



GIANT OCTOPUS OFFSHORE RECOVERY SYSTEM

Proven Oil Spill Technology

The DESMI Giant Octopus



System 1

Giant Octopus Skimmer head, including twin onboard DOP pumps, hose set & power pack. Ideal for the client who is limited for space and/or has budget restrictions.

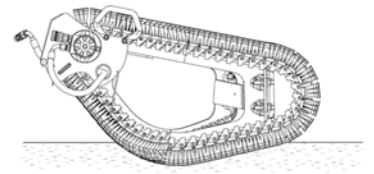
System 2

Giant Octopus Skimmer head, including twin onboard DOP pumps, hose set and reel, power pack and JIB crane. Developed to enhance deployment and recovery.

System 3 LARS (X80C)

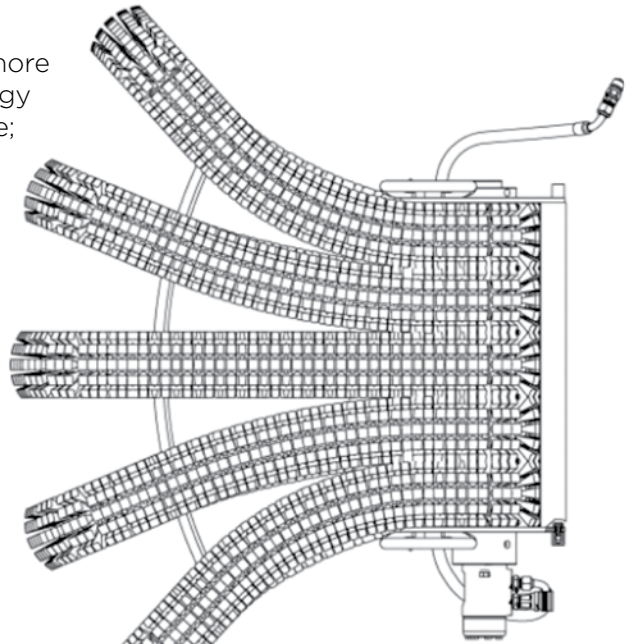
The ultimate, high capacity offshore skimming system with wireless umbilical. Giant Octopus skimmer head, including twin DOP pumps, 80m / 262 ft umbilical reel, power pack, crane, remote wireless control and 20' flat rack.
(Power pack not shown)

The DESMI Giant Octopus



The Giant Octopus is the world's most advanced offshore skimmer system featuring the newest brush technology developed after more than 30 years of experience; Ohmsett independent testing and operations in actual oil spills. The Giant Octopus is the first of its type combining high recovery and efficiency rates in all types of oil, making it a truly multipurpose system.

Common to all three systems is the Giant Octopus Skimmer Head, the world's most advanced recovery device. It consists of three, splayed brush rail banks which are designed in such a way that the skimmer has a full 360 degree encounter with the oil. These brush rails also extend out well beyond the central buoyancy chamber of the unit allowing free and uninterrupted access to the oil. Each brush rail has its own, independent hydraulic motor which ensures total control and operational reliability.



The brush rails work in a patented ellipse and extended arc. Each of these brush rail banks is hinged that not only swing up for easy storage but allows the skimmer to also operate in icy conditions. Other benefits of the brush rail system include the acceleration, trapping and pumping effect of the containment as it approaches the parallel sections of the bank. This further enhances the skimmers capability to collect a very wide range of oil from the light to heavy hydrocarbons. The external 'bump' bars are designed for the inevitable contact with ships side or deployment dock during deployment and recovery.



Skimmer Head Design, Test & Product



There are two, integral but removable, DESMI DOP 250 Dual pumps each with a capacity of $125\text{m}^3/\text{h}$ / 550 gpm giving a total of $250\text{m}^3/\text{h}$ / 1101 gpm. The brush capacity is $3 \times 132.6\text{m}^3/\text{h}$ / 584 gpm – $397\text{m}^3/\text{h}$ / 1748 gpm (DNV Certified).

The DESMI DOP 250 Dual is a positive displacement, Archimedes screw pump developed by DESMI exclusively for operations in the oil spill environment. This enables the pump to handle the most viscous of oil and even significant amounts of debris. Water and steam injection rings are also available to further increase operational windows.

Due to the pump mounting on the skimmer, they can be easily detached and used as transfer pumps. The DESMI DOP 250 Dual pump are the world's most powerful and reliable pump for recovered oil and have been used in all major spills worldwide due to their proven reliability.

The Giant Octopus head also has powerful, built in thrusters that are contained within the floatation chamber. This design allows for a clean, non clogging hull and enables the skimmer to be accurately and quickly manoeuvred by a single operator.



The DESMI Giant Octopus





The Giant Octopus System 1 is the basic and traditional set up of skimmer head and power pack. The hydraulic and discharge hoses are supplied as separate items which can be simply fitted to both head and power pack for operations. System 2 enhances this by including a hose reel and integral jib crane within the DESMI power pack. This enables an easier deployment and recovery of the Giant Octopus skimmer especially with the management of the hoses. The skimmer head enjoys a single point lift and the jib crane can easily deploy from harbour wall or ship's side. The powerful onboard thrusters within the Giant Octopus can then power the unit into the pollutant and it enhances the encounter rate.

The DESMI power packs can also be supplied with an air blower unit which can be used to inflate various booms. This feature can reduce the total amount of equipment required and hence save on weight and space.

Further, both System 1 and System 2 can be fully containerised with the obvious benefits of logistics and security. The Giant Octopus has brush rails that can be stored in the vertical position thus saving significant floor space and hence reducing its footprint for container stowage. This 'pivoting' of the brush rails is also an additional benefit in operation as it enhances the skimmer's ability to handle significant debris and indeed ice. The proven cutting blade system within the suction of the DOP 250 pumps, easily handle any 'residue'.



The DESMI Giant Octopus

The DESMI Giant Octopus System 3 LARS includes the DESMI Giant Octopus brush rail skimmer, an 262 ft umbilical hose, a hydraulically driven hose reel and a universal deck crane. This is all mounted on a 20' flat rack complete with ISO corners. These are used for securing the rack and for easy transportation. This unique combination of skimmer, umbilical hose and crane on one 20' flat rack makes it easy to conveniently position the system on the ship's deck without disturbing the use of other facilities. The flexibility of this concept allows it to be used from other sites such as platforms, rigs and land based launch locations. The unit complies with "NOFO standard" platform supply vessels and is in conformity with the provisions of the Machinery Directive (Directive 2006/42/EC) and EC-directives 2004/108/EC.



The Giant Octopus LARS is designed for optimal operational efficiency and minimal maintenance and service. The cost of the maintenance and service is extremely low and it does not suffer the expense of more complex systems. The crane and the umbilical hose reel are fixed on a platform that rotate 360° on the flat rack. In addition, the crane can also rotate 360° on the same platform. This way the skimmer is very easy to deploy and recover in all conditions. It also allows for easy cleaning or maintenance. The crane can be transformed to an all purpose deck crane when detached from the umbilical hose and be used for general duty or winch operation. This is due to its' exceptionally long reach and lifting capacity plus the cranes independent 360° degree operation.

The whole system can be powered by the DESMI 180Kw diesel hydraulic power pack or any external hydraulic system with a capacity of 320 l/min / 85 gallons at 210 bar / 3046 psi. With the DESMI power pack the Giant Octopus skimmer can be operated at full capacity including the brush rails, thrusters and the twin DESMI DOP 250 Dual pumps.

Recovery Unit

Dimension: 6,058 x 2,438 x 4.3 m / 19,875 x 7,999 x 14 ft
Weight with oil: 16,500 kg / 36,376 lbs
NOFO standard hydraulic connection:
Hydraulic supply: 1¼" Snap Tite 371-3C16-20pp
Return: 1½" TEMA Flat Face FF 100 16-150 RV
Drain: ½" TEAM 5010 RV

System 3 LARS (X80C)

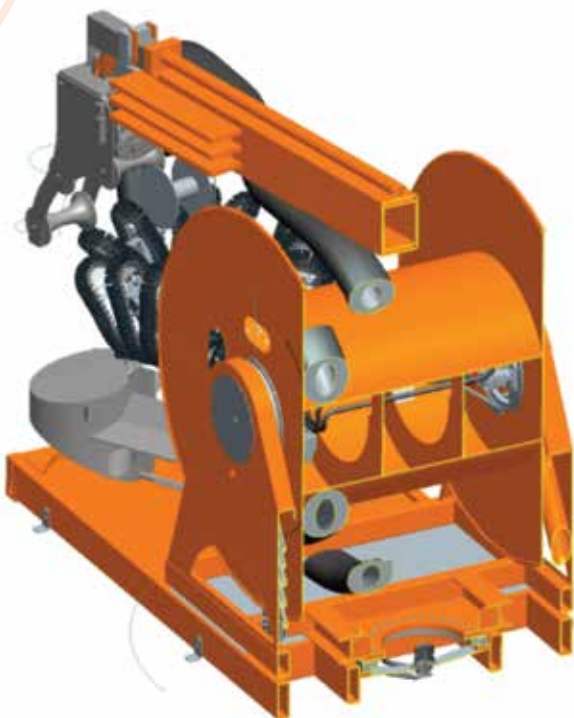


Floating Umbilical 80m length

In the umbilical, all hoses between the skimmer and power pack are combined in one flexible moulded neoprene rubber sleeve with closed cell foam completing the floating hose. With this design the umbilical has a high floatation combined with a small bending radius. The minimum bending radius is approximately 0.9 m/ 3 ft (37") and weight per running meter is 30 kg / 66 lbs excluding fittings. The umbilical has a minimum reserve buoyancy of 20% with all working hoses filled.

Ship to Ship (STS)

The LARS system also lends itself to Ship-to-Ship (STS) transfer operation. This is the transfer of cargo between seagoing ships positioned alongside each other, either while stationary or underway. It is also possible for the operation to take place between a ship and a land-based terminal. Cargoes typically transferred via STS methods include crude oil, bulk cargo, and petroleum products. With the easy attachment of the DOP 250 pump and 262 ft of umbilical, the LARS makes for very effective and efficient STS transfers.



Hose reel

The reel frame is manufactured from high grade steel with specially designed and standard profiles. The hose drum is mounted in the frame on two heavy duty slewing bearings. Drive is delivered to one side by powerful twin hydraulic motors.

On the other side there is a high pressure rotary joint to deliver the hydraulic motive power to the skimmer head. The reel and launching crane are placed on a slewing platform which is able to rotate 360°, unlimited. The PVG control valves and wireless remote control receiver are situated inside the reel drum. This can be operated manually in upset conditions.

The DESMI Giant Octopus

Wireless Radio Remote Control

This 24V unit is the wireless hand set to operate all the functions on the skimmer, crane and hose reel. This enables the operator to position himself with a clear line of sight to the Giant Octopus. From this vantage point, the skimmer can be manoeuvred and positioned using the powerful thrusters in to the recovery area with both efficiency and safety.

All functions of the Giant Octopus LARS are handled from the wireless control system. This allows for one man operation which can be accomplished safely from command positions such as the ships bridge. This significantly increases the efficiency and safety of the skimming operation and provides for operation in conditions that other systems cannot match.



Operations

All the systems are designed to operate in the harshest marine environment and can be deployed from different sites such as vessels, platforms, rigs and land based locations.

With System 3 the flat rack must be secured in a position so that the crane can lift and deploy the skimmer without hindrance. With the long reach of the crane it is easy to deploy and recover the skimmer keeping a safe distance to the ship side.

Hydraulic connectors on the flat rack receive all the motive power required for the system including the crane. With the skimmer deployed, the umbilical hose can be fed out from the reel at a speed to match the skimmers progress and direction from the powerful thrusters. In position, and as the Giant Octopus recovers oil, the two DESMI DOP Dual pumps can be operated to match the inflow of pollutant. This is discharged along the umbilical to the 6" outlet on the flat rack.

System 3 LARS (X80C)

The Giant Octopus Skimmer System is fully manufactured by DESMI and meets the demand for quality and reliability as per ISO9001-2000. The system is in full compliance with the provisions of the Machinery Directive 2006/42/EC and with the EC directive 2004/108/EC.

The following harmonized standards have partly or fully been applied:

- | | |
|-----------------------|-----------------------|
| ✓ EN ISO 12100-1:2009 | ✓ EN 953:2003 |
| ✓ EN ISO 12100-2:2009 | ✓ EN ISO 13849-1:2008 |
| ✓ EN 60204-1:2006 | ✓ EN 982 + A1:2008 |
| ✓ EN ISO 13857:2008 | ✓ EN 1037 + A1:2008 |
| ✓ EN 349:1994 | ✓ EN ISO 3744:2009 |



The DESMI Giant Octopus Offshore Recovery Systems are a significant step forward in design and proven technology. It is part of the recent DESMI drive of innovations over the last 18 months that include Single Point Inflation (SPI) boom through the reel, a speed sweeping system using the Ro-Boom containment boom, Ready For Dispatch systems, (RFDs) and the Arctic Range designs.

This latter segment is intended specifically for the environmentally harsh but ecologically delicate polar climates. Listening to its clients, DESMI continues this train of smart engineering as well as supplying clients with custom products where appropriate. With this, over the next few years, DESMI are moving to the next level in which they will promote all the products, services and segments that sit under the DESMI name.

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Need more information or specifications? Contact us at desmi@desmi.com or read more about DESMI and DESMI's other products and solutions at www.desmi.com

MARINE & OFFSHORE

INDUSTRY

OIL SPILL RESPONSE

DEFENCE & FUEL

UTILITY



ENVIRO-CLEAN EQUIPMENT

Efficient & Responsible Solutions for Oil Spill Response, Seaweed
& Clean Waterways

PROVEN TECHNOLOGY

DESMI

OIL SPILL RESPONSE, SEAWEED & CLEAN WATERWAYS

DESMI design and manufacture an extensive range of systems to recover oil and chemicals from the marine and inland environment, industrial applications, seaweed and clean waterways. The products include skimmers, booms, storage tanks, power packs, pumps, dispersant systems, vessels and ancillary items. In addition to this supply, we offer comprehensive equipment consultancy including audits, gap analysis, training and commissioning.

DESMI is able to deliver complete recovery and treatment systems for floating debris including transformation of treated waste into usable resources and we have an impressive track record for preventing seaweed reaching beaches.

DESMI is your partner for water equipment.

DESMI EnviRo-Clean support the UN's sustainable development goals.



For more information please visit www.desmi.com/un-sustainable-development-goals.aspx

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TRAINING & COMMISSIONING

Combating oil spills, seaweed and marine debris are specialized areas which requires superior response. Having this in mind, DESMI offers extensive training when supplying equipment.

Further to this, our staff are able to provide consultation and technical input during the planning stage.

Having the right type of equipment for the right job is the key to success. The comprehensive training in the use of the equipment will include suggestions on storage, maintenance and advice on installing the equipment in optimum positions when used.

With the right type of equipment kept in the correct condition, and a trained, skillful staff to operate it, the success rate will be much higher when the equipment is used for real.



MAINTENANCE SERVICE

DESMI are able, through our staff and network of agents, to offer a comprehensive after sales package to our customers including site visits, maintenance,

and regular support depending on the customer's requirements. Our qualified engineers can travel to site for major maintenance and support.



OIL SPILL RESPONSE



The oil spill response solutions from DESMI are trusted in the industry. Whether the requirement is for offshore or the shoreline area, the Arctic or Equatorial environment, we continue to deliver proven solutions for all spill conditions at the very best life cycle costs.

RO-BOOM

RO-BOOM is internationally acknowledged as one of the most effective, reliable and durable oil containment booms available today. RO-BOOM has earned this reputation in many spills and deployments. Manufactured in a unique rubber moulding process RO-BOOM is an inflatable boom with high tensile strength and excellent sea-keeping abilities. When deflated it lies flat allowing for storage on reels with minimal volume.

More than 1,000,000m have been supplied to oil companies, ports, terminals and oil spill bases. RO-BOOM is available in section lengths of up to 250m and nine sizes from 0.6 to 3.2m overall. It can be delivered with stainless steel hinge or ASTM connectors. Advances in the inflation process have lead to deployment times of less than 10 minutes for 200m with a trained crew.



RO-BOOM SPI

RO-BOOM Single Point Inflation oil containment boom is specially developed for fast deployment and a smaller operational foot print. Depending on the size and model, inflation can be from one end or through the reel. The DESMI SPI does not impact on the proven technology and well known operational integrity of RO-BOOM. Indeed, the boom can still be inflated through the individual chambers if so required.

Ro-Boom SPI is available in two versions:

1. Single Point air inflation takes place from outer end of first deployed boom section and the air is distributed via internal air channels with non-return valves incorporated
2. Single Point air inflation takes place via air hose integrated in boom winder and an external air hose connected to the top of the boom – requires no auxiliary boat



RO-BOOM BEACH

Containing oil in changing water levels presents a problem to conventional skirted booms. The RO-BOOM BEACH is a specialised boom with twin water ballast tubes and a single air tube. As the water level recedes the RO-BOOM BEACH sits down into the sand and mud effectively sealing the area.

When the level comes up the boom will re-float and act as a conventional boom. The RO-BOOM BEACH is produced in the exceptional RO-BOOM fabric offering high puncture and high abrasion resistance, which is key to this application.



TROILBOOM BEACH

As a lightweight option, DESMI is also able to offer TROILBOOM BEACH, which is made in a similar way to the RO-BOOM BEACH, but from lighter weight materials allowing greater flexibility when

transporting and deploying this boom. It is offered in either PVC or Urethane fabrics, which are tough and durable enough to survive repeated use on sand and mud substrates.



PYROBOOM®

PYROBOOM® is a combination of specially selected materials applied to the GLOBEBOOM® design to provide a fireproof boom which has proven to be a superior performer during independent tests. These tests have included 24 hour burns, ASTM fireboom test protocol, and real-world oil-in-ice burns in the Arctic Circle. Unlike most other firebooms, PYROBOOM® can be used in training exercises without deleterious effects. Even after it is burned, approximately 50% of the original value of the PYROBOOM® can be salvaged and re-used with in-field replacements, whereas other fireboom is typically scrapped.

PYROBOOM® requires no special handling, launching or support equipment and can be used just like a conventional boom. Originally conceived as a boom to be used in sweep and intentional in-situ burn operations, PYROBOOM® can also be invaluable for protecting waterfront assets from accidental fires. After burning, the residues can be collected using the Scan trawl system.



A-BOOM



DESMI has developed an environmentally friendly fence boom which will suit most protection purposes with regard to Oil Spill Response in a large number of protected water areas. The boom is known as "A-BOOM"

As a solid float fence type of boom it is immediately ready for deployment in the event of an oil spill in a harbour, jetty, lake or other protected water area. Due to the minimal weight of the 15m sections of boom (22 kg), it can easily be deployed by a small crew and for convenience can be disposed of by burning after use.

RO-FENCE is a robust fence boom designed for installation and long-term deployment in ports, rivers, ponds and lakes, water intakes and terminals where a zero response time is required. It is manufactured from the finest materials offering high abrasion and resistance to oil and sunlight.

The floats are moulded in UV stabilised HD polyethylene, which are then bolted to a twin layer of RO-BOOM fabric and ballasted using either lead weights or chain beneath the floats.

For convenience and longevity, the floats can also be filled with foam if required. This extreme durability and simplicity in design leads to a low maintenance requirement and good suitability for long-term deployment in harsh conditions.



GLOBEBOOM®

The GLOBEBOOM® design has proven to be excellent for all sorts of harbour settings. The principal reason for this is the quasi-spherical (or “globe”) shaped flotation elements. This shape represents the most efficient volume-to-surface-area ratio and allows discrete “nodes” of buoyancy to be placed at intervals along the face of the boom yielding the most responsive hard-shell boom on the market.

The GLOBEBOOM® design is available in a variety of barrier fabrics, sizes and with a range of accessories and options. The lighter weight fabrics are recommended for response applications and the heavier fabrics for everyday deployment and recovery or permanent installations.

Different sizes are available to account for a wide range of current, wind and wave conditions. In keeping with the maturity of this design, there also exists a wide range of accessories to meet the customer’s operational conditions. Due to the spherical float shape, GLOBEBOOM® stores very compactly in boxes or on reels. It can rapidly be deployed from various storage options, but can also be left in-situ for long periods of time.



TROILBOOM GP

TROILBOOM is a lightweight, rapidly deployable boom with foam flotation manufactured in PVC or Urethane fabric. TROILBOOM is ideal for coastal and port operations where a rapid response to any pollution threat is required. It can simply be pulled very rapidly into the water, either from a container, storage racks, or a boom reel if required. The average deployment time is 3 to 5 minutes for 200m, and there is no need for any ancillary equipment such as air blowers when deploying the boom.

Due to the highly flexible construction, TROILBOOM has very high wave following characteristics and is therefore able to ride out and provide a usable barrier in much stronger weather conditions than many of its competitors. TROILBOOM is available in four different sizes from 0.45 to 1.1m overall to suit most applications and 3 different versions depending on the customer requirements. TROILBOOM is also available with a wide range of ancillary equipment including various storage reels and racks, tidal compensator's, towing and anchoring sets etc. Many thousands of meters of TROILBOOM have been supplied since it was introduced over 35 years ago.



CONTRACTOR SPECIAL BOOM

The Rapid Response Boom

Contractor Boom is a lightweight boom that is ideal for operations in ports, harbours, inland and coastal waters. Due to the simple, reliable construction the boom can be immediately deployed. Contractor Boom incorporates closed cell PE foam logs in welded float pockets. Above the flotation member a strong 6.4 mm galvanized plastic coated wire is placed. The lower edge of the skirt contains a pocket with a galvanized ballast chain.

200 meter of the boom can be deployed in less than 5 minutes without any special ancillary equipment. The boom is available in dimensions from 10" to 36". Our more popular models are 18" and 24".

Contractor Boom is standard manufactured in bright orange PVC coated polyester. The smooth profile of the boom facilitates cleaning after use in an oil spill.



TROILBOOM AF is a lightweight rapid response inflatable boom with a similar design to RO-BOOM, ideal for situations where a quick response is required, but a solid buoyancy fence boom is not suitable.

The boom is manufactured as standard in bright orange PU for durability, flexibility and strength. A ballast chain and top wire provide a high tensile strength.



BOOM WINDERS

DESMI manufacture a wide range of winders for our booms, enabling them to be used in various situations.

We are able to produce them in a variety of sizes, to hold different capacities of boom, and as containerised winders if necessary to meet customer requirements.

We are also able to produce them with either hand, electric or hydraulic operation, and with ISO corners if required to make storage easier.

Also, we have options for chain or direct gear drive, 4 way forklift channels for easy handling, DNV Certified reels and compact reel design for air craft mobilization.



STORAGE RACKS

If a winder is not a storage option, then more cost-effective storage options can also be offered in the way of storage racks for the TROILBOOM and A-BOOM.

These lightweight aluminum racks allow the boom to be fleeted in and stored, ready to be pulled out and deployed at a moments notice. This has the additional benefit of requiring no hydraulic power for deployment.



SPEED SWEEP

Up to 3 knots without entrainment

The DESMI Speed Sweep is an advancing sweep system that can operate, collect and store oil at speeds of up to 3 knots without loss from the apex.

The principle of operation is based on specially designed, high strength, flexible Kevlar cross members that slow the speed of the surface oil to prevent entrainment while in advancing mode. The Kevlar cross members are positioned across the apex of the boom.

The physical size, shape and positioning of these member or inhibitors, are important and extensive testing and collaborative computer modeling has resulted in a proven product.

The DESMI Speed Sweep has even been towed at speeds of up to 5 knots without damage or breakage. It can collect and store oil and can be off loaded using a traditional weir or oleophilic skimmer to pump out from the apex. The Sweep can operate with 2 vessels; 1 vessel and a jib arm and or 1 vessel and a Ro-Kite.



The DESMI RO-KITE is a floating water kite based on a combination of trawl door and ram-air parachute principles. The purpose of this device is to act as a flow powered 'towing vessel' for oil boom systems. This can be either in fast flowing waters or in fast sweeping operations from OSR vessels.

The DESMI RO-KITE obviates the need of an extra towing vessel, a jib arm system or, in fast flowing waters, the need of several anchor points.

The DESMI RO-KITE is designed for boom operation where strong currents or high speeds are factors during an oil spill recovery. Use of the Ro-Kite provides a cost efficient recovery of floating oil as it enables a single vessel to operate a boom in a U-formation e.g. the DESMI Speed Sweep.



RO-SKIM

The Ro-Skim sweep system uses a modified section of Ro-Boom to mount a hydraulically controlled inlet weir skimmer together with a choice of DOP pump to recover a wide range of oils in a traditional sweep. The Ro-Skim is normally fixed to be at the apex of the boom in a J or U configuration.

However, the design allows for more than one Ro-Skim in a sweep and these can be either joined together or strategically positioned in the cusp.

Either way, capacities and areas of influence can be significantly increased. RO-SKIM is available in 2 sizes 1500 & 2000, but we can offer variations with the range of DOP pumps.



ZUH (ZIPPER UMBILICAL HOSE)



A revolutionary approach to the management of hydraulic & discharge hose systems commonly found between skimmers and power packs. The DESMI ZUH not only enhances safety when dealing with high pressure hoses, but allows for the inspection and replacement of damaged or aged hoses.

The DESMI ZUH is manufactured from a very robust, flexible, heavy weight, abrasion resistant polymer. It has integral sealed foam flotation and a very special & unique zipper system that allows for the opening and closing of the umbilical. The zipper, which runs the length of the umbilical, has high tensile strength but is flexible enough to allow the ZUH to be stored and deployed from traditional hose reel systems. The DESMI ZUH can be manufactured in various lengths to accommodate most hose sets including the longer configurations.

The ZUH can be supplied with any number of hydraulic hoses and sizes which are neatly tagged to the inner skin. In addition, the client is free to use either lay flat or semi rigid discharge hoses thus increasing the flexibility of the DESMI ZUH.

OCTOPUS IN-LINE SKIMMERS

The DESMI Octopus In-line Skimmer is designed for collection of particularly medium viscous oil, but also performs very satisfactory on light oil, even down to 200cSt.

The unique designed brush belts ensures an optimal oil access to the bristles. The skimmer design base on one module comprising five brush belts. The brush belt module are forming a collection area in front of the buoyancy wall of the skimmer, where behind a DESMI DOP Dual 250 is placed. All connections for hydraulics and discharge are behind the boom system for easy connection.

This special designed skimmer has a progressive oil recovery capability compared to the well-known DESMI Ro-Skim, which is a more traditional weir skimmer. The buoyancy wall of the DESMI Octopus In-line Skimmer has hinge connectors to allow the incorporation in a DESMI Speed-Sweep, which have connectors in the center of apex.

The collecting system enables the skimmer to operate at high pickup rates with a minimum of water content. This was proven at the ASTM standard test protocol program in OHMSETT where an oil efficiency was measured to 98.4% on oil type I-II (7°C) 500-800cSt.

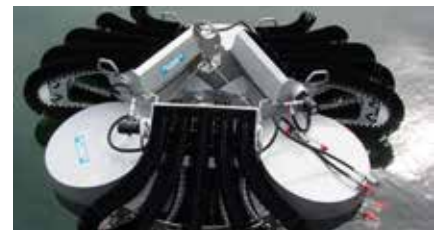


GIANT OCTOPUS

The GIANT OCTOPUS skimmer is a development of the popular HELIX and TARANTULA skimmers, and features a revolutionary collection system containing 15 belt/brushes in 3 modules. These allow the skimmer a 360 degree oil recovery range, and the maximum possible collection surface area. The skimmer has 2 powerful on-board DOP-250 DUAL pumps, and is able to offer high capacity skimming for offshore applications using well proven components and is more than ready for the toughest applications. The pumps are of a tried and tested design which has been in use in various applications for more than 30 years.

This powerful skimmer is available as part of a containerised package to ensure that it is ready to be

transported to site and deployed rapidly in the case of an emergency. At the OHMSETT test facility, the GIANT OCTOPUS showed a remarkable versatility in terms of recovery of high volumes of light crude oils as well as high viscosity oils. Due to the revolutionary collection system, the GIANT OCTOPUS recovers less water than other skimmers during operation, thereby reducing the need for primary storage capacity when the skimmer is in operation. Through this, users which replace the skimmer head of similar capacity traditional skimmers with a GIANT OCTOPUS may gain a substantial saving in storage facilities such as barges, etc. This advanced machine has been supplied to most response corporations around the world including OSRL, PAJ, OSCT & SSB in China.



LARS - LAUNCH & RECOVERY SYSTEM



The design of the TARANTULA skimmer has benefited from a continuing development program over nearly 25 years. All components are manufactured in marine grade aluminum, stainless steel or polypropylene. Wireless remote control and thruster system to allow remote positioning of the skimmer head and operation of the hose reel is available for the TARANTULA.

The TARANTULA incorporates 2 DOP-250 DUAL pumps that deliver a combined capacity of 250m³/h and can develop discharge pressures up to 10 bar while maintaining good flow. They are capable of pumping a wide range of oils even with high viscosity and are fitted with cutting knives that will handle many types of trash found in oil spills.

The TARANTULA offers high capacity skimming at an affordable price combined with well-proven components. Additional modules can be mounted on top of the TARANTULA for highly selective oil recovery. The TARANTULA also has removable floats to maximise stability and minimise the storage space required between deployments.

GIANT OCTOPUS RECOVERY SYSTEM

Mounted on a 20' flat rack complete with ISO corners the Giant Octopus Offshore Recovery system has been developed to enhance deployment and recovery.

A hose reel and an integral jib crane within the DESMI power pack completes the system. This enables an easier deployment and recovery of the Giant Octopus skimmer especially with the management of the hoses. The skimmer head enjoys a single point lift and the jib crane can easily deploy from harbour wall or ship's side.

The DESMI power packs can also be supplied with an air blower unit which can be used to inflate various booms. This feature can reduce the total amount of equipment required and hence save on weight and space.



TARANTULA



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TARANTULA XL

The DESMI TARANTULA XL is a high capacity offshore skimmer, built to recover oil from both the light to heavy viscosities. It can also operate with a disc or brush bank cassette. The skimmer body is manufactured in marine grade aluminum and stainless steel. It has the famous DESMI self-adjusting weir lip, which has proved itself in so many real life operations. The floats are easily raised in to a 'park' position which minimizes the XL's footprint.

Of special interest are the 3 on-board DOP-250 Dual, positive displacement screw pumps which give the system a 375 m³/hr. rating with up to 10

bar discharge pressure. In addition, thrusters are fitted as standard to man-ouvre the skimmer into the oil, which is especially important when dealing with heavy viscosities. The entire operation can be controlled by one man, with a radio-wireless control panel.

The hydraulic supply can be from either the ship or from a DESMI 210 kW, diesel hydraulic power pack. Other options include a DNV certified platform for storage, a DESMI ZIPPER UMBILICAL HOSE (ZUH) and powered reel plus the option of disc and brush cassettes.



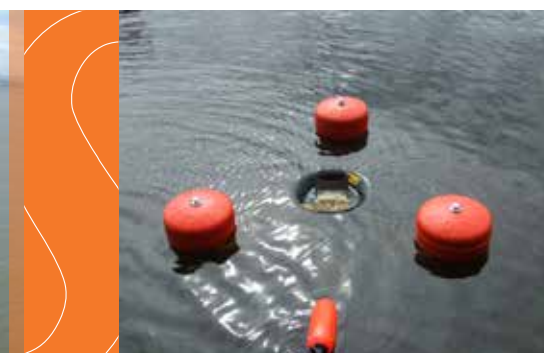
TERMINATOR

The TERMINATOR is one of our most popular weir skimmers, and incorporates the powerful DOP-250 DUAL pump which contains three cutting knives to slice through any trash or debris the skimmer may encounter. All components are manufactured in marine grade aluminum, stainless steel, or polypropylene. Various options are available for this skimmer including wireless remote control, thrusters, plus the possibility of adding disc or brush modules for ultimate versatility.

The configuration of the pump allows for uninterrupted access to the weir, and maximum recovery capability. Due to the clever vertical screw

design the pump is able to handle a mixture of extremely viscous fluids and water without loss of discharge pressure or emulsification of the oil and water.

The advantages of the TERMINATOR include the fact that it is suitable for light or heavy oils, it has a very high discharge pressure, has a self adjusting weir, and the option to have thrusters for remote positioning of the skimmer into nearly any location. The skimmer also benefits from low weight in comparison to its size, and due to the fact that it is manufactured from tough components, there is an extremely low amount of maintenance needed.



TERMINATOR MODULES

For convenience and versatility, the TERMINATOR skimmer has been designed to be easily modified depending on the oil type, with various optional modules including BELT, DBD, and HELIX, allowing

this skimmer to recover almost any type of oil. This makes the skimmer highly flexible and a good base on which to add if the types of oil handled change at a later date.

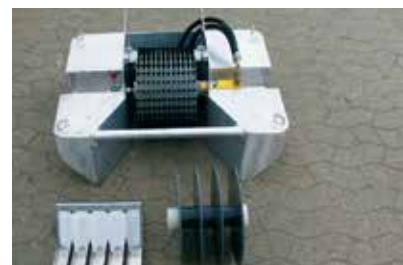


DBD - DISC, BRUSH-DRUM SKIMMERS

The DISC/BRUSH-DRUM (DBD) skimmers are produced in a variety of configurations – single, twin or triple banks of rotating oleophilic (oil attracting) surfaces powered by independent hydraulic, electric or pneumatic motors.

Oil is recovered from the surface of the water as the discs/brush-drum banks are rotated. The recovered oil is discharged and collected in the central sump on a continuous basis. These systems provide for highly selective recovery with minimal water content.

The DBD skimmers can be delivered in various sizes with capacities from 2-100 m³/h recovery capacity. All of them with easy change between Discs and Brush mode.



The HELIX Circular Brush System presents a significant advancement in skimmer technology. This circular brush skimmer is the result of several years of research and development.

The oil is able to flow freely onto the brushes from any angle which is especially important for heavy and thick oils. This gives significant operational advancement over square or rectangular units.

The HELIX is delivered as a complete skimmer with either the DOP-250 DUAL, DOP-200 DUAL or DOP-160 depending on capacity requirements. The HELIX can be supplied as an adaptor for mounting on existing skimmers such as the TERMITE and TERMINATOR and is also available with external floats for increased stability.



BELT SKIMMERS

BELT skimmers are excellent at recovering highly viscous oils – again with a low water content. Supplied as standard with a DOP-250 DUAL, this powerful skimmer is able to operate in either direction (depending on the oil type) to quickly

remove oil from the water surface. It can be offered as an independent skimmer, or as an adaptor for the TERMINATOR skimmer. It can also be supplied with options such as remote control and thrusters if required.



POLAR BEAR ICE SKIMMER

In response to increased exploration and exploitation of the polar regions, DESMI has recognised the need for a skimmer designed specifically to operate in these harsh conditions. After 3 years of development, the POLAR BEAR ICE SKIMMER has been designed and manufactured.

It is based on the popular HELIX skimmer, which we found to be such a versatile machine, that it could easily operate in icy conditions with no ill effect. However, this flexible design was modified and adapted to suit the harsh polar conditions and a strong frame was added. This skimmer is now one of the most well-suited products available.

Due to having no external floats outside the collecting members (brush-modules), there are no restrictions when the POLAR BEAR interacts with the surrounding surface. The skimmer head is designed so that when operating in icy waters, the ice will be pushed aside and therefore cannot be trapped in the skimmer.



TERMITE

The TERMITE is one of our most popular skimmers. This skimmer is based on the proven TERMINATOR design but it incorporates the smaller DOP-160 pump, which enables it to have an extremely shallow draft. The TERMITE system provides a lightweight package that can skim and transfer many types of oil and operate effectively in open, harbour and inland water conditions.

The TERMITE utilizes the same large free-floating weir lip as the TERMINATOR skimmer, which has

been in production for years. This flexible, high buoyancy weir system allows nearly 6in of vertical travel for excellent wave following, even in choppy seas.

The weir height automatically adjusts to match the discharge rate of the pump, making the skimmer easy to operate and ensuring high recovery efficiency at all flow rates. OHMSETT testing proved that this weir skimmer could achieve average recovery efficiencies greater than 80% in wave conditions.



ALLIGATOR

The ALLIGATOR and ARMADILLO belt brush skimmers have a bi-directional belt. In underflow mode (with the belt going down into the oil) the skimmer can achieve a high recovery rate with lighter oils.

In overflow mode (belt coming up out of the oil) the skimmers can recover thick layers of heavy oils with very little water - as low as 2%. The ARMADILLO is a BELT skimmer designed to be used as an independent skimmer, and the ALLIGATOR is a belt brush skimmer. However, both work on a similar principle for recovery.



MINI-MAX

The MINI-MAX skimmer head can be connected to any self-priming suction pump. Capacity and viscosity handling of the skimmer head is determined by the suction pump or vacuum system attached to the skimmer. Vacuum systems can pull a deep suction. It is ideal for small industrial separators, tanks and waters.

This skimmer can be coupled directly to a vacuum truck or other suction pumps such as diaphragm

pumps. In this mode it may be considered for use in hazardous areas. The MINI-MAX is ideal for skimming a wide range of products – as long as it floats and flows the MINI-MAX will be able to recover it!

We typically package the MINI-MAX with a diesel driven 3in diaphragm pump in a convenient aluminum, PE or wooden storage box. We can also provide various other pumps as options for the MINI-MAX as per customer requirements.



RO-WEIR

The RO-WEIR is a lightweight aluminum floating suction head which can be connected to any suitable suction device. It is highly flexible and can be used in many situations, from open lagoons to oil sumps. It consists of an angled hand tool for manual guidance of the suction head, a 1m straight pipe with 2 PE hose floats, and a 0.3m suction pipe for use in minimal space.

It is an extremely low cost but powerful skimmer system which requires a minimum amount of storage space.



TERRAPIN



The TERRAPIN has been designed with industrial applications in mind. The unit may be used free floating with a 1¼in suction hose connected to the underside. Alternatively a suction hose, connected to the top of the skimmer, can suspend the TERRAPIN. The diameter of the TERRAPIN is only 410mm / 16in, which permits access into tight and possibly hazardous areas.

The TERRAPIN is constructed in marine grade stainless steel, moulded polyethylene and polyurethane – making it resistant to oils and many environments found in industrial applications. The unique bellows can also be supplied in Teflon. As the skimmer is intrinsically safe, it is therefore ideally suited to applications in these safety conscious industrial environments.

MOP SKIMMERS

These machines are extremely versatile and flexible, and can be used in many applications, including through small access holes, hanging from vessels, or in dangerous conditions (Special models).

The smaller models of this skimmer are extremely portable and can easily be carried to site by 2 people.



DOP PUMPS & INJECTION FLANGES

DOP-250 DUAL, DOP-200 DUAL & DOP-160. Available in skimming or off-loading versions the 3 sizes of pumps have the ability to pump a wide range of oils, or oil and water mixtures, with a discharge pressure up to 10 bar/147 psi. The hydraulically driven stainless steel screw rotates inside a lightweight aluminum housing.

All DOP pumps contain cutting knives to prevent any debris being trapped in the pump and these, combined with a pressure lubricated screw bearing, greatly increase the reliability of the pump. DESMI manufactures an extensive range of pumps including centrifugal, internal gear and vertical screw. The DESMI screw pump was introduced over 25 years ago and has subsequently been developed and improved to become the most widely used viscous oil pump in the oil spill response industry today.

Over 2,000 submersible screw DOP pumps have been supplied to more than 100 countries around the world.

DESMI conducted extensive bitumen pumping tests in house. All the testing showed that a relatively small amount (3-6%) of water injected into the pump discharge line with an injection flange or camlock forms a thin layer surrounding the column of oil that is traveling through the hose.

A system comprising of an injection flange and high-pressure water pump was developed and tested over a two year period. The resulting system means that heavy oils can be pumped further and higher. We also offer a steam version of the above for even greater pumping distances with higher viscosities. Pressures of up to 13 bar available with the DOP200.



BARGE PUMP-OFF UNIT (BPU)

DESMI have developed a range of BARGE & BILGE PUMP-OFF UNITS to safely, quickly and efficiently empty storage barges regardless of content. The BPU's satisfy a range of flows and barge tank depths using the famous DOP, positive displacement pumps.

The BPU 250 is an all-aluminum and stainless steel permanent mount barge pumping system.

The system can be designed to any hatch diameter and depth due to a proprietary design which places the pump at the bottom of the tank, taking full advantage of the DOP pump's impressive flow and discharge head to evacuate the fluids, regardless of viscosity.



POWER PACKS

DESMI offer a comprehensive range (3.1kW to 210kW) of diesel and electrically driven multipurpose hydraulic power packs and hydraulic power units for operating all hydraulically powered equipment, but specifically our oil spill control equipment such as boom reels, skimmers and pumps. Many of these power packs are offered with two or more hydraulic circuits for operating a range of equipment.

Our oil spill products have been adapted to work with these power packs, thus reducing the number of single function power packs to an absolute minimum. Also available as options are remote control units, wheels, forklift channels, cranes, built-in pumps, or most other specifications to meet the customer's requirements.



CRANE SWEEPER

The DESMI DSPP50 CRANE SWEEPER is a diesel driven power pack complete with jib crane, self adjusting weir skimmer, c/w DOP pump and wireless remote control. It is designed to facilitate oil spill clean-up from the reaches of the crane jib and mobility of the flat bed trailer. The trailer has two large-diameter wheels making it easy for use in 'off-road' conditions and for reaching difficult to access areas such as pipelines and river banks. The DESMI CRANE SWEEPER is equally at home on the port or dock side to recover spilt hydrocarbons from the water.

The DESMI self adjusting weir can be removed in minutes and the unit can be used as a pump out system. This is especially useful to empty oil tanks or reservoirs that have been used for storage. The powerful DOP pump can handle both very light and very heavy oils.

The power pack can run other hydraulic equipment such as other skimming devices as it is supplied with an additional number of hydraulic outlets.



RO-TANK

The RO-TANK is a high quality durable storage tank that is available in sizes 5 to 50m³ and can be used on land or floating in water (with the addition of an air pillow).

The RO-TANK is moulded in robust reinforced rubber with a Hypalon (CSM) outer layer. The Hypalon external skin has high abrasion and puncture resistance that will withstand long periods of exposure to sun and many types of liquids. RO-TANK lies completely flat when empty, allowing it to be rolled for storage.

These features mean that the RO-TANK is highly versatile and can be used for a wide variety of operations.

In addition we have developed a product which can efficiently and quickly clean the inside of RO-TANKS after use without removing the ends. It is a spray

probe that can be simply inserted through a port hole in the tank after a partial air inflation and operated with a suitable pressure pump such as one of the DOP series.

The spray pattern has been developed to remove stubborn pollutant and difficult to reach areas within the tank in-situ. The process is done without leakage to the environment and drainage can be completed during or after operations through existing connections. Twin systems can be deployed on much larger tanks or the single probe can be simply repositioned in another port hole.

The port holes can be generated in existing tanks thus allowing the client to upgrade to the DESMI tank cleaning system with a minimum of cost. Total packages, including all fixings and pumps are available.



TROILTANK

The TROILTANK is a rapid deployment storage tank available in sizes from 1,000 liters to 10,000 liters for use on land. These are supported by a lightweight frame which is rapidly erected. This makes the TROILTANK exceedingly simple and quick to erect.

The TROILTANKS are manufactured in either PU or PVC, and all tanks are extremely light for their size and relatively easy to transport. TROILTANKS are suitable for temporary storage of many kinds

of liquids including oils and wastewater, and can also be used for the temporary storage of oiled materials (clothing, sorbent, trash) prior to disposal, decontamination of personnel and small equipment, etc. Most TROILTANKS are light enough for one person to carry and can be stacked for storage. The TROILTANK offers a lightweight and versatile solution to the problems of temporary storage of oily wastes. It is a valuable addition for any oil spill cleanup operation.



DOAS

The DOAS transfer system is unique in its class. It was designed for safe off-loading of RO-TANKS or ship off-loading but can also be used for emergency fire as emergency fire fighting with water discharge pressure up to 13 bar.

The DOAS adapters are mounted with the DOP positive displacement pump, making it ideal for oil spill applications. It is capable of handling a wide range of fluids even with trash content. The screw and casing are fitted with a sturdy cutting knife arrangement for slicing through or crushing marine grasses, seaweed, line and plastic.

Available in a variety of sizes from 30-125 m³/h pumping capacity.



RO-VAC MK MINI

Portable vacuum and transfer system. The RO-VAC MINI is a portable vacuum system for the suction of oils and liquids from the ground or water. The vacuum pump is able to suck oil from surfaces unlike regular pumps. The system is also available with a storage hopper for convenient temporary storage of recovered oil.



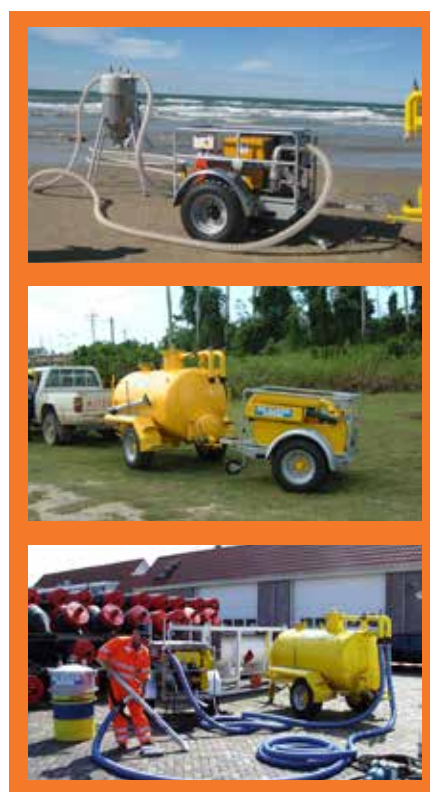
The RO-VAC MINI pump can be supplied to pump the recovered oil from the storage hopper to further storage or tanker. Indeed, the pump can be used as a stand-alone, diesel driven unit for use on other duties.

RO-VAC MK III

The RO-VAC MK III is a successor to the popular RO-VAC MK II. Building on the huge success of the previous model, the new MK III uses a larger and more powerful drive in the form of a twin cylinder 15kW Hatz diesel engine. A 50% increase on the old model. In addition the vacuum pump is now driven by hydraulics rather than a belt drive giving the operator even more operational control. It is an especially effective tool for beach cleaning and pipeline spill operations and used in a variety of modes according to the spill situation.

The RO-VAC MK III's power plant comes in a robust galvanized steel frame with engine vibration mountings. It includes the large diameter wheels and large footprint tyres suitable for both road and off road towing.

The unit also incorporates a high-pressure jet washer with hand lance. The washer is also hydraulic drive via a PVG control valve. The hand lance is trigger activated and a chemical dosing ejector nozzle with pick-up tube allows for chemical dosing.



RO-TANKER

The RO-TANKER is available in 2, 4 and 5m³ capacities and is designed to operate with the RO-VAC MKII or other suitable vacuum pumps. The RO-TANKER has been designed to provide the operator with the most versatile system for transport and disposal of recovered oils and liquids.



The RO-TANKER is fitted with large diameter wheels for off-road towing and a large diameter access hatch at the rear.

Road lighting and fully braked wheel systems are also available and extend the operational area of the tanker.



OPA90 DECK SPILL KIT

The DECK SPILL KIT comprises of well-proven equipment and has been formulated with the assistance of major ship owners and operators. The contents cover all the areas required such as oil absorbents, hand tools, containers and an optional pump.

This kit is convenient, good value for money, and also extremely compact, so it is possible to have

kits in every situation where they could be required.

The whole kit is contained in a strong waterproof, portable, impact resistant black plastic storage container. The contents can be changed and adapted to suit the customer's requirements.



BOOM SUPPORT ANCILLARIES

One of the secrets to the success of the many DESMI permanent boom installation is due to the boom support ancillaries. These have been carefully designed, manufactured and installed globally where their proven performance is world class.

The ancillaries include but are not limited to, flexible mooring systems, tide slides for both wing wall and pile installations, anchor points that evenly distribute loads and flexible cable guides

Special attention is also given to the materials of construction, wave and tide heights, current or water speed and a host of other climatic, mechanical and environmental considerations.

This coupled to the unique booms DESMI can offer and our 360 degree approach to all project or retrofits results in the lowest life cycle costs in the industry for permanent boom installations.



BOULDER CLEANER

BOULDER CLEANER is a new product from DESMI. It is hydraulically driven and can be connected to any self-priming suction pump or Ro-Vac unit. The BOULDER CLEANER is an innovation in the way oil spills in difficult conditions can be cleaned up. This new unit allows the operator to rapidly recover oil whilst “brushing” the rocks. It can also be used on oil on the water surface, or nearly any other surface you may encounter.

The BOULDER CLEANER skimmer head has a small hydraulic motor which is used to power the brush unit which makes contact with the oil. However, due to the versatile suction lance the single operator is able to direct the skimmer head to any awkward areas or difficult surfaces whilst remaining at a safe distance. Due to the construction of the BOULDER CLEANER from sea water resistant aluminum, the system is extremely rugged, but very lightweight.



CONTAINERS

CONTAINERS are offered in economical standard or custom versions for shipping, storage and transportation of equipment and materials.

Sizes from 8ft to 40ft are available, manufactured in various materials and supplied in different colors.

Where required, ISO corners, custom doors and forklift channels can be fitted. Containers from DESMI have been supplied to customers worldwide over the last 30 years, many of which are still in use, and will be for many more.



WIDESPRAY DISPERSANT SYSTEMS

The WIDESPRAY DISPERSANT SYSTEMS comprises of a diesel driven pump set, a pair of height adjustable spray arms fitted with special nozzles and a set of hoses for the suction of sea water, dispersant and discharge to the spray arms.

The spray arms can be supplied in various lengths dependent on the size of the vessel the system is to be used on, which makes this extremely flexible. The system is also transferable between vessels if the need arises.

The system is also available in an electrically driven set. The driver can be either single or three phase with voltages to suit. Starters and isolators can also be supplied as part of the skid or as separates for remote mounting.



POLLCAT

With a robust steel catamaran hull, and a built-in oil mop system, the POLLCAT is ideally suited for rapid response and recovery in the event of an oil spill.

The POLLCAT has a clear rear deck, recovered oil storage, and a hydraulic crane, making it an extremely versatile tool. The oil mop system can be complemented and boosted by the use of additional skimmers such as the TERMINATOR operated from the deck.

In addition to the above mentioned features the POLLCAT also offers a large cruising range, and a reasonable pumping capacity of recovered oil.

The twin engines mean a POLLCAT is an extremely versatile vessel and ensures it can remain on station and in the oiled area for as long as possible.



POLLCRAFT

The POLLCRAFT is a stable 10 or 12m mono-hull multipurpose platform which offers good all-round facilities, a large clear rear deck area, and a hydraulic knuckle crane as standard.

It is ideal for a wide range of cleanup duties in ports, terminals or harbours, but can also be used in more challenging roles if required. The vessel has a recovered oil capacity of 10 m³, and a pumping capacity of 30 m³/hr increasing the vessel's flexibility.



POLLKITTEN

As the smallest vessel in the range, the POLLKITTEN is highly flexible with a shallow draft and is ideally suited to sheltered terminal and harbour applications.

With a built-in oil mop system, the POLLKITTEN is able to rapidly respond and recover any oil pollution. This vessel has an oil recovery rate of up to 20 m³ per hour, and a pumping rate of up to 30 m³ per hour.

For convenience, a knuckle crane can be mounted, and the vessel has inbuilt storage for recovered oil.



KAZI-CAT

Kazi-Cat is the newest version of DESMI's versatile workboats where focus point has been Container Modules giving Multi-Purpose Functions just by changing containers. The Kazi-Cat can be used as state-of-the-art Oil Skimming Boat and even with a new recovered oil tank concept where the recovered oil tanks are replaced within 15 minutes, the Kazi-Cat can be in operation again.

Besides this task the Kazi-Cat can be used as transport of up to 12 people in special container, as transport of up to 4 injured people in special container and much much more.





ENVIRO-CARE

DESMI EnviRo-Care business operation is to reduce the pollution of plastics in the oceans by collecting & recovering the marine debris pollution as close to the source of pollution as possible. Thus, the ocean bound plastic challenge is our priority as part of the global policy agenda on the ocean conservation.

DESMI EnviRo-Care offerings are not limited to clean-up projects. In addition we deliver environmental solutions, social & economic benefits, increased awareness trainings and ease of mind for our customers, partners & other stakeholders.

ENHANCER - SERIES

Marine Life friendly trash remover

DESMI units under Enhancer – series are designed to collect & recover floating marine debris from streams, rivers & canals. They are designed to operate under a wide range of tidal conditions and water flow rates with minimal maintenance and longevity in mind. Their remarkably simple & open construction ensures no harm to marine life and serves to contain much of the floating surface debris. Units under Enhancer series utilizes heavy-duty HDPE pipes to ensure a robust & elegant design for the floatation of the units. The proven DESMI booms streamline the marine debris & guides it into the unit. The units in this series floats on the surface of the water, rising and falling with tides and runoffs.

Enhancer - series units are known for their performance, simplicity and durability. There are two main versions in the series that are classified as E-B version and E-N version.

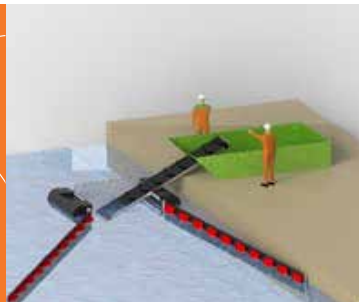


RISE - SERIES

Environment friendly trash remover

DESMI systems under Rise – Series are smart surface debris collection systems. These automated systems are designed to guide the marine debris for easy recovery with sequential belt designs. Serving the purpose to contain much of the floating surface debris, allowing the water to pass while allowing marine life to stay unharmed is a statement that defines EnviRo-Care systems.

The Rise series is equipped with electrically driven belt systems that lifts the debris out of the water draining away free water. The Rise series is based on conveyor technology powered by highly efficient electrical motors causing negligible CO2 emissions during its operation. These systems are made in marine grade aluminum whereas, the buoyancy is created by high abrasion resistant pontoons. With the modular design, this series ensures ease of shipping, storage & assembly.



TREAT – SERIES

Affordable trash remover

The units under the Treat series are lightweight, low cost, waste recovery units and designed for the use in areas with lower capacity demand and with eventual difficult or limited access. The unit is portable and can be operated by one person.



The recovery bags for waste collection can be light, cheap and disposable or reusable type. Treat series is an optimal solution to ensure unclogged waterways.

AWARE – SERIES

Remote friendly trash remover

The DESMI's Aware series is a unique series that includes remote controlled mobile units, designed for the waterbodies with no or bilateral flow.

This series offers a floating platform mounted with four pontoons giving a high buoyancy and adjustable waterline. The wide oval entrance opening is placed at the water level to allow free flow for surface debris to enter waste collection bag. This series prioritizes electrically driven motors to ensure negligible CO2 emissions, so that the clean-up agenda has large positive impact on the environment.

The remote operating range varies between 15 to 50 meters for the systems in this series.



BOAT – SERIES

User-friendly trash remover

This Boat series is thoughtfully designed to recover floating debris from harbors, rivers, lakes and other waterbodies. Its simple design helps to improve the efficiency in clean-ups and makes it easy to use & maneuver.

Marine debris are guided smoothly into the specially designed angle at the mouth of the boat and thereafter, with the help of mesh conveyor, the surface debris are collected into an onboard storage area to run away any free water before its disposal.

This series offers a wide variety of sizes, power drives and accessories that enables our partners to find the right solution for different needs and challenges.

Build with strong and durable materials like the HDPE pontoons ensures abrasion resistance & long lifetime.



SWEEP – SERIES

Ocean friendly trash remover

Combating marine pollution with the Sweep series will result in clean shorelines and plastic free oceans. These systems can be utilized to recover marine debris from the wide range of sea & river condition with sufficient water depth and positive recovery speed. From calm in-harbor conditions up to waves of 2- 3 m in the open sea.

This series is an innovative sweep system that may consists of sweeping wings, a collection sock net or even a version of an Enhancer series to recover the unwanted floating material. The Sweep series can have maximum waste capacity of 15 m3.

This series has three main versions, namely S – R, S – M & S – E version.

The S – R version is designed for heavy applications like open sea or fast moving waters.

The S – M version is instead used for light applications and hence, is a light investment system.

The S – E version is an integrated version of Sweep & Enhancer series, where the guides of Sweep series will deliver the debris in the Enhancer series version for speedy recovery of waste material.



Solutions for the excessive seaweed without disrupting marine life.

DESMI seaweed solution has proven to be very efficient and unique, providing a reliable alternative for sargassum management keeping sandy beaches free of sargassum and at the same time removing free-of-sand Sargassum for future utilization as base for paper, medicine, fertilizer etc.

Maintaining excessive seaweed is good for tourism, but it also has a positive effect on marine life.

With our seaweed solutions we create shorelines where people can relax and enjoy the outdoors.

With our proven solutions we are able to deflect and collect the excessive seaweed to keep beaches and shorelines clean and ensure the protection of marine life.



SEAWEED

MESH BOOM

The DESMI MESH BOOM is the result of years of investigation and tests, it is based on a nautical grid that allows water and wind to pass but retains the sargassum, protecting the beaches.



Light weight, high tension strength, and high buoyancy enable the DESMI MESH BOOM to perform in harsh conditions as e.g. big waves and heavy winds.



DESMI SEA TURTLE MKII

The DESMI SEA TURTLE MKII is the ultimate sargassum removal unit. The concept is simple, it is a portable floating aluminum sea grade unit fitted with a stainless steel conveyor belt that removes floating sargassum free-of-sand to a transfer system able to transport sargassum far from the beach, away from swimmers and tourists, avoiding the need of trucks or tractors on the beach.

The complete removal unit is hydraulically driven by an external electrical or diesel power pack. The removal unit has a flexible discharge hose that can be connected to standard water PVC pipes 6" buried under the sand, or rigid hoses.



SPECIALISED APPLICATIONS

DESMI is able to design and produce customised and unique equipment for specialized applications and specific locations. There have been various projects, including explosion proof power packs, long-term boom deployments for many years in adverse conditions and unique rapid response packages.

These are tailored to the customer's requirements and produced on an ad hoc basis. If necessary, please speak to your sales representative to see if we can meet your requirements. Other products and applications available upon request, please ask!!



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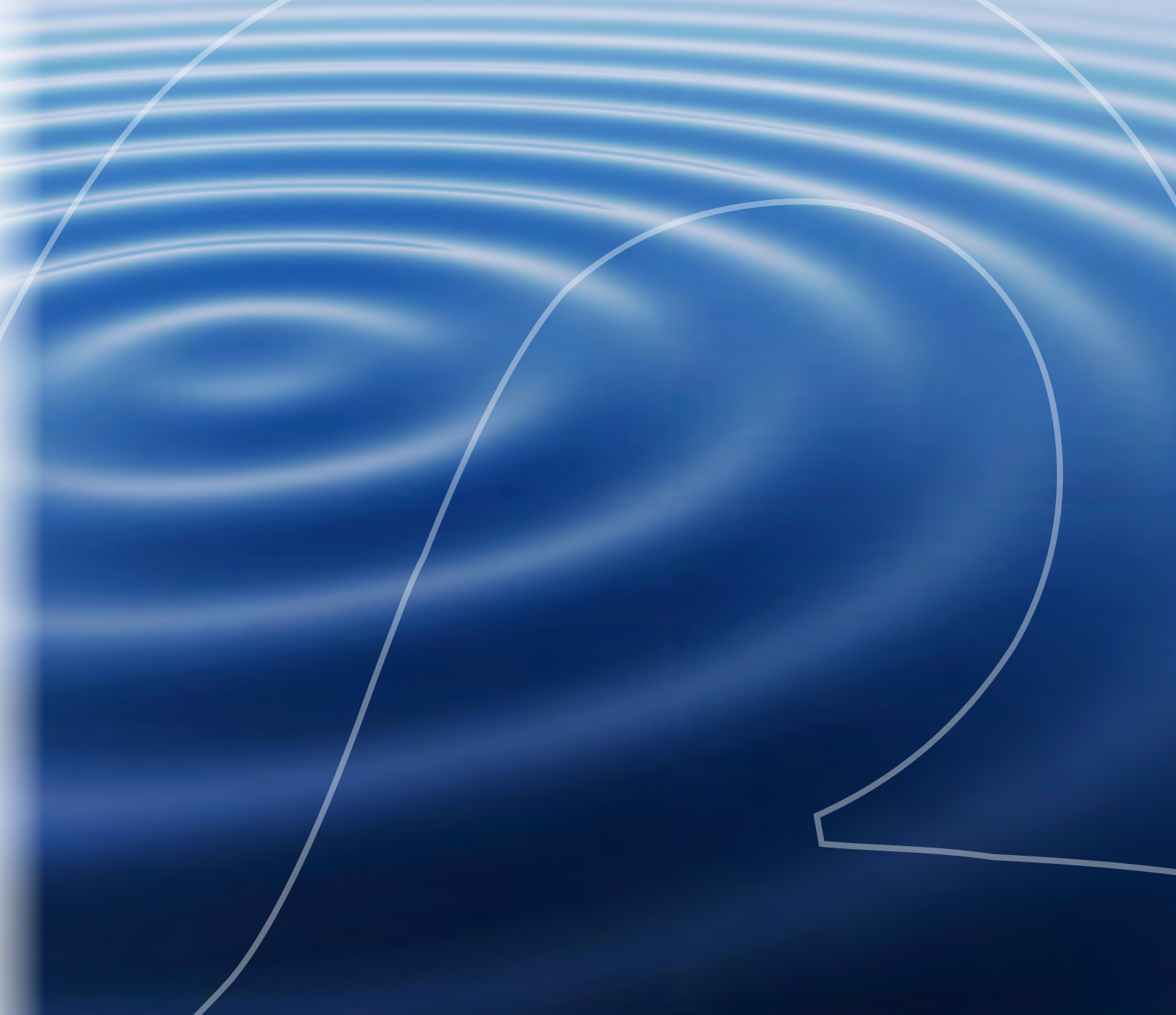
MARINE & OFFSHORE

INDUSTRY

ENVIRO-CLEAN

DEFENCE & FUEL

UTILITY



COMPANY PROFILE

MARINE & OFFSHORE

INDUSTRY

ENVIRO-CLEAN

DEFENCE & FUEL

UTILITY

PROVEN TECHNOLOGY

DESMI

PROVEN TECHNOLOGY

PROVEN TECHNOLOGY - The two words describe the commitment of DESMI within our field of operation.

DESMI pumps are characterised by first-class design and are recognised by our customers as being reliable, efficient, and functional. Our product quality, ability to adapt solutions, and a high level of technological expertise are all factors that make us a serious partner focused on the environmental footprint, energy optimisation, and corporate social responsibility.

DESMI

Founded in 1834, DESMI is one of Denmark's oldest companies and we are proud of having a long history and a strong foundation supplying good, reliable and sustainable solutions, maintaining an innovative approach supplying to the global market.

In recent years, we have received various awards, e.g. the Globalization Prize, Entrepreneur of the Year and the Danish Export Association's Annual Member award. The selection committees have included these highlights in their reasons for nominating DESMI: Very quick implementation of an innovative business concept; high growth in export turnover; strong networking, both nationally and internationally, and finally our strength in showing the courage, the will, and the ability to embrace the global market.

We have what we believe is the right mix of hard work, skills, perseverance, and timing. Factors that are all vital in the daily work, growth, and success. Combined with our overall strategies we are leading DESMI to the Next Level.

We consider ourselves a dynamic company with a solution-oriented approach focusing on our customer's needs, be it pump solutions or systems for any kind of liquid handling and environmental equipment for the recovery of oil spills, plastic, and trash.

Our mission is to develop, manufacture, sell, and service pumps and pumping systems, environmental equipment, and special products related to these areas - meeting the needs of customers around the globe. With this in mind, we are pleased to serve you.... now and for the years to come.



Henrik Sørensen
Group CEO



THE DESMI VISION

“By focusing on customers’ needs, it is our vision to generate further sustainable and viable growth in activity and profit, operating as One Global Company”

DESMI has specialised in the development, manufacture, sale, and service of pumps and pumping solutions for Marine & Offshore, Defence & Fuel, Industry and Utility incl. environmental equipment for oil spill, seaweed, and clean waterways. We are operating globally, but acting locally.

Our product range - completed by products from other leading, world-class manufacturers – is complemented by related services such as the design and installation of pump systems and after sales service through our network of service centers.

The DESMI pumps and systems are sold to more than 150 countries via a worldwide network of subsidiaries and distributors that include 30 DESMI offices at 19 locations

all over the world, a foundry in China, and distribution centers and factories in Denmark, USA, India and China.

In order to meet the customers’ demands for more complete systems, we are providing solutions and systems as well as single standard pumps and components.

Green technology and environmental consciousness in general are very important topics to us, and all our products are manufactured in compliance with the present regulations. Consequently, environmental considerations play an important role when we choose materials for our products and optimize their operational efficiency.

With focus on the individual needs of our customers, we are providing solutions based on proven technology.

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MARINE OFFSHORE

Thousands of DESMI pumps and systems are at work on the seven seas, and these pumping solutions are living proof that our customers are satisfied with the performance of our products.

Energy Efficient Engine Room & Offshore Pumps

DESMI offers more than 100 pump designs and variations, covering all applications of the engine room and ensuring that you will always get the right pump for the job. The pump range includes centrifugal pumps and gear pumps. DESMI pumps are designed for high efficiency, thus consuming lowest power possible.

DESMI 48 - Fast Track

DESMI 48 is a fast track service concept which means that we can supply a wide part of the pump program adapted to your specifications and painted in your color within two working days.

OptiSave™ Energy Saving System

More and more vessels are equipped with the DESMI OptiSave™ energy saving system where fuel can be saved by optimizing pump and fan speed to current conditions.

Pumps for Free

DESMI offers a cash flow neutral investment concept for energy saving solutions for shipowners who want to energy optimize their vessels where the savings are used to pay for the investment.



For more than 60 years, we have supplied marine pumps to the world's fleet - from the largest container ships to the smallest fishing vessels.

Regardless the size of the ship, we know the owners' demands for many years of trouble-free operation, for both marine and offshore installations.

Scrubber Pumps

Our Super Duplex stainless steel and NiAlBz pumps are designed for pumping aggressive chemical liquids in exhaust gas cleaning systems.

Cargo

The NDW pumps from DESMI are energy efficient and well proven for pumping LPG, LEG, chemical and CO₂.

Fine-Fog™

Fine-Fog™ is a fixed water based fire fighting system for local application, developed to suppress or extinguish fire at an early stage before releasing the total flooding system. Fine-Fog™ is approved by the major recognized classification societies.

Ballast Water Management Systems

We are providing fully approved and certified ballast water management systems that meet the IMO and US Coast Guard requirements without any need for adding chemicals or additives. Our systems named CompactClean are developed for being easy to operate, effective in any water salinity (salt, brackish or freshwater) or temperature, and with the smallest footprint in the industry.





INDUSTRY

Chocolate

Half a century of experience in the production of pumps for the chocolate industry and close collaboration with some of the leading producers of plants have resulted in unique pumps that meet the high requirements for careful treatment of chocolate products.

Asphalt & Bitumen

DESMI has a full range of different pumps and matching equipment supporting the handling of bitumen products. Including unique features suited for today's needs and new polymer-based formulations - we have the solution.

Sugar & Molasses

Our pumps are used for pumping different sugar products from cane and beet juice to molasses and finished sugar solutions.

Isocyanate

The leading isocyanate producers are recommending our magdrive pumps as they have been successfully used for a long period of time in many different applications.

Oil Blending

We are one of the leading suppliers to global EPC oil blending projects. Our pumps are used for field gathering, tank circulating, crude oil treating, and high-capacity terminal applications.

Soap & Detergent

Special product features are necessary for being a supplier within this field of the industry. We have the products asked for - and thousands of pumps in operation.

Paint & Ink

For decades our pumps have been used in the paint and ink industry - not least thanks to the magnetically coupled design, ensuring less downtime and lower operating costs.

Pulp & Paper

We have the products and the field experience necessary to be the first choice supplier of positive displacement pumps for the pulp and paper industry.

Aquaculture (Fish Farming)

Pumps from DESMI have been used for fish farming for more than 30 years and, our knowledge of materials for both fresh and seawater means that you will get highly efficient pumps which can help to reduce production costs throughout the process.

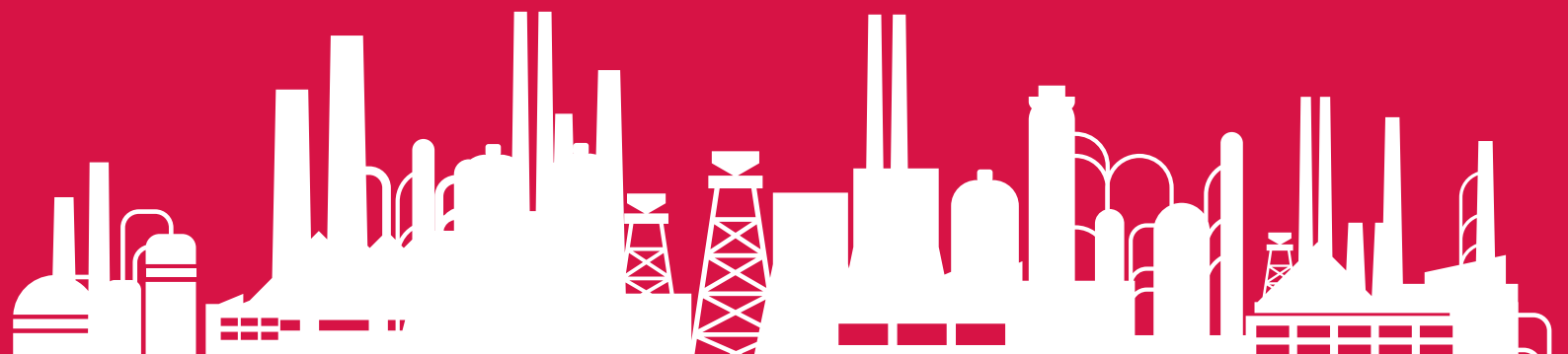
Sprinkler Systems

Moreover, we offer dimensioning and guidance when complete units for fire protection, including electronic control, are supplied. All solutions are in accordance with national as well as international fire-fighting regulations.

Industrial Utility

With many years of knowledge from the utility segment, we are capable of supplying an almost complete range of centrifugal pumps for industrial utility applications.

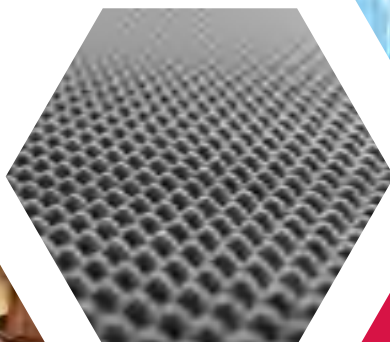
Within all applications, we are making dedicated solutions to match the specific requirement.





The key factors in all areas of the process industry are reliability, productivity, and performance of the production plant.

These are precisely the parameters addressed by the DESMI range of products, systems, and services for the industry segment, and we are the preferred brand and partner when customers are selecting pumps for the process industry, OEM business, and industrial utility.



ENVIRO-CLEAN

Our efficient equipment is easy-to-use and durable and meets the needs of any community at the best life cycle costs.

In the EnviRo-Clean segment, DESMI delivers efficient and reliable solutions for oil spill, seaweed, and clean waterways (EnviRo-Care).

Whether the situation is man-made (e.g. oil spills, plastic, and other trash) or the result of the seaweed overgrowth, DESMI has easy-to-use, durable equipment to efficiently meet the needs of your community.



Oil Spill


DESMI is the market leader for booms, recovery systems, burn kits, and storage systems for oil spill response scenarios within offshore, onshore, near-shore, industry, and even in polar regions, DESMI supplies everything needed to help customers recover from any oil spill.

We are the world's most experienced manufacturers of oil spill response systems and have proven our technology in most of the world's oil catastrophes to date. Fully accredited by the Nautical Institute and the IMO, we pride ourselves on our know-how, strengthened by a loyal, diverse workforce having worked in the industry for many years. 'Proven Oil Spill Technology' is our promise as a complete oil spill response supplier.

EnviRo-Care

The clean-up of ocean bound plastic is one of the most challenging pollution problems ever faced. We have made great advancements in our ability to recover and manage the ocean bound plastics with our award-winning EnviRo-Care solutions. Our objective is to combat the ocean bound plastic as close to the source of pollution as possible to ensure reduced leakage in the oceans.

We achieve this by carefully mapping the tributaries of the world's most polluting rivers and aim to reduce the influx of plastic pollution in the big rivers. This method is designed to make efforts at strategically chosen locations in terms of pollution leakage percentage. Thus, contributing to cleaner rivers and oceans.



The EnviRo-Clean solutions from DESMI are trusted throughout the industry. Whether the requirement is for offshore, or nearshore, the Arctic or Equatorial environment, we continue to deliver proven solutions for all spill conditions including seaweed and clean waterways.

We design, engineer, manufacture, and sell systems for most applications, including ship, boom, and skimmer installations.

We provide professional after-sales support and supply all spare parts throughout the system lifespan.

Seaweed

DESMI provides solutions for the excessive seaweed, without disrupting marine life. With our proven solutions, we are able to deflect and collect the excessive seaweed to keep our beaches and shorelines clean. Our efforts ensure protection of marine life in the waters.

We design, engineer, manufacture, and sell systems for most applications, including ship, boom, and recovery installations. We provide professional after-sales support and supply all spare parts throughout the system lifespan.



DEFENCE & FUEL



Solutions from DESMI Defence & Fuel are highly recