detection lines
SDS-4 smoke detection panel with 1–4 detection lines
SDS-8 smoke detection panel with 5–8 detection lines
SDS- smoke detection panel with 9–12 detection lines
Enclosure type IP66

Extension panel
SDS-E4 extension panel for a max. of 4 additional detection lines
SDS-E8 extension panel for 5–8 additional detection lines
SDS-E12 extension panel for 9–12 additional detection lines
SDS-E16 extension panel for 13–16 additional detection lines
Enclosure type IP66

Repeater panel
SDS-R48/G repeater panel for wall mounting
SDS-48/P repeater panel for console mounting
Enclosure type IP65

Fan unit
S SDS-M0440 Fan Unit for 220/230V 50/60Hz, 370W@50Hz, 440W@60Hz
SDS-M044 Fan Unit for 110V 60Hz, 440W
Enclosure type IP54

Compliance

- SOLAS chapter II -2
- FSS code chapter 10 MSC292
- Explosion protected to IEC 79 and EN 50 020

MARITIME PROTECTION INERT GAS GENERATOR

The maritime protection inert gas generator system is a combustion solution that creates inert gas out of burning process. The gas contains less than 5% oxygen and ensures a non-explosive atmosphere in the cargo tanks and their piping arrangement.

Ideal for vessels that require a most economical inerting solution for maintaining a non-explosive atmosphere in cargo tanks to eliminate the risk of explosions and res.

Applicable to

- Product tankers
- Chemical/product tankers
- Offshore vessels like FPSO/FSO's
- S-Max and A-max tankers
- Shuttle tankers
- Petroleum product barges

Features and bene ts

- Fully automatic operation
- Combustion chamber made of high grade steel (SS904/2205)
- A horizontal and recessed combustion chamber that prevents fuel oil spill through SW drain line in case of mis re or dripping from fuel nozzle when not in operation
- Automatic turn-down ensures best possible fuel economy
- PLC control logic with specially designed burner ignition sequence that will ensure a awless ignition of the unit every time
- Smart & solid design ensure reliable operation performance & easy maintenance

Inert gas generator

System description

The main purpose of the Inert Gas Production Plant is to produce the required quantity of inert gas with the speci ed oxygen content. The overall Inert Gas System consists of a combustion air blower, feeding air to the generator where the production of inert gas takes place. The generator has a design capacity as speci ed, and is automatically operated. In case the produced inert gas capacity is larger than the demand, the system automatically reduce its production.

The main sub-systems for an IGG are:

- Combustion air blowers
- Combustion chamber/scrubber
- Fuel system
- Control system with valves & instruments
- Deck water seal & P/V breaker

Installation

Compact, modular system comes fully assembled on skids making installation easy and cost ef cient Indoor, outdoor or containerised installation location

Service

Spare parts, system inspections and after sales services are delivered worldwide. For all your nitrogen service, spare parts or technical service requirements, please email us at:

wts.mp.service@wilhelmsen.com
wts.mp.spareparts@wilhelmsen.com

Technical data

Table based on 3% O_2 content by volume, pressure 400 mm WC and temperature 25°C.

Type	Inert gas capacitiy [m^3/h]	Seawater consumption [m^3/h]	Fuel consumption [kg/h]	Power consumption [kW]	Dimension L x W x H [mm]	Weight [kg]
MPG-400	500	30	37.5	7.5	1830 x 800 x 2225	1150
MPG-700	500 - 2200	30 -132	37.5 - 165	7.5 - 33	3000 x 1000 x 2800	1500
MPG-800	2200 - 3200	132 - 192	165 - 240	33 - 48	3300 x 1100 x 2800	1900
MPG-900	3200 - 4500	192 - 270	240 - 337	48 - 67.5	3600 x 1200 x 4000	2200
MPG-1000	4500 - 5700	270 - 342	337 - 427	67.5 - 85	4000 x 1400 x 4500	2500
MPG-1100	5700 - 6800	342 - 408	427 - 510	85 - 102	4500 x 1400 x 4500	3000
MPG-1300	6800 - 10500	408 - 630	510 - 787	102 - 157	5400 x 1800 x 4800	5000
MPG-1600	10500 - 16000	630 - 960	787 - 1200	157 - 240	6000 x 2100 x 5025	7000
MPG-1600L	16000 - 17500	960 - 1050	1200 - 1312	240 - 262	7000 x 2100 x 5025	9000

Gas composition with marine gas oil (MGO)

CO < 100 ppm	NO_x < 100 ppm	N2 = Balance	Normal discharge pressure to cargo tank: 400 mm WC	
SO_2 < 1 ppm	CO_2 approx. 14%		Gas outlet temperature: Max. 8°C above seawater temperature	
Oxygen content adjustable down to 1%			Gas outlet humidity: 100% saturated	Fuel: MDO/ HFO/ GASOIL/ GAS

MARITIME PROTECTION DRY INERT GAS GENERATOR

THE MARITIME PROTECTION DRY INERT GAS GENERATOR for lique ed gas carriers is a new concept based on a proven solution. It is a combination of the traditional inert gas generator based on combustion and a two stages dehumidi cation system including cooling and adsorption process, where the classical two bed adsorption dryer has been replaced with a compact rotating adsorption dryer. The dew point of the inert gas is lowered to the required speci cations below minus 45degC with oxygen content less than 1%.

Ideal for vessels carrying lique ed gas that need an inerting solution to prevent explosion on sea-voyage just before and after dry-docking. This can be achieved by keeping the oxygen level below 1% in the cargo area.

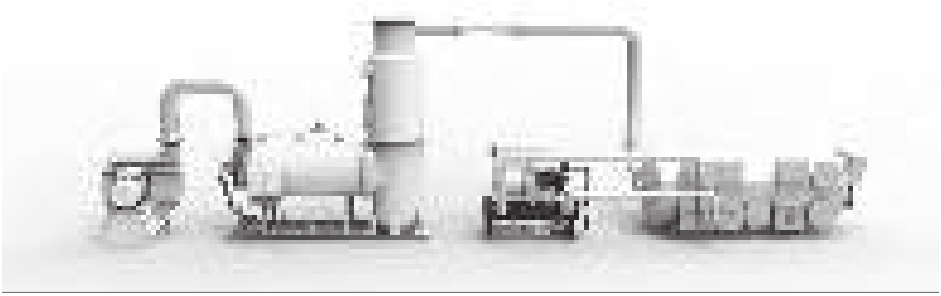
Applicable to

- LNG carriers
- LPG carriers
- FRSU
- FLNG

Features and bene ts

- Up to 50% reduction in weight and foot-print compared to conventional systems
- Continuous regeneration of dryer
- Modern design for easy installation and maintenance
- 100% automatic control, no manual adjustments required by operator
- Dew point below minus 45degC reached 20-40 minutes after start
- Constant & uniform dew point during operation
- High grade steel (SST 904 and 2205) used for the combustion chamber
- Mechanically simple and reliable centrifugal blowers due to low pressure drop in system
- MODBUS communication with IAS

Dry inert gas generator



System description

The complete Dry Inert Gas Generator is made up of three sub systems.

Inert Gas Generator, utilising Maritime Protection's well proven inert gas generator, Cooler and dryer skid with n type cooler, and Maritime Protection's new concept – the rotating adsorption dryer.

Refrigeration plant, as closed loop type, is design ensuring no Freon transported into the cooler unit. The Maritime Protection Dry Inert gas generator produces clean and soot free inert gas by combustion of gas oil supplied by the fuel oil pump with air provided by blowers, in the combustion chamber of the inert gas generator.

The gas is ef ciently cooled in the scrubber tower and the saturated gas is dried in a two stages process. A cooler, compromising of a nned tube coil, reduces the humidity to +5ºC dew point. The cooling effect in the cooler is provided through a glycol/ water circuit from a separate water chiller unit. The nal drying is achieved by a continuously rotating adsorption dryer, dew point below minus 45degC.

Insallation

Compact, modular system comes fully assembled on skids making installation easy and cost ef cient Indoor, outdoor or containerised installation location

Service

Spare parts, system inspections and after sales services are delivered worldwide. For all your nitrogen service, spare parts or technical service requirements, please email us at:

wts.mp.service.@wilhelmsen.com
wts.mp.spareparts@wilhelmsen.com

Technical data

Table based on 1% O_2 content by volume, discharge pressure 2500 mm WG and dew point -45°C.

DIGG model	Capacity [Nm^3/h]	Seawater consumption [m^3/h]	Fuel consumption [kg/h]	Power consumption [kW] (with el. reg heater)	Overall system weight [kg]
MPG - 700 - 084	900 - 2000	45 -180	42 - 170	38 - 181	7100
MPG - 800 - 104	2000 - 3200	180 - 290	185 - 269	181 - 238	8400
MPG - 900 - 124	3200 - 4500	290 - 405	269 - 379	246 - 330	9600
MPG - 1000 - 154	4500 - 5700	405 - 510	379 - 479	335 - 387	11200
MPG - 1100 - 154	5700 - 6800	510 - 615	479 - 572	387 - 456	12600
MPG - 1300 - 174	6800 - 9500	615 - 855	572 - 800	456 - 656	14800
MPG - 1300 - 194	9500 - 10500	855 - 945	800 - 883	656 - 692	16500
MPG - 1600 - 194	10500 - 12000	945 - 1080	883 - 1010	692 - 746	21000
MPG - 1600L - 224	12000 - 16000	1080 - 1395	1010 - 1295	746 - 932	23500
MPG - 1800 - 244	16000 - 18500	1395 - 1665	1295 - 1556	932 - 1131	26600
MPG - 1800 - 264	18500 - 21000	1665 - 1890	1556 - 1766	1131 - 1365	28200

Gas composition with marine gas oil (MGO)

CO < 100 ppmv	NO_X <1 00 ppmv	N_2 = Balance
SO_2 < 1ppmv	CO_2 approx. 14%	O_2: 0.5-1%
Soot content (bacharac): 0		

NITROGEN MEMBRANE INERT GAS SYSTEM

The nitrogen membrane inert gas system utilises hollow bre technology to achieve nitrogen purity levels from 95% to 99.9% The hollow bre membrane modules are incorporated with other components to provide a nitrogen generator system which ensures an effective, reliable, safe and cost saving solution to protect your vessel and its cargo.

Ideal for vessels that require a clean, dry inert gas for maintaining a non-explosive atmosphere in cargo tanks, for preservation of cargo quality and on LNG carriers to prevent icing damage to the insulation.

Applicable to

- Chemical and product tankers
- LPG and LNG tankers
- Supply vessels
- Offshore installations and mobile units
- Reefer ships

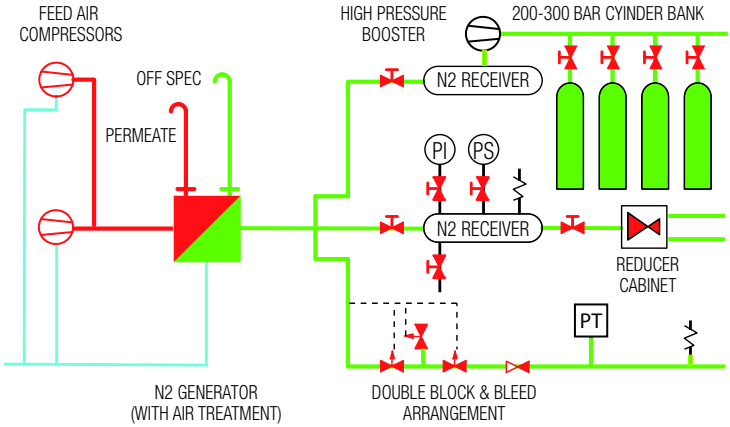
Features

- Advanced high quality bre technology ensures the nitrogen purities ranging between 95-99.9%
- High quality membranes with long life time and low maintenance requirements, this gives signi cant operational savings
- Range from small topping-up generators to large total inert gas systems
- Full range of standardised components give exible customisation to each vessel's needs
- Digital information on all key values, such as temperature, purity and pressure control

Bene ts

- Small footprint and easy installation
- Reliable, unattended operation
- Cost ef cient operation
- Fewer moving parts gives low maintenance cost

Common con guration



System description

The nitrogen system uses marine quality rotary screw oil- ooded compressors to achieve the optimal amount of air supply. Advanced feed air treatment ensures high quality air, prolonging the lifetime of the membrane system.

The system works by separating air into its component gases by passing low pressure compressed air through hollow bre, semi-permeable membranes.
In the membranes, the air is divided into two streams; nitrogen which holds purity level between 95% and 99,5% and remaining oxygen enriched air which is vented to a safe area.

Depending on the application, the nitrogen can be delivered directly to the cargo or void space, or stored in a receiver for later use. A booster compressor can be included to provide nitrogen at higher pressures, needed for lling Unitor 200-300 bar nitrogen cylinders.

Installation

Compact, modular system comes fully assembled making installation easy and cost ef cient.

Service

Spare parts, system inspections and after sales services are delivered worldwide.

For all your nitrogen service, spare parts or technical service requirements, please email us at wts.nitrogen@wilhelmsen.com

CONTACT WILHELMSEN TECHNICAL SOLUTIONS

We provide consultative services, engineering, layout, installation and commissioning for newbuilds and retro ts worldwide. Our ying squads are available 24/7.

Listed below are our main locations for safety systems, please contact the one most convenient to you.

Nitrogen service
For all your nitrogen service, spare parts or technical service requirements, please email us at **wts.nitrogen@wilhelmsen.com**

ASIA

China
Bldg 11, NO. 128 Dieqiao Road,
Pudong Kang Qiao Industrial Zone,
Shanghai 201319, China
wts.safety@wilhelmsen.com

Phone: (+86) 21 61183000
Fax: (+86) 21 61183001

Korea
RM307, March Building, 718-4, Maehak-Ri,
Jeonggwan-Myeon,
Gijang-Gun, Busan,
Korea (619-963)
wts.safety@wilhelmsen.com

Phone: (+82 51) 7207912
Fax: (+82 51) 7287100

Japan
2-63 Nishihama-cho, Imazu,
Nishinomiya-city, Hyogo Prefecture
663-8225, Japan
wts.safety@wilhelmsen.com

Phone: (+81 798) 355180
Fax: (+81 798) 356173

Singapore
31 International Business Park
#05-10 Creative Resource
Singapore 609921
wts.safety@wilhelmsen.com

Phone: (+65) 6450 9191
Fax: (+65) 6863 8863

EUROPE, MIDDLE EAST AND AFRICA

Customer Service
Stobno 74,
72-002 Doluje
Poland
wts.safety@wilhelmsen.com

Phone: (+48) 91 46 48 900
Fax: (+45) 91 46 48 901

AMERICAS

North America
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Pasadena, TX USA
77507
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Phone: +1 (954) 585-5800
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South America
Rua Bispo Lacerda Nos 61/67
Del Castilho, Rio de Janeiro
BR-21051-120
Brazil
wts.safety@wilhelmsen.com

Phone: +55 (21) 2582 8000
Fax: +55 (21) 2252 8011

SAFETY SERVICE AGREEMENTS

Did you know that there is an easier way of managing all your services?
When you sign a safety service agreement you bene t from:

- Full transparency and predictable costs
- We keep track on due dates for your safety equipment
- Expert consultancy in regulatory issues
- Safety service stations around the globe
- Global ISO approvals
- Global approvals from major classi cation societies

Ask us today about cost effective safety solutions built around you.

LIFERAFT RENTAL AND EXCHANGE

When you rent our Unitor liferafts, and simply exchange them on an annual basis, you bene t from:

- Always compliant liferafts of the latest design
- Fixed annual cost-effective price
- 15% average savings potential
- Due-date administration
- Global availability
- Faster turnarounds in port

Reduced risk and increased predictability. This is safety, done better.

MARITIME LOGISTICS

Through our comprehensive global network, you can entrust us with your logistics projects wherever your business is moving.

- Warehousing and distribution
- Freight forwarding
- Terminal operations

Is your business out-of-gauge and heavy lift cargo?
We offer complete end-to-end logistics solutions for any complex projects.

- Project logistics

Wilhelmsen Ships Service

SHIPS AGENCY

We offer you full agency, husbandry and protective agency services in 2200 ports around the world. We manage both spot calls and contractual agreements.

We understand your business intuitively and every port intimately. With predictable pricing, structured services and dedicated people, we keep your port stays short and your ships on the move.

WILHELMSEN SHIPS SERVICE TERMS AND CONDITIONS FOR SALE OF GOODS AND SUPPLY OF CYLINDERS

Valid from Nov 2013

1. Range of application

1.1 These terms and conditions ("Conditions") shall be deemed to be incorporated into all contracts for the sale of goods (including the supply of gases) ("Products") and the supply of 'Unitor' and/or 'Wilhelmsen' branded rental gas cylinders ("Rental Gas Cylinders") from Wilhelmsen Ships Service AS or its subsidiaries, with the Wilhelmsen Ships Service entity supplying the Products and/or Rental Gas Cylinders being known as "WSS", whether the contract is concluded directly or through an agent. Each order (as accepted by WSS) forms a separate contract between the relevant parties (an "Agreement").

1.2 A customer placing an order with WSS (the "Customer"), shall constitute the Customer's acceptance that these Conditions will apply to that Agreement. The Customer agrees that, subject to the following, these Conditions apply to all supplies of Products and Rental Gas Cylinders to the exclusion of all others, including, but not limited to, the Customer's general purchase conditions or other standard conditions of purchase. WSS and the Customer may agree that additional terms and conditions will be applicable to particular supplies (for example a 'cylinder agreement') ("Additional Terms"). The Additional Terms will prevail if there is a con ict or inconsistency between these Conditions and the Additional Terms.

1.3 Delivery of Products and/or Rental Gas Cylinders to any third party appointed by the Customer to deliver the Products and/or Rental Gas Cylinders to the Customer or, where no such third party is appointed, acceptance by the vessel, its master, its owners or any other party who accepts the delivery at the location where the items are to be delivered, shall be deemed to be delivery to and acceptance by the Customer and WSS shall be entitled to invoice upon such delivery and without further formality.

1.4 If an order is placed by an agent (disclosed or undisclosed) on behalf of a Customer, then such agent shall be deemed to be a party to the Agreement for the purposes of this condition and shall be jointly and severally liable with the Customer for the payment of all amounts due and the performance of all obligations of the Customer under the Agreement.

2. Order con rmation

2.1 If WSS accepts the Customer's order, it will issue a con rmation either con rming that it can ful l the order completely or that it will only ful l part of the order. WSS is under no obligation to accept any orders. The con rmation may also specify delivery charges (as applicable) as further described in Conditions 3.4 and 5 below.

2.2 If a Customer does not within the timescale speci ed on the con rmation (or if no timescale is speci ed, within seven (7) days after receipt of an order con rmation) notify WSS in writing of any inaccuracies or, where the con rmation speci ed that WSS will only supply part of the order, that the Customer does not accept the reduced delivery, the order con rmation shall be considered to be expressly agreed between the parties. WSS is not responsible for errors and de ciencies in an order con rmation that have not been noti ed to WSS in accordance with this Condition.

3. Invoicing, Price and payment for Products – deposit and fees for Rental Gas Cylinders

3.1 WSS shall be entitled to invoice for Products following delivery. The purchase price ("Price") for the Products sold shall be payable by the Customer and shall be calculated in accordance with WSS' price list in force at the time and place of delivery. Where an item to be supplied is not on WSS' price list, the Price shall be as speci ed in the order con rmation.

3.2 For Rental Gas Cylinders supplied by WSS, the Customer shall pay a deposit ("Deposit Fee") and associated fees relating to the rental in accordance with WSS' price list in force at the time and place of delivery (including, but not limited to the applicable 'Safety and Security Fee').

The Rental Gas Cylinders may be returned to any one of WSS' depots. Subject to Conditions 4 and 7 and the following, the Deposit Fee shall then be refunded, either automatically or upon request by the Customer and, if applicable, in accordance with the terms of the Additional Terms in effect between WSS and the Customer. If the Deposit Fee is not returned automatically following the return of the Rental Gas Cylinders, WSS will no longer be required to return the Deposit Fee if the Customer does not request such return within nine (9) months following return of the relevant Rental Gas Cylinder. If WSS' applicable list price Deposit Fee increases whilst the Customer is in possession of Rental Gas Cylinders, WSS shall be entitled to invoice, and the Customer will pay, the difference between the Deposit Fee paid by the Customer and the then current list price.

3.3 The Price and Deposit Fee are stated exclusive of any VAT and similar sales taxes and the Customer will pay such sums when charged by WSS. All other taxes, fees, customs duties, surcharges and the like applicable to the supply or use of the Products and Rental Gas Cylinders shall (subject to the application of the relevant Incoterm 2010 as described in Condition 5.5) be the responsibility of the Customer. Where WSS incurs expenses or is subject to any claims in relation to such payments, the Customer shall refund such amounts to WSS on an indemnity basis.

3.4 Notwithstanding anything else to the contrary in the applicable Incoterms, WSS' actual costs and expenses (without any 'premium' being charged on the sums payable by WSS) related to the following additional services will also be payable by the Customer to WSS:

- barge, boat or crane hire; and
- rush shipment of Products not commonly requested at the place of delivery.

3.5 Any applicable delivery costs and expenses shall be advised by WSS to the Customer in quotations and order con rmations. Overtime and waiting time of more than 120 minutes will be charged to and payable by the Customer for deliveries at ports not listed as a Free Delivery Port. WSS' normal opening hours at all places of delivery are listed in WSS' network directory, as noti ed to the Customer from time to time.

3.6 The Customer shall pay all amounts due in full, free of bank charges, as speci ed in the invoice within thirty (30) days from the invoice date. If the Customer fails to make payment within this period then, without prejudice to any other remedy of WSS, WSS shall be entitled to suspend delivery of further Products or Rental Gas Cylinders under the Agreement or any related Agreement. All sums shall be paid by the Customer without any deduction or withholding other than as required by mandatory law. Where any deduction or withholding is required by mandatory law the Customer shall increase the amount payable to WSS to re ect the amount that WSS would have received if no deduction or withholding had been made.

3.7 If the Customer is obliged to pay any fees to WSS prior to or at the time of delivery, and payment has not been received by WSS, WSS is not obliged to deliver the Products or the Rental Gas Cylinders until full payment has been received.

3.8 WSS shall be entitled to claim and recover interest of 4% per annum above the base lending rate of Barclays Bank PLC (before as well as after judgement) on any overdue payment. Such interest shall accrue on a daily basis from the due date until payment in full is received by WSS. WSS is also entitled to claim and recover full compensation for collection costs and expenses in and out of court and all legal costs and reasonable expenses on an indemnity basis resulting from the Customer's non-payment.

3.9 If WSS has not received payment for the Products or the Deposit Fee for the Rental Gas Cylinders within thirty (30) days from the invoice date, WSS shall, without any court order or other process of law, have the right to retake possession of the Products and the Rental Gas

Cylinders wherever they are located. The Customer shall make the applicable Products and the Rental Gas Cylinders available to WSS. WSS is entitled to claim and recover full compensation for all reasonable costs and expenses in and out of court and all reasonable legal costs and other expenses incurred by WSS in retaking possession.

4. Equal exchange of Rental Gas Cylinders and Return to WSS for testing

4.1 Gas will only be supplied by WSS pursuant to these Conditions for use in its own Rental Gas Cylinders. If the Customer orders only a supply of gas from WSS, and has a previously supplied Rental Gas Cylinder which it wishes to exchange, WSS shall, if it accepts such order and subject to the Customer having paid all outstanding fees in relation to the empty Rental Gas Cylinder, supply to the Customer a filled Rental Gas Cylinder in exchange against receipt of the empty Rental Gas Cylinder, which shall be of the same type and specification as the returned Rental Gas Cylinder. In such cases the Deposit Fee paid by the Customer in respect of the returned Rental Gas Cylinder shall not be refunded but shall be transferred to the new Rental Gas Cylinder. Any supplementary Deposit Fee due (as described in Condition 3.2) shall, if applicable, be calculated and due at the time of the exchange.

4.2 For the avoidance of doubt, if a third party supplies gases to the Customer and/or fills a Rental Gas Cylinder (other than on behalf of WSS), WSS shall have no liability or responsibility for such supply of those gases or filling or subsequent performance of the Rental Gas Cylinder except as described in Condition 10.1. The Customer will notify WSS if any Rental Gas Cylinder is filled by a third party. In addition, if the Rental Gas Cylinder is filled by a third party, any Deposit Fee paid by the Customer for the relevant Rental Gas Cylinder will not be refunded and shall be retained by WSS.

4.3 The Customer will ensure that Rental Gas Cylinders are exchanged within a period which enables WSS to conduct necessary testing, maintenance and/or certification on the original Rental Gas Cylinder in accordance with the applicable regulatory regime.

5. Delivery and delivery charges

5.1 WSS shall use reasonable endeavours to ensure that the Products and Rental Gas Cylinders shall be delivered at the time and date agreed upon between the parties to the Agreement.

5.2 Where the Products ordered by the Customer are within WSS' standard list of products made available by the WSS ("Product Guide") and the delivery is to:

5.2.1 a "free delivery port" as specified by WSS' website or current price list ("Free Delivery Port"), there is no additional delivery charge applicable, except as described in Conditions 3.4, 3.5 and 5.5;
5.2.2 a location which is not identified as a Free Delivery Port, WSS will be entitled to charge the Customer, and the Customer will pay, the carriage costs for the items from WSS' warehouse to the vessel or other point to which the delivery is to be made, as such costs are specified in the confirmation or as otherwise agreed.

5.3 Where the Products ordered by the Customer are not within the Product Guide, WSS will be entitled to charge the Customer, and the Customer will pay, the carriage costs for the items from the location where WSS obtains the Products (which is normally the third party supplier's premises) to the vessel or other point to which the delivery is to be made, as specified in the confirmation or as otherwise agreed.

5.4 Where the Customer only requires Rental Gas Cylinders to be collected and not refilled, WSS shall be entitled to charge the Customer, and the Customer shall pay, the relevant collection fee specified in WSS' price list which is applicable at the time of collection. Such charges will be made available to the Customer upon request prior to such collection.

5.5 Subject to the following, delivery of Products and Rental Gas Cylinders shall be made Free Alongside Ship (FAS) in accordance with the ICC Incoterms 2010, unless otherwise stated in WSS' order confirmation. If the parties have initially agreed for the delivery to be made FAS and WSS is subsequently instructed for whatever reason to deliver the Products or Rental Gas Cylinders at a place other than alongside the vessel or to the agreed delivery port, subject to WSS' approval, the delivery shall be made Free Carrier (FCA) ICC Incoterms 2010 at the alternative delivery location, provided such an alternative is a Free Delivery Port. Any other delivery method is subject to WSS' approval and any additional costs in relation to such delivery method shall be borne by the Customer. Where the relevant Incoterms require WSS to obtain clearances for export, such responsibility will only relate to the point of delivery and not further export by the Customer. If there is any conflict between the relevant Incoterms and any term of an Agreement (including these Conditions), the terms of the Agreement shall prevail.

5.6 WSS' Rental Gas Cylinders delivered to and from the Customer will be registered and updated by WSS' electronic tracking system. The Customer will receive a user ID and password to WSS' cylinder web page, upon request, where the Customer will have access to monitor the Rental Gas Cylinders on board all of the Customer's ships which have been registered within WSS' electronic tracking system. The Customer shall keep any such user ID and password confidential and not disclose it to any third party. WSS will use its reasonable endeavours to ensure that the cylinder web page is available during normal working hours and that the information available on the web page is accurate. However, it is the Customer's responsibility to ensure that it accurately tracks its inventory of Rental Gas Cylinders and related gas levels.

6. Warranty

6.1 WSS warrants that the Products and Rental Gas Cylinders shall be:

(i) in material conformity with the specifications set out in WSS' Product Guide as published on WSS' website from time to time ("Product Specifications") where applicable; and
(ii) free from material defects in design, materials and workmanship.

6.2 If the Products or Rental Gas Cylinders provided by WSS are in breach of the warranty in Condition 6.1, in order to make a claim under the warranty, the Customer must notify WSS in writing within a reasonable period of time following discovery of the breach and no later than within twelve (12) months after the delivery of the relevant Products or Rental Gas Cylinders. Upon receipt of such written notification, WSS shall, at its sole discretion either: (i) rectify the breach of warranty; (ii) deliver substitute Products or Rental Gas Cylinders; or (iii) reduce the Price of the Products proportionally. Except as provided by this Condition 6.2, the Customer shall, to the maximum extent permitted by law, have no further rights or claims in respect of a breach of warranty in Condition 6.1.

6.3 All warranties, conditions and other terms implied by statute or common law are, to the fullest extent permitted by law, excluded from the Agreement.

6.4 WSS reserves the right to amend the Product Specifications at any time without notice. WSS may in its sole discretion provide alternative Products which have an equivalent or better functionality. However, in such circumstances, WSS will only be entitled to increase the applicable Price where this is agreed with the Customer.

7. Title to Rental Gas Cylinders

7.1 Subject to the remainder of this Condition 7, WSS shall retain ownership and title to the Rental Gas Cylinder while it is in the Customer's possession and the Customer shall not claim or dispute ownership of the Rental Gas Cylinder or seek to or actually exercise or create any lien or encumbrance over or in relation to the Rental Gas Cylinder or otherwise do anything which is inconsistent with WSS' right of ownership.

7.2 Title to and ownership of the Rental Gas Cylinders shall immediately pass to the Customer if the Customer: (i) destroys, defaces or otherwise damages the Rental Gas Cylinder; (ii) loses the Rental Gas Cylinder; (iii) delivers the Rental Gas Cylinder to a third party not approved by WSS; (iv) has the Rental Gas Cylinder serviced or refilled by a party which is not WSS or a WSS Affiliate, unless WSS has consented to the Rental Gas Cylinder being serviced or refilled by that third party; or (v) does not return the Rental Gas Cylinder to WSS for refilling or testing/certification within eighteen (18) months of initial delivery or within eighteen (18) months of the previous refilling or testing/certification (as applicable). In such circumstances, the following Condition shall be applicable.

7.3 When ownership to a Rental Gas Cylinder transfers to the Customer in accordance with the previous Condition: (i) any obligation, contractual duty or liability on WSS with regard to the Rental Gas Cylinder shall terminate immediately to the extent permitted by law, subject to Condition 10.1; (ii) the Customer shall (unless the cylinder has been lost or destroyed) remove or obscure or procure the removal or obscuring of the 'Unitor' and/or 'Wilhelmsen' trade names from the Rental Gas Cylinder in a safe manner; (iii) the Customer shall immediately inform WSS in writing about the transfer of title and the actions taken as a consequence; and (iv) any Deposit Fee paid by the Customer for the relevant Rental Gas Cylinder will not be refunded and shall be retained by WSS. If no Deposit Fee has been received by WSS or if a further

Deposit Fee is due (as described in Condition 3.2), WSS will charge the Customer, and the Customer shall pay, a fee equal to the shortfall Deposit Fee that would have been due according to WSS' price list in effect at the date that WSS becomes aware of the transfer of title.

7.4 For the avoidance of doubt, in the event that the Customer returns to WSS a gas cylinder which is not a Rental Gas Cylinder or a Rental Gas Cylinder which is not registered to have been last delivered to the Customer by WSS and considered to be in their possession, the Customer will not be entitled to refund of any Deposit Fee, whether paid by another customer for such Rental Gas Cylinder or otherwise.

8. Risk/Retention of title
8.1 The Products (including gases) and the supplied Rental Gas Cylinders are at the risk of the Customer from the time of delivery and, in the case of the Rental Gas Cylinders, until such time as they are returned to WSS' service delivery vehicles or vehicles of third parties as nominated or approved by WSS.

8.2 The ownership and title to the Products shall pass to the Customer when WSS has received payment in full of the Price and any other sums due under the Agreement such as interest, taxes and additional costs (where applicable).

9. Delay
9.1 If the delivery of the Products or Rental Gas Cylinders are delayed beyond the agreed delivery date and this is not due to the Customer or circumstances within the Customer's control, WSS shall be given the opportunity to deliver the Products or Rental Gas Cylinders within a reasonable period of time after the agreed delivery date. If such delayed delivery does not occur within a reasonable period of time after the agreed delivery date, the Customer may cancel the order by written notice to WSS at least three (3) days prior to any revised delivery date or such other date agreed between the parties.

9.2 Except as provided in this Condition 9, to the maximum extent permitted by law, the Customer shall have no further rights or claims whatsoever in respect of any delay in delivery on the part of WSS.

10. Limitations of Liability
10.1 Nothing in these Conditions or any other provision of any Agreement excludes or limits the liability of WSS: (i) for death or personal injury caused by WSS' negligence; (ii) for fraud or fraudulent misrepresentation; or (iii) for any liability which cannot be limited or excluded by applicable law.

10.2 Subject to Condition 10.1, the provisions of this Condition 10 apply to the entire liability of WSS under and in relation to each Agreement (including, but not limited to, any liability for the acts or omissions of its employees, agents and sub-contractors) in respect of (i) any breach of the Contract; (ii) any use made or resale by the Customer of any of the Products, or of any product incorporating any of the Products; (iii) any representation, statement or tortious act or omission including negligence arising under or in connection with the Agreement; and (iv) any other claim or liability whatsoever under or in connection with an Agreement.

10.3 Subject to the remainder of this Condition 10, WSS' total liability in contract, tort (including negligence), statute, misrepresentation, restitution or otherwise, arising under or in connection with an Agreement shall be limited to a maximum of twenty- ve thousand US Dollars (US$25,000) per incident or series of related incidents (as applicable).

10.4 Subject to Condition 10.1, neither party to an Agreement shall be liable to the other in contract, tort (including negligence), statute, misrepresentation, restitution or otherwise, arising under or in connection with these Conditions and any Agreement for any loss of pro t or revenue, loss of business, loss of anticipated savings, or depletion of goodwill (in each case whether direct, indirect or consequential) or any indirect or consequential loss whatsoever (howsoever caused) even if that party was made aware of the possibility of such losses or damages.

10.5 Subject to Condition 10.1, WSS shall under no circumstance be liable for any loss or damage whatsoever and howsoever arising in relation to, or in any way connected with any Rental Gas Cylinder if the ownership of that Rental Gas Cylinder has transferred in accordance with Condition 7.
10.6 To the extent permitted by law, the Customer will procure that any and all claims to be made against WSS or any Af liate of WSS arising out of or in connection with these Conditions and any Agreement will be made by the Customer against WSS only and not by any Af liate of the Customer or by ship-owners or any other third party. For the avoidance of doubt, any such claims will be subject to the exclusions and limitations of liability set out in these Conditions. The Customer shall indemnify WSS and its Af liates against all liabilities, costs, expenses, damages and losses arising from a breach of this Condition 10.6. In these Conditions, an "Af liate" of a party shall mean any company controlling, controlled by or under common control with the relevant party where control means direct or indirect ownership of at least 50% of the voting stock or interest in the company or control of the composition of the board of directors.

11. Force Majeure
If either party to an Agreement is unable to comply with its obligations due to events beyond its reasonable control (including, but not limited to, industrial disputes which are not related to that party's staff, riots, mobs, res, oods, wars, embargo, shortage of labour, power, fuel, lack of means of transportation or general lack of other necessities, laws, regulations or orders from any governmental agency, port or vessel security control, security concerns or adverse weather conditions), that party's obligations shall be suspended for the duration of such events and it shall not be liable for any such non-performance.

12. Indemni cation
12.1 The Customer shall comply with all warnings, instructions and safety rules provided to it by WSS and its Af liates from time to time and shall familiarise itself with and apply best industry practice at all times in relation to the storage, handling and use of all Products and Rental Gas Cylinders.

12.2 The Customer acknowledges that the Products sold and the Rental Gas Cylinders supplied are, or may be, hazardous to human health, and, subject to Condition 6 and Condition 10.1, the Customer assumes the risk for the use of the Products and Rental Gas Cylinders after delivery by WSS. The Customer shall familiarise itself and keep itself informed with respect to possible hazards to persons or property involved in the handling and use of the Products and Rental Gas Cylinders.

12.3 The Customer shall advise its employees, independent contractors and others who handle the Products and Rental Gas Cylinders, and shall take such action as is reasonably necessary to advise others who may be users of the Products or Rental Gas Cylinders, of the suspected or proven hazards of the Products and Rental Gas Cylinders and the proper handling of the Products and Rental Gas Cylinders and shall require such parties to comply with WSS' reasonable instructions relating to the safe handling, use and storage of the Products and/or Rental Gas Cylinders.

12.4 The Customer shall indemnify WSS and hold WSS harmless from all liability, costs and expenses whatsoever (including any claims by third parties against WSS) arising from the improper use or improper handling of the Products or Rental Gas Cylinders and/or any breach by the Customer of this Condition 12.

13. Intellectual property rights
13.1 Nothing in these Conditions shall transfer any intellectual property rights (including but not limited to patents, designs, trade marks and trade names (whether registered or unregistered), copyright and related rights, database rights and knowhow) in the Products and the Rental Gas Cylinders (or any items supplied with them) nor any proprietary information or data from WSS to the Customer.

13.2 WSS grants to the Customer a non-exclusive, non-transferrable (except to subsequent purchasers of the Products) royalty free licence to use the intellectual property rights contained within the Products or Rental Gas Cylinders (and any related item delivered with them such as instruction manuals, drawings, commissioning and handover documents) solely to use of the Products or Rental Gas Cylinders for the purpose provided.

14. Ethical standards
14.1 The parties agree that neither party shall:

(a) offer or agree to give any person working for or engaged by the other party any gift or other consideration, which could act as an inducement or a reward for any act or omission to act in connection with any agreement between the parties;

(b) enter into any agreement with the other party if it has knowledge that, in connection with it, any money has been, or will be, paid to any person working for or engaged by the other party or that an

agreement has been reached to that effect unless (i) details of any such arrangement have been disclosed in writing to the other party prior to the execution of the agreement and (ii) approval of such arrangement by an authorised representative of the other party has been obtained;

(c) offer, pay or promise to pay either directly or indirectly, anything of value to a Public Of cial in connection with any agreement. The parties further agree that in the performance of their respective obligations hereunder, the parties and their respective agents, sub-contractors and employees shall comply with all applicable laws, rules, regulations and orders of any applicable jurisdiction, including the OECD Convention on Combating Bribery of Foreign Public Of cials in International Business Transactions. Each party shall notify the other immediately in writing with full particulars in the event that party receives a request from any Public Of cial requesting illicit payments; or

(d) take any other action which results in a breach by either party of any applicable anti-corruption legislation (Including but not limited to the UK Bribery Act 2010).

In this Condition 14, the term "Public Of cial" means (i) any of cial or employee of any government agency or government-owned or controlled enterprise, (ii) any person performing a public function, (iii) any of cial or employee of a public international organisation, (iv) any candidate for political of ce or (v) any political party or an of cial of a political party.

14.2 If either party breaches Condition 14.1, the other party may terminate the affected agreement by written notice with immediate effect. Any termination pursuant to this Condition 14.2 shall be without prejudice to any right or remedy that has already accrued, or subsequently accrues, to the other party.

15. Compliance with asset control laws and nancial sanctions
The parties will comply with applicable anti-terrorist nancing and asset control laws, regulations, rules and orders, including but not limited to, the U.S. Department of Treasury, Of ce of Foreign Assets Control ("OFAC") regulations and the European Union sanctions or restrictive measures.

Pursuant to OFAC regulations respecting USD payments, neither party can facilitate USD payments in any transaction related to OFAC sanctioned entities, either directly or indirectly. Either party may be required to request information from the other which supports a veri cation statement which New York intermediary banks may require according to the OFAC regulations, including whether a person is a "specially designated national" listed by OFAC or any executive order, or a "national" of any country with which transactions are regulated by OFAC. Both parties shall provide timely and truthful responses to any such reasonable enquiries either party may make to the other to support any required veri cation statements.

16. Governing Law – disputes
These Conditions and all Agreements to which these Conditions apply and any non-contractual obligations arising out of or in connection with these Conditions and such Agreements shall be governed by, and construed in accordance with, English law.

The parties shall rst attempt to resolve any dispute arising out of or in connection with an Agreement to which these Conditions apply by negotiation. If the parties are unable to resolve such dispute within forty- ve (45) days of commencing negotiations, such dispute may be referred to and nally resolved by arbitration under the London Maritime Arbitrators Association ("LMAA") Terms current at the time when the arbitration proceedings are commenced, except that where neither the claim nor any counterclaim exceeds the sum of US$50,000 the arbitration shall be conducted in accordance with the LMAA Small Claims Procedure. The number of arbitrators shall be three (3), except that the reference shall be to one sole arbitrator where the LMAA Small Claims Procedure applies. The seat, or legal place, of the arbitration shall be London, England. The language to be used in the arbitration shall be English. Nothing stated in this Condition shall preclude the right of either party to seek security or interim orders (by means of any appropriate remedy or relief, including but not limited to in rem arrests, injunctions, attachments, seizures, sales, detention, the exercise of a lien or otherwise howsoever) from any court of competent jurisdiction as may be necessary.

17. Miscellaneous
17.1 Entire agreement
The Agreement (incorporating, for the avoidance of doubt these Conditions and any Additional Terms (if applicable)) constitutes the whole agreement between the parties and supersedes all previous agreements between the parties relating to its subject matter. Each party acknowledges that, in entering into the Agreement, it has not relied on, and shall have no right or remedy in respect of, any statement, representation, assurance or warranty (whether made negligently or innocently) other than as expressly set out in the Agreement. Nothing in this Condition shall limit or exclude any liability for fraud or fraudulent misrepresentation.

17.2 Assignment and subcontracting
17.2.1 WSS may subcontract any of its obligations under an Agreement to any Af liate or third party. In such circumstances, WSS shall remain liable for actions of its subcontractor which are contrary to the Agreement.

17.2.2 Neither party to an Agreement may assign or transfer all nor any of its rights or obligations under that Agreement without the prior written consent of the other party, except that WSS may assign or novate the Agreement in whole or in part to any of its Af liates and the Customer will sign all documents necessary to effect such assignment or novation.

17.3 Waiver
No failure by either of the parties hereto, in case of a default or breach by the other party, to enforce any claim, or to exercise any remedy, or to have resort to any recourse under the Agreement or under any applicable law shall be deemed a waiver of any other remedy or recourse or a waiver of the same remedy or recourse for any subsequent default or breach.

17.4 Data Protection
Each party shall comply at all times with the Data Protection Act 1998 (or analogous legislation in other jurisdictions) and shall, if required by applicable law, ensure that it has all appropriate rights and consents to pass personal data to WSS for WSS to process in accordance with these Conditions.

17.5 Con dentiality
(a) Subject to the following, both parties agree to keep all information disclosed to it by the other party con dential, to not use it for any purpose (other than in the context of the Agreement) and to not disclose it without the prior written consent of the other party to any third party, unless: (i) the information was public knowledge at the time of the disclosure; (ii) the information becomes public knowledge other than by breach of the con dentiality requirements set out in these Conditions; (iii) the information subsequently comes lawfully into its possession from a third party; or (iv) such disclosure is required pursuant to any applicable laws or regulations to which the disclosing party is subject.

(b) Each party shall be entitled to disclose con dential information to its directors, shareholders, of cers, employees, advisers and consultants having a need to know the same. WSS may disclose con dential information to potential assignees or transferees and may disclose con dential information for the purposes of performing its obligations under the Agreement (including disclosing information to any subcontractors, Af liates or representatives of WSS).

(c) Neither party shall make any announcement, statement or press release concerning the Agreement without the prior written consent of the other.

17.6 Severability
If any provision of an Agreement is or subsequently becomes void, unenforceable or illegal, that shall not affect the validity, enforceability or legality of the other provisions of the Agreement.

17.7 Third party rights
With the exception of any Af liate of WSS, who shall take the bene t of any right expressly stated to be for the bene t of an Af liate of WSS together with any protection and limitation afforded to WSS pursuant to an Agreement (including, but not limited to, those set out in these Conditions), a person who is not a party to an Agreement has no right under the Contracts (Rights of Third Parties) Act 1999 to enforce or to enjoy the bene t of any term of such Agreement. However, the terms of the Agreement (including, but not limited to, these Conditions) may be varied, amended or modi ed by agreement in writing between the parties, the without the consent of any such third party.

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