

User manual

UNITOR

PANAMAX CARGO HOLD CLEANING KIT

Product number: 778855




OPTIMISING PERFORMANCE

Contents

Safety Instructions.....	3
Introduction and equipment overview.....	4
Ordering information	5
Chemical Applicator 155 - large volume multipurpose applicator.....	6
Long Reach Lance - extendable applicator lance.....	8
Tornado 3 - medium sized cleaning jet	9
Assembly and set up instructions - base assembly	10
Tornado 3 Cleaning Jet assembly	11
Lance assembly	11
Assembly diagram and counter balance weight assembly.....	12
Long reach lance connections.....	13
Nozzle selection	14
Chemical Applicator 155 assembly	15
Guide wire kit assembly	16
Maintenance schedule	17
Spare parts list.....	18
Cleaning operation - Step1, Step 2 & Step 3.....	19
Cleaning operation - Step 4 & Step 5	20
Disclaimer	21
Recommended accessories	22
Chemicals	23–32
Disclaimer.. ..	33

Safety Instructions

This user manual must be read and understood before use. If in any doubt, ask your supervisor before using this equipment. Refer to user manual as a reminder once you know how to operate the equipment. 

Always wear Personal Protective Equipment (PPE) including eye protection, chemical resistant suit, safety rubber boots and gloves and ear defenders.

Wear a full facemask or breathing apparatus when using aggressive chemicals, as per the chemical Safety Data Sheet (SDS).

Be aware that this tool is not electrically insulated. Do not aim the water jet at any electrical plugs or sockets.

Read the chemical SDS and the full user manual before operation.


Be aware that this tool can create a mist and flying debris.

Be aware of others working around you.

Always flush the equipment with fresh water after use and before storage.

Check the Chemical Applicator 155 for corrosion every 12 month or sooner if used with corrosive chemicals or in a humid environment.

Always observe safe-working practices at all times.

- 
- ☐ Do not use air pressure above maximum working pressure of 8bar (116psi).
 - ☐ Do not modify this tool in any way, or tamper with the Chemical Applicator 155 pressure relieve valve, as this will invalidate the warranty and could also lead to serious injury or death.
 - ☐ Do not point the Lance or the Tornado 3 hold cleaning jet at any person. This could be extremely dangerous.
 - ☐ Do not use the tool if you become tired, as this can lead to physical strain or injuries
 - ☐ Where practical, use the guide wire kit to take the weight of the tool.
 - ☐ Do not attempt to lift the Chemical Applicator 155 if full of liquid. (Empty weight is 58kg (128lbs))
 - ☐ Do not drag this equipment by the airline or water hose.

Never use more than three centre sections on the lance.

Danger: Unrestrained pressurised hoses can whip dangerously if they become detached.

Note: Care must be taken to avoid damaging or tripping over the water or air hoses.

Introduction and equipment overview



Cargo Hold Cleaning Kit – complete solution for hold cleaning

The Unitor Cargo Hold Cleaning Kit is developed to facilitate cargo changeover on board medium to large bulk carriers. The kit consists of all the necessary equipment to complete the cleaning operation. It is supplied ready to use in two shockproof plastic containers, easy to transport between vessels. The equipment is designed for the application of both Unitor cleaning chemicals and temporary coatings, as well as rinsing and wash down.

Technical data for the complete kit

Property	Unit	Value
Shipping size	cm	180x142x80(HxWxD)
Box size (actual size)	cm	83x142x80(HxWxD)
Shipping weight	kg	230
(Fits on a Euro pallet)		

Ordering information

Panamax Cargo Hold Cleaning Kit 778855 consist of:

Chemical Applicator 155

Panamax Lance

Dual Bar nozzle

Nozzle kit with 3 different nozzles Tornado 3 Cleaning Jet

45m of Water supply hose with Storz C couplings

50m 1/2" Air supply hose with quick connectors

50m 1/2" Air supply hose with quick connectors

50m 1/2" Air hose with quick connector

50m 3/4" Yellow Liquid hose PVC

Tripod

Wheel Kit Guide wire kit Chemical suit

Rubber safety boots size 43

Drum wrench

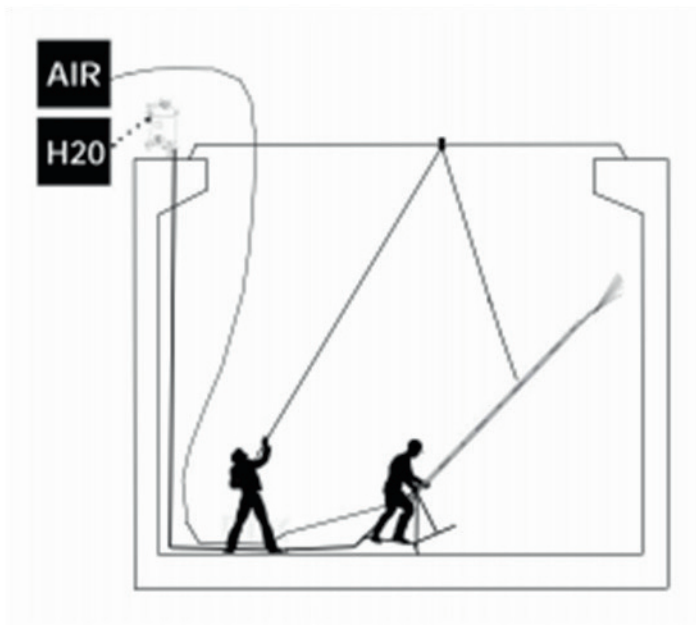
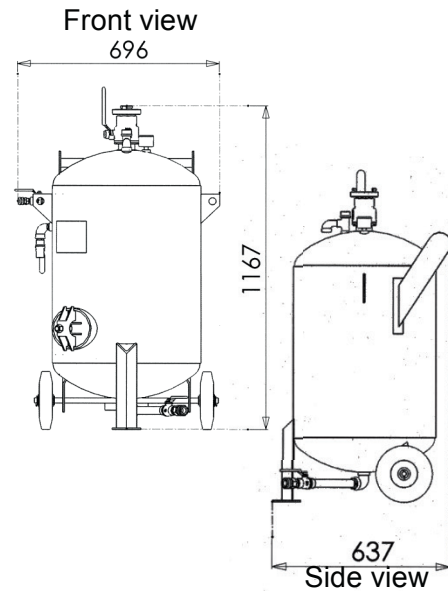
User manual / Cargo Cleaning Quick Guide

2 X 600 LTR 100 % recycled containers approved by Nordic Ecolabel



Chemical Applicator 155 - large volume multipurpose applicator

The Chemical Applicator 155 is a steel pressure tank with capacity of 155 litre. The tank can be filled with a cleaning mixture, and then pressurized using the ships working air. The Applicator 155 works in combination with the Long Reach Lance in order to apply the mixture onto the bulkhead. The unit is easy to use and has been developed in order to apply chemicals and solutions. The Chemical Applicator 155 can be used for application of temporary coatings prior to loading cargo, as well as applying cleaning solutions after discharge.

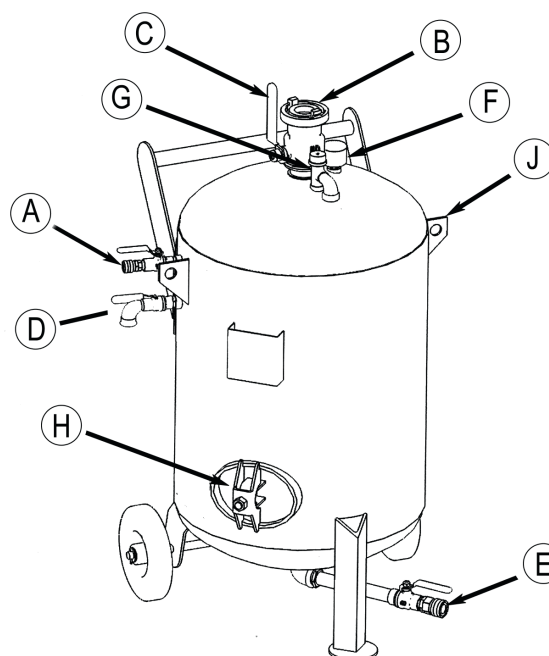


Technical data

Property	Unit	Value
Recommended air pressure	bar	6-7
Maximum air pressure	bar	8
Air consumption (max)	m ³ /min	1
Chemical coverage	m ²	400-1200
Air connection	inch	3/4" BSP male with Quick connector
Water connection	inch	2" BSP female, with male Storz C coupling
Weight	kg	58

Overview of main components:

- A.** Air inlet valve
- B.** Liquid inlet
- C.** Liquid inlet ball valve
- D.** Overflow valve
- E.** Liquid outlet with ball valve
- F.** Pressure gauge
- G.** Safety valve (9bar)
- H.** Inspection port
- J.** Lifting lugs



NOTE: Do not attempt to lift the Chemical Applicator 155 if full of liquid.
Empty weight is 58 kg (128 lbs)

Panamax Lance – extendable applicator lance



The Unitor Long Reach Lance is developed to facilitate easy and reliable chemical application in cargo holds, and can also be used with great results on the super structure and ships sides. Using a guide wire kit, the extendable lance enables the crew to apply chemicals from the bottom of the hold all the way up to the hatch cover. The lance is designed to accommodate different nozzles and can be used for the application of both foaming and non-foaming chemicals.

Technical data

Property	Unit	Value
Length per section	m	1,2
Standard length (5 lengths)	m	6
Recommended liquid pressure	bar	6-7
Recommended air pressure	bar	6-7
Maximum air pressure	bar	9
Air consumption	m ³ /min	1
Normal reach	m	8 – 24 depending on the nozzle & air supply*
Air connection	inch	3/8" BSP female fitted with Unitor Quick connector
Chemical connection	inch	3/4" BSP female fitted with Unitor Quick connector
Weight complete	kg	16 (with 3 x extension sections)

*With the Slip Coat nozzle a height of 8 – 12 meter can be reached under normal conditions. To enable higher reach

The Standard Nozzle should be used. Note that the consumption of Slip Coat will increase and that the operator has to work in a fast, systematic and sweeping pattern.

The Unitor Tornado 3 is an air-powered water cannon designed for cargo hold cleaning on board bulk carriers but it can just as well be used to clean super structures or cranes. The water is fed into the unit from the ships fire pumps or tank cleaning lines, the water is then accelerated using compressed air. Using this simple layout the Tornado 3 is capable of reaching a height of 30 m. The unit is made of non-corrosive materials. The water and air valve enable full control at tank top. The Tornado 3 is supplied with a tripod and is virtually maintenance free.

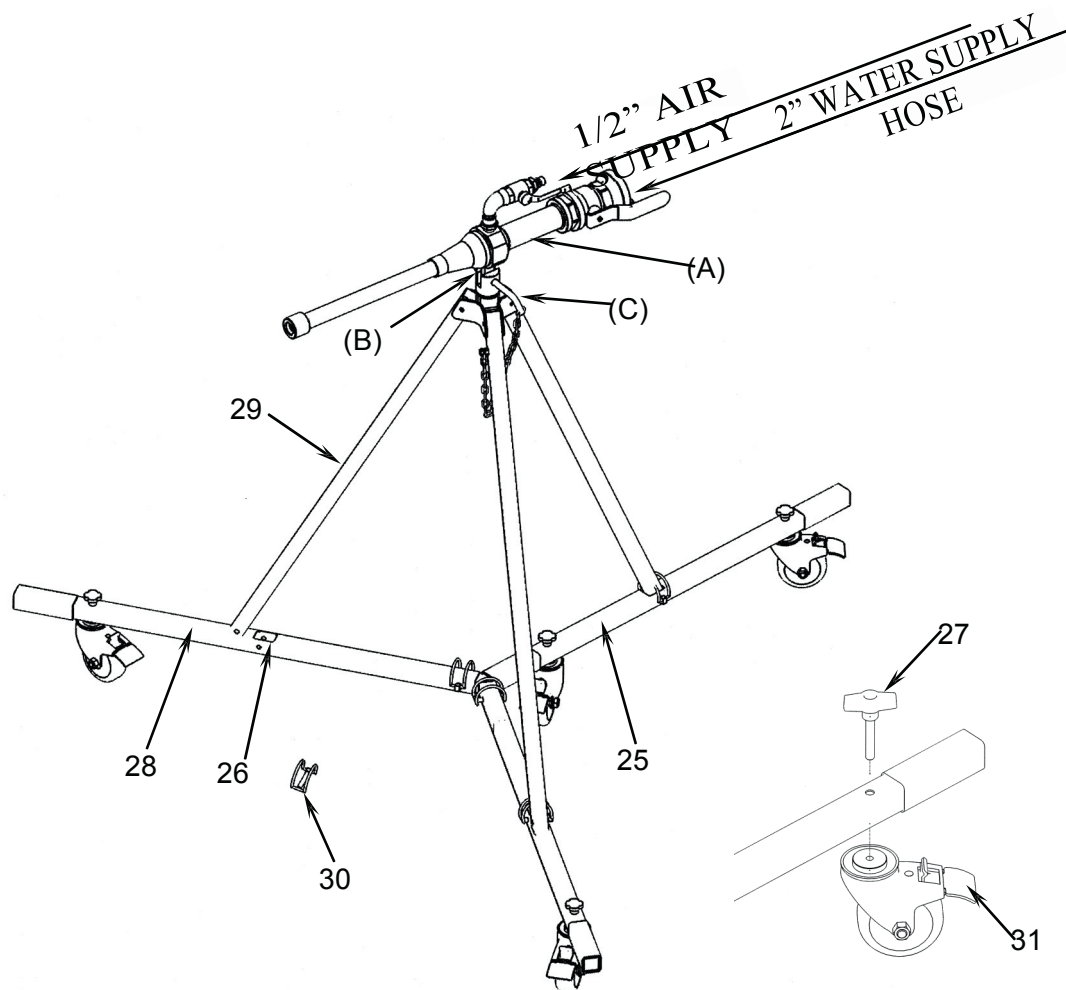
Technical data

Property	Unit	Value
Recommended water pressure	Bar	6
Recommended air pressure	Bar	5-7
Air consumption (max)	m ³ /min	2
Water consumption	m ³ /h	18-22
Normal jet distance	M	30
Air connection	Inch	3/4" BSP male fitted with Quick connector
Water connection	Inch	2" BSP Storz C connector
Weight	Kg	15

Assembly and set-up instructions

Base assembly

- Locate the base Y-section (25), with the location holes for two wheels.
- With the rectangular opening to the top (26), use the lock on the wheel (31) (this stops the boss from rotating) and pass the retaining screw (27) through the Y-section into the wheel boss (see zoom view).
- Fit two wheels into this section.
- Fit the other two wheels onto the straight sections (28) then insert each into an arm of the Y-section and retain with the retaining pins.
- Fit the Tornado 3 tripods legs (29) into each of the base rectangular openings (26) and secure with the pins (30).
- Unlock or lock the wheels as required.



Tornado 3 Cleaning Jet assembly

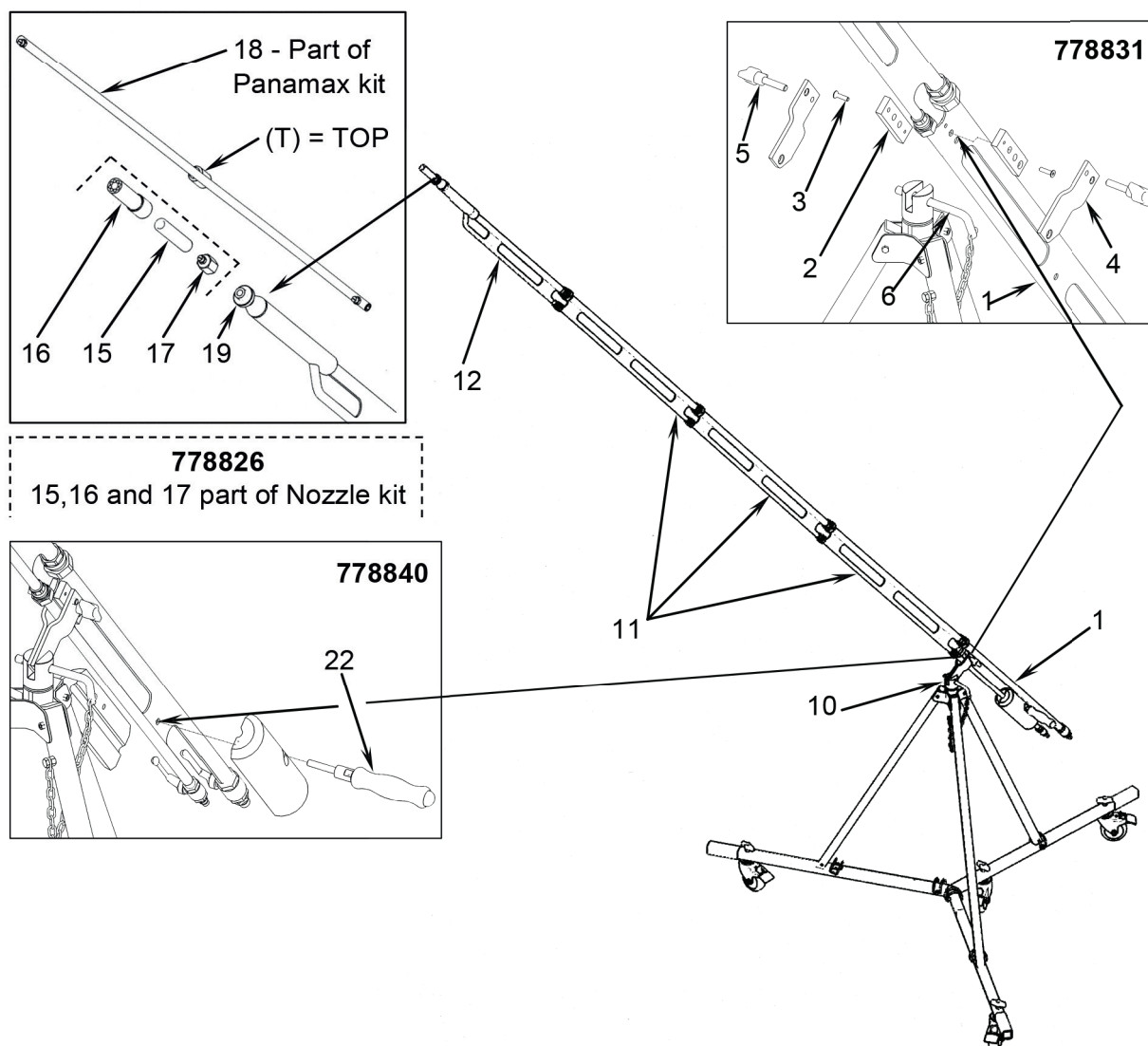
See assembly of the base instructions above.

- Attach the Tornado 3 (A) cleaning jet to its tripod (B) and secure with pin (C) and secure this with the R-Clip.
- Connect the 2" water supply hose to the Tornado 3 cleaning jet (A) and the ships water supply.
- Connect the 1/2" air supply hose to the Tornado 3 cleaning jet (A) and the ship's air supply.

Lance assembly

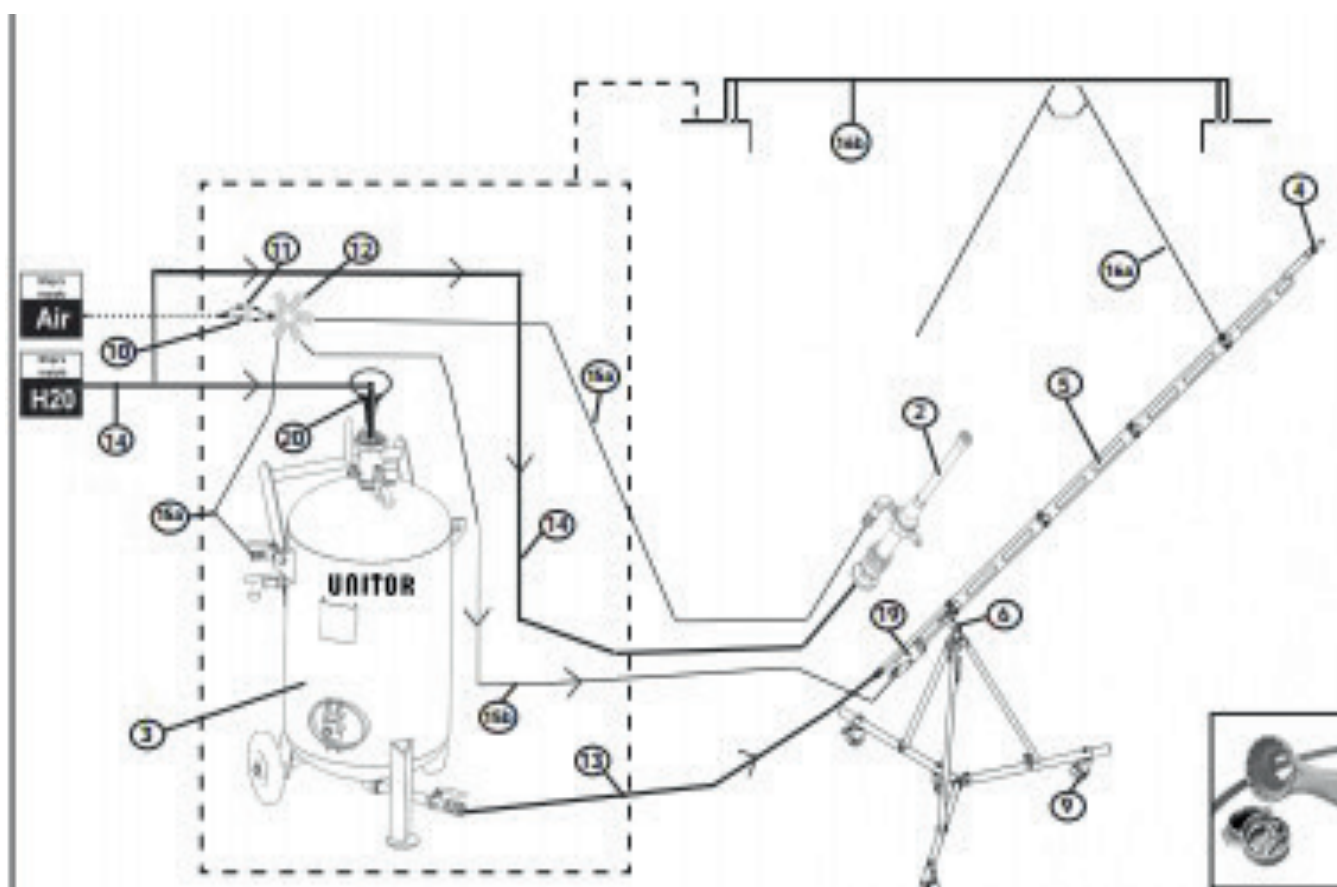
Locate the lower lance section fitted with two ball taps (1), if this is to be used with the Tornado 3 jet cleaner's tripod, fit the spacers (2) from the Tripod Clamp Kit (778831).

Use the two M6 screws (3) supplied and fit to either side of the lower section (1), countersunk sides outwards. Then loosely fit the tripod mounting brackets (4) with the wing bolts (5) on either side. The rounded angled part of the bracket should face towards the taps and be touching one another. Fit this onto the Tripod (10) and secure with the Retaining Pin (6) and its R-Clip. Fully tighten both Wing Bolts. Next fit the required amount of Centre Sections (11), (maximum of 3 without guide wire) followed by the Front Section (12). Choose a Nozzle, the Standard Nozzle (15), Foam Nozzle (16), Slip Coat Nozzle (17) or the T-Bar Slip Coat nozzle (18). If using the T-Bar Slip Coat nozzle note the „T“ stamped on the connector, this should be facing upwards. Lock the T-Bar in position using the supplied locknut (19).



Counter balance weight assembly

Fit the Counter Balance Weight Kit (778840) carefully; these components are heavy. Pass the weight handle (22) through the hole in the weight and its mounting hole in the lower lance as per zoomed view and screw into the other half.



Long reach lance assembly

- ☐ Connect the Inlet sections, Extensions and Nozzle section of the lance.
- ☐ Fit either the Foam, Standard or Slip Coat nozzle (4) to the lance.
- ☐ Connect the 3/4" yellow liquid hose (13) to the Lance inlet section and to the Outlet (E) of the Chemical Applicator 155.
- ☐ Connect 1/2" air supply hose (15b) to the Lance inlet section and the other end to air distributor (12).

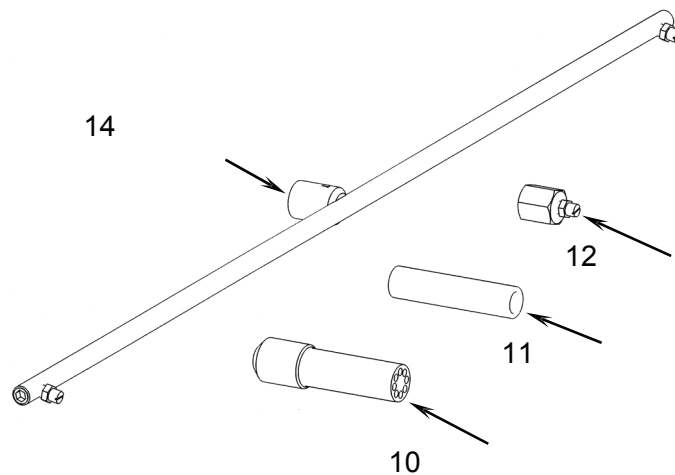
Nozzle selection

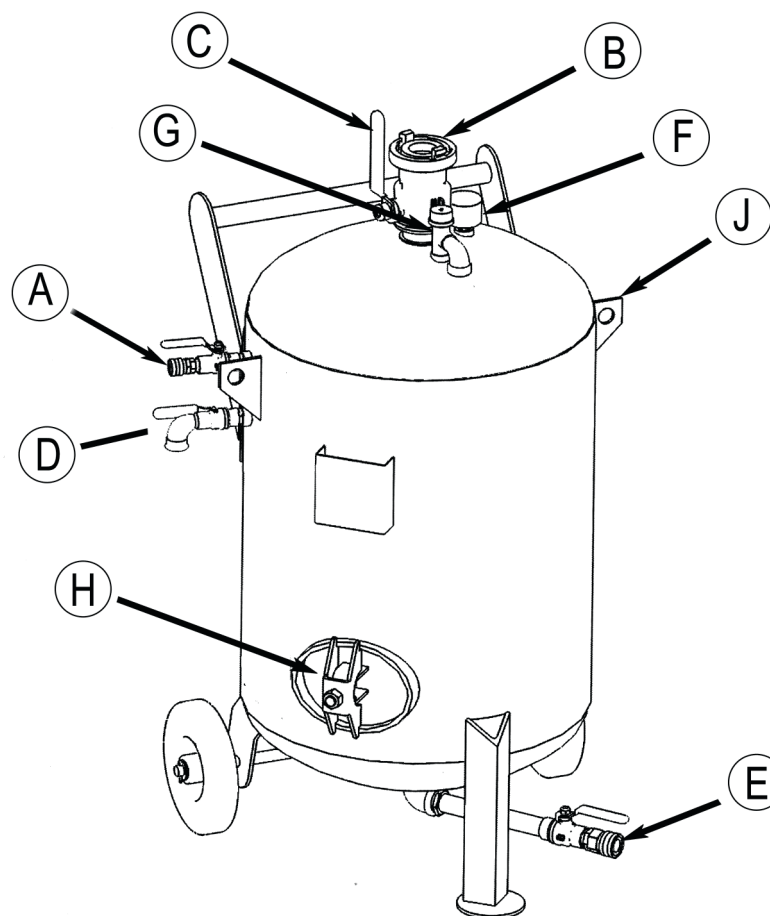
Foam nozzle (10) for cleaning chemicals with foaming properties – generates thick foam.

Standard nozzle (11) for all other cleaning chemicals – extends the reach of the spray without foaming. The standard nozzle can also be used for washing down if needed. The standard nozzle is to be used when applying Slip Coat at high to reach areas. Note that consumption increases significantly so the operator must move the lance in a fast, systematic sweeping pattern.

Slip Coat nozzle (12) for temporary hold coatings – provides a thin and even spray but a very short range, (the standard nozzle can be used for longer reach).

Slip Coat dual nozzle T-Bar (14) for temporary hold coatings – provides a thin and wide even spray but a very short range, (the standard nozzle can be used for longer reach).





Chemical Applicator 155 assembly

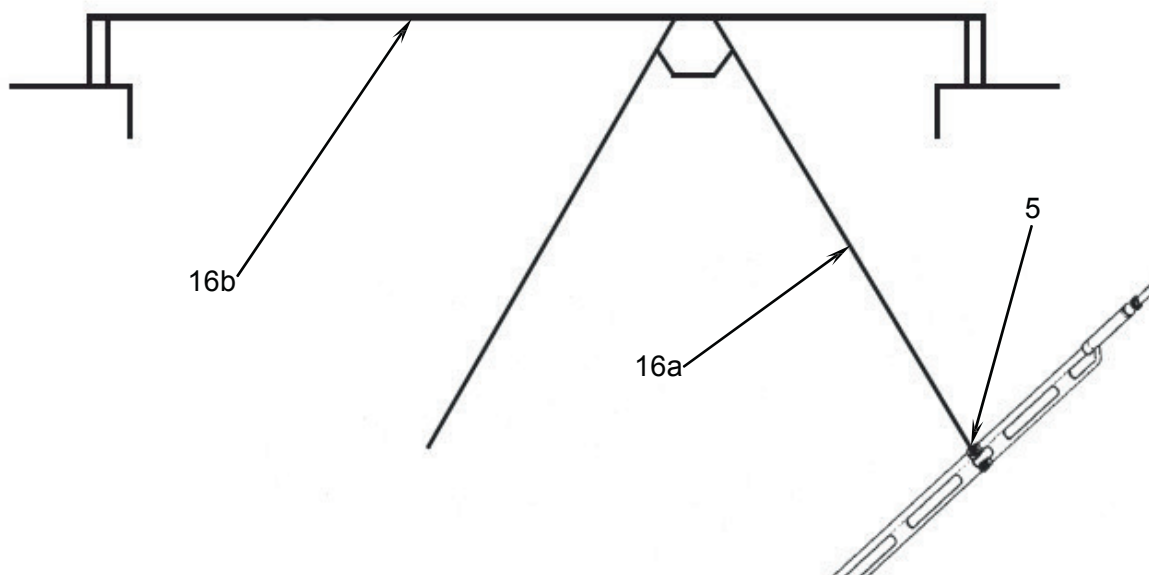
- ☐ Close all ball valves (A, C, D & E).
- ☐ Attach Storz C connector to the inlet (B) at the top of the Chemical Applicator 155.
- ☐ If filling with seawater Connect 2" water supply hose (14) to the Storz C connector and the ship's water supply. If fresh water is used just fill the tank thru section B.

Important: When the tank is filled with chemical and water close the ball valve (C).



NOTE: Fresh water is recommended for all cleaning operations; however, seawater may be used if needed.

- ☐ Connect 1/2" air supply hose (15a) to the Air inlet (A) on the Chemical Applicator 155 and the other end to the air distributor (12).

**Guide wire kit assembly**

- ☐ Roll out the Wire (16b).
- ☐ Roll out the Support line (16a).
- ☐ Thread the Support line through the pulley attached to the Wire (16b).
- ☐ Secure the Wire at each end of the cargo hold and tension it by using a loading strap or similar.

NOTE: - The wire must be as tight as possible to ease operations.

- ☐ Attach one end of the Support line (16a) to the Lance nozzle section (5).

Maintenance schedule

Task	After each use	Between each hold*	Regularly (as required)
FLUSH EQUIPMENT (INSIDE / OUTSIDE)	X	X	X
INSPECT PRESSURE TANK	X		X
CHECK THAT ALL HOSES ARE ATTACHED	X		X
PRESSURE RELIEF VALVE			X (see local regulations)
LANCE	X	X	
NOZZLES	X	X	
QUICK CONNECTORS			X
<input type="checkbox"/> If aggressive chemicals are used, flushing between each hold is recommended.			

PANAMAX CARGO HOLD CLEANING KIT

Product number: 778855

Content list

Product no	Description		Qty
749762	PLASTIC CONTAINER 600 LITRE	PCS	2
658229	TORNADO 3 CARGO HOLD CLEANING JET	PCS	1
778839	CHEMICAL APPLICATOR 155	PCS	1
778826	NOZZLE KIT	PCS	1
778818	LANCE PANAMAX 3	PCS	1
778831	TRIPOD CLAMP KIT	PCS	1
778838	PANAMAX ASS. INSTR.	PCS	1
778835	PANAMAX DOC PACK	PCS	1
778830	WHEEL KIT	PCS	1
191700	400 USH SOCKET 1/2" HOSE	PCS	1
191718	600 USH SOCKET 3/4" HOSE	PCS	1
193490	UNITOR MEDUSA AIR DISTRIBUTOR	PCS	1
671727	AIR HOSE 3/4", PVC (50 MTR)	PCS	1
510727	GUARDMAN 2" W/STORZ C CPL 15MTR	PCS	3
671768	AIR HOSE 1/2", RUBBER	PCS	3
749742	GUIDE WIRE KIT FOR CARGO HOLD	PCS	1
571026	SAFETY BOOT YELLOW SIZE43	PCS	1
576843	CHEMICAL RESIST CLOTHING	PCS	1
778840	COUNTERBALANCE WEIGHT KIT	PCS	1
766107	UNITOR WRENCH	PCS	1

Cleaning operation



NOTE: Make sure you use Personal Protection Equipment (PPE) at all times when handling chemicals and / or equipment.

Step 1 – Dry cleaning

When cleaning after dry cargo such as cement or coal, it is recommended to sweep and muck out as much residue as possible before any liquids are used.

Step 2 – Cleaning with chemicals

- ☐ Assemble the Applicator 155 & Long Range Lance with the Foam nozzle.
- ☐ Gradually open the air and chemical ball valves on the lance; adjust both in order to obtain optimal range and foaming.
- ☐ Apply chemicals from tank top and upwards in a sweeping pattern.
- ☐ Repeat until hold is covered. Depending on chemical used, the temperature and moisture conditions, the exposure time may vary from 10 min to 2 hours, the exposure time may vary from 10 min to 2 hours.

Note that cargo residues might be difficult to remove from the hold without manual mechanical work like brushing in addition to using cleaning chemicals!



NOTE! Do NOT let the chemical dry out on the surface. Reapply with the same cleaning chemical if the chemical is starting to dry out.



NOTE: 2 fillings (50 litre of chemicals) of the Chemical Applicator 155 should cover one side of the cargo hold depending on level of contamination and weather conditions.

Step 3 – Wash down of holds

- ☐ Prepare the Assembled Tornado 3 (2) for operation.
- ☐ Open water valves (if required - also air valve; depending on power on fire pump).
- ☐ Start at the tank top and clean upward
- ☐ When the top is reached, move the cleaning jet to a new location and repeat.
- ☐ Continue until the hold is rinsed.

NOTE: Slip-Coat is a “ready to use product and must not be mixed with water or diluted.



Step 4 – Application of temporary hold coating (Slip Coat, Slip Coat WR or Slip Coat Plus)

- ☐ Make sure that the cargo hold is clean and dry before applying Slip Coat.
- ☐ Disconnect the Tornado 3 from the tripod and attach the clamp kit (6) and fasten the lance (5).
- ☐ Fill the tank with Slip Coat
- ☐ Attach the Slip Coat nozzle or the Slip Coat T-Bar to the lance (the standard nozzle can be used for improved reach in the height).
- ☐ Open the liquid valve on the lance (5) and keep the air valve closed. Apply Slip Coat from top and downward

NOTE: the air valve on the lance is not to be used in this application.



- ☐ Apply Slip-Coat from the top and downwards in a sweeping pattern until a section is covered.
- ☐ As soon as the surface appears wet, a proper film is created.
- ☐ In order to keep the drying time to a minimum, avoid thick layers.
- ☐ One litre of Slip-Coat covers (depending on coating and operator) up to 15m²
- ☐ Repeat until hold is covered.

NOTE: To reach higher areas in the hold with slip coat

To enable application of Slip Coat at the higher areas in the hold, we recommended connecting the Standard Nozzle.

- ☐ Remove the Slip Coat Nozzle
- ☐ Assemble the Standard Nozzle to the lance
- ☐ This enable higher reach with Slip Coat however reaching highest areas might not be possible
- ☐ Consumption of Slip Coat increases so the operator must work efficient
- ☐ Work in fast, sweeping and systematic pattern till the hold is covered

NOTE: apply the hold coating in as thin layer as possible.



Depending on the temperature and humidity, the drying time may vary from 10 min to 3 hours or more. Allow the film to dry completely before loading the cargo.

Step 5 – Rinsing of equipment

- ☐ Ensure the Chemical Applicator is empty
- ☐ Close the liquid outlet valve (E)
- ☐ Fill the Chemical Applicator (3) with FRESH water. After use of Slip Coat, flushing with hot water might be necessary to remove residues.
- ☐ Pressure the Chemical Applicator
- ☐ Open the liquid outlet valve (E) and flush the yellow liquid hose (13) and the lance (5) as well as the nozzles that has been used.

Note! The equipment must be flushed with fresh water between each hold, after use and before storage.

Disclaimer

Wilhelmsen Ships Service assumes that persons responsible for carrying out cleaning operations are familiar with the guidelines published in SOLAS, ISGOTT and other relevant guides and/or local port restrictions and laws that will pertain to such operations.

Recommended additional equipment

PRODUCT	DESCRIPTION	Product number
Cleaning equipment		
HPC 67/1 3~440V / 60 Hz (195 bar / 1200 l/h)	High pressure cleaner	778889
HPC Extreme 520 (500 bar / 1080 l/h)	Ultra high pressure cleaner	721035
10 ltr stainless steel jet sprayer	Chemical applicator	572123
Mucking pump	Removal of cargo residues	593996
VCAD 200 (for cargo residues)	Air driven vacuum cleaner	682054
Personal protection equipment		
Rubber safety boots size 42		571018
Rubber safety boots size 43		571026
Rubber safety boots size 44		571034
Rubber safety boots size 45		571042
Combi mate 3 package	Gas detector	752077
Trellchem SUPER T-ET Chemical suit with Mini Hood w/o Hose (Example size only. large-other sizes avail.)	Chemical protection suit	740555

Chemicals

Aquatuff – general purpose strong alkaline cleaner

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.

Directions for use and dose rates

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 12 m².
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.

Tank and cargo hold cleaning

Aquatuff can be used for tank cleaning after animal, vegetable and fish oil, petroleum waxes, and for cargo hold cleaning after soot, coal, pet coke and other bulk materials.

Method of Application and Dose Rates

1. Direct injection method with tank washing machines: Use a dose rate of 1-20 litres per ton wash water (0.1-2%).
2. Recirculation method: Use a dose rate of 1-20 litres per ton wash water (0.1-2%).
3. Spot cleaning: Hand spray neat or prepare a 20% solution, and leave for 20-30 minutes before rinsing off with water. The surface should be kept wet. For problem deposits, please consult the Unitor Tank Cleaning Manual.

Product properties

APPEARANCE:	Orange liquid
DENSITY, in g/cm ³ at 15°C:	1.1
FLASH POINT, (PMCC) in °C:	N/A
pH, in conc:	13

Compatibility

Metal: The concentrated product may react with aluminium, zinc, tin and their alloys. Rubber: No known effect.

Ordering information

Product no: 607826 – 25 litre plastic container

Features, benefits and applications

- ☐ Heavy-duty water based cleaner.
- ☐ Does not contain nonyl phenol 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.
- ☐ It has 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.
- ☐ IMO-approved.
- ☐ Approved by Marinfloc AB for use in engine rooms.

Read the Safety Data Sheet before using this product.



Aquatuff High Foam – high foaming alkaline cleaner

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 efficiency. 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 beneficial.

Directions for use and dose rates

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, fishmeal 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, use then Aquabreak PX (Product no. 575613). Method of Application and Dose Rates 1. Apply Aquatuff High Foam mixed 10 to 25% (ratio 1:9 to 1:3) in water, using spray foam equipment.

Product properties

APPEARANCE:	Orange liquid
DENSITY, in g/cm ³ at 15°C:	1.1
FLASH POINT, (PMCC) in °C:	N/A
pH, in conc:	13

Compatibility

Metal: The concentrated product may react with aluminium, zinc, tin and their alloys.
Rubber: No known effect.

Ordering information

Product no: 736991 – 25 litre plastic container

Features, benefits and applications

- ☐ 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 difficult cargoes. Effective and economical in use.
- ☐ Completely safe on epoxy coatings.
- ☐ Complies with all environmental regulations and the EU Detergent Regulation.

Read the Safety Data Sheet before using this product.



Slip-Coat – temporary cargo barrier

Slip-Coat is a water based liquid product specially formulated to leave a thin, temporary film on cargo hold surfaces. The film 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.

How it works

After drying, Slip-Coat creates a thin, non-sticky film on the cargo hold surfaces. The film substantially facilitate the cleaning before next cargo in two ways: 1. The film fills the minute pores in the surface, and prevents that small particles are trapped in the pores. 2. Small, solid particles can be very difficult to remove especially from organic coatings, even with the use of effective cleaning agents and high-pressure water jets. The reason is the buildup 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 minimize this problem, and the particles may now be removed with high-pressure water only. The film is completely water-soluble and is easy to remove even with cold seawater. 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.

Directions for use and dose rates

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 film is created; do not apply more than necessary. 1 litre Slip-Coat will cover 15-20 m². Allow the film to dry completely before loading the cargo. Depending on air temperature and humidity this will take 1 to 2 hours. After reloading, apply a 2 – 5% solution of a cleaning agent in water to avoid re- deposition of contaminants, and finally flush with clean, high pressure water. Suitable cleaning agents are: Aquatuff (Product no. 651 607826 and 651 607827) Aquatuff High Foam (Product no. 652 736991 and 652 737007) Aquabreak PX (on zinc silicate coatings, Product no. 651 575613 and 651 607827). After flushing with water, let the surfaces dry and then repeat the treatment with applying Slip-Coat before next cargo.

Product Properties

APPEARANCE:	Clear, slightly viscous liquid
DENSITY, in g/cm ³ at 15°C:	1.01
FLASH POINT, (PMCC) in °C:	N/A
pH, in conc:	6

Compatibility

Metal: No known effect.

Coatings: No known effect.

Rubber: No known effect.

Ordering information

Product no: 737015 – 25 litre plastic container

Features, benefits and applications

- ☐ Water-soluble cargo hold barrier – easily removable with water.
- ☐ Saves cleaning time and cleaning chemicals.
- ☐ Ideal when cleaning after coal, pet coke and other difficult cargoes.
- ☐ Completely safe on all coatings.
- ☐ Prevents even the most difficult cargo to adhere to the coating.
- ☐ Easy to apply – easy to remove.
- ☐ Provides temporary protection against corrosion.
- ☐ Water based - free from hydrocarbon solvents.
- ☐ Complies with all environmental regulations.

Read the Safety Data Sheet before using this product.



Slip-Coat Plus– water proof temporary cargo barrier

Slip Coat Plus is a liquid, waterborne protective barrier designed to perform maximum protection and efficiency during transport and unloading operations. This product is specially formulated to fill the minute pores in paintwork and leave a dense temporary water resistant film on cargo hold surfaces. When cured the protective film 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 film 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.

How it works

After drying, Slip-Coat Plus creates a thin, non-sticky water proof film on the cargo hold surfaces. The film substantially facilitate the cleaning before next cargo in two ways: 1. The film fills the minute pores in the surface, and prevents that small particles are trapped in the pores. 2. Small, solid particles can be very difficult 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 Plus provides a barrier between the particles and the surface that minimize this problem, and the particles may now be removed with high pressure water only. The film is completely water-soluble and is easy to remove even with cold seawater. To avoid re- deposition of contaminants a cleaning agent should be used, however, at lower dosage rates than what normally is required.

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 sufficient and will cover 10–20 m²/ltr depending on the condition of the cargo holds. Allow the film 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 film on the cargo hold surfaces. After cargo discharge, both the film 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 finally flush with clean high pressure water. After flushing 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 +5°C.

Product properties

APPEARANCE:	Low viscous liquid
DENSITY, in g/cm ³ at 15°C:	Approx 1
FLASH POINT, (PMCC) in °C:	N/A
pH, in conc:	6

Compatibility

Metal: No known effect.

Coatings: No known effect.

Rubber: No known effect.

Ordering information

Product no: 778865 – 25 litre plastic container

Features, benefits and applications

- ☐ 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
- ☐ Excellent adhesion to all surfaces
- ☐ Ideal for use with humid and corrosive cargoes as sulphur, salt etc.
- ☐ Prevents even the most difficult cargo to adhere to the coating
- ☐ Saves cleaning time and cleaning chemicals
- ☐ Provides temporary protection against corrosion

Read the Safety Data Sheet before using this product.



Metal Brite H. D. – rust and metal tarnish remover

Liquid detergent compound containing phosphoric acid and non-ionic surfactants, used for rust removal and as a surface brightener.

Directions for use and dose rates

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 flakes, oil and grease prior to using Metal Brite H.D. Apply Metal Brite H.D. to surfaces to be cleaned as follows; For removal of rust stains on painted surfaces, a solution of 10-30% should be sufficient. Rinse off with water 15-20 minutes after application. For removal of light cement stains and lime, apply a 50% solution, and high pressure wash after 30-40 minutes, and for solidified cement use Descaling Liquid. For removal of light rust and scale in pipelines and tanks, re-circulate 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., re-circulate a solution of 5-10% Metal Brite H.D. When injected, use a 5% solution. Re-circulate or inject until residue is removed.

Product properties

APPEARANCE:	Light yellow liquid
DENSITY, in g/cm ³ at 15°C:	1.3
FLASH POINT, (PMCC) in °C:	N/A
pH, 1 vol-%:	2

Compatibility

Metal: Long term exposure may lead to corrosion of mild steel, cast iron aluminium & alloys, brass, tin or galvanised material.

Rubber: No known effect.

Ordering information

Product no: 571679 – 25 litre plastic container

Features, benefits and applications

- ☐ Does not contain nonyl phenol ethoxylates or other estrogenic compounds.
- ☐ Non-flammable.
- ☐ 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.
- ☐ Approved by the Norwegian Institute of Public Health.

Read the Safety Data Sheet before using this product.



Aquabreak PX – multipurpose water-based degreaser

Aquabreak PX is a multipurpose cleaning and degreasing agent. It is low -toxic, non-caustic, free from hydrocarbon solvents and biodegradable. The surfactant formulation with complex binders has a good cleaning efficiency. Dirt and oily matters is effectively removed without the use of solvents and caustic based cleaners.

Direction for use and dose rates

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 neat or diluted up to 50 parts with 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 (Product no. 651 614537) for increased resident time.

Product properties

APPEARANCE:	Pale yellow liquid
DENSITY, in g/cm ³ at 15°C:	1.0
FLASH POINT, (PMCC) in °C:	N/A
pH, in conc:	12

Compatibility

Metal: May attack aluminium and zinc at concentrated solution

Rubber: No known effect.

Ordering information

Product no: 575613 – 25 litre plastic container

Features, benefits and applications

- ☐ Water based cleaner.
- ☐ Does not contain nonyl phenol ethoxylates or other estrogenic compounds.
Low toxic and non-caustic.
- ☐ Biodegradable.
Non-flammable.
- ☐ Free from hydrocarbon solvents.
Safe on all materials.
- ☐ Very effective and economical in use.
- ☐ Aquabreak PX has numerous general cleaning applications including the removal of grease, oil, sludge, carbon deposits and grime.
- ☐ Can be used as engine room cleaner.
- ☐ Suitable for cargo tank cleaning.
- ☐ Good for use in galleys and on decks.
- ☐ Suitable for cleaning of soiled textiles as rugs, covers, mats, overalls etc.
IMO-approved.
- ☐ Approved by Marinfloc AB for use in engine rooms.

Read the Safety Data Sheet before using this product.



Descaling Liquid – liquid acid for removal of scale and rust

Descaling Liquid is a liquid acid containing descaling accelerators, corrosion-inhibitors and wetting agents.

Directions for use and dose rates

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 or Enviroclean is necessary.

Descaling Liquid should always 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 passivates steel surfaces. Descaling Liquid should not be used on aluminium, zinc, tin, or any galvanised surfaces for which a special grade cleaner should be used. If used with Handymax or Panamax kit, flushing with fresh water must be carried out immediately after use and between each hold. Decaling liquid will cause wear on the kit so but is reduced if rinsed according to manual.

Product properties

APPEARANCE:	Pale yellow liquid
DENSITY, in g/cm ³ at 15°C:	1.2
FLASH POINT, (PMCC) in °C:	N/A
pH, in conc:	< 1.5

Compatibility

Metal: Contains corrosion inhibitors. Rubber: No known effect. Synthetic rubber: May swell.

Ordering information

Product no: 571653 – 25 litre plastic container

Features, benefits and applications

- ☐ 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.

Read the Safety Data Sheet before using this product.



Disclaimer

Wilhelmsen Ships Service assumes that persons responsible for carrying out cleaning operations are familiar with the guidelines published in MARPOL, MLC 2006, SOLAS, ISGOTT and other relevant guides and/or local port restrictions and laws that will pertain to such operations.

Wilhelmsen Ships Service

Postal address	Visiting address
PO Box 33	Strandveien 20
N-1324 Lysaker	N-1366 Lysaker
Norway	Norway

T (+47) 67584550
F (+47) 67584570
E wss.info@wilhelmsen.com

www.wilhelmsen.com/shipservice

Part of Wilhelmsen Maritime Services,
a Wilh. Wilhelmsen group company



OPTIMISING PERFORMANCE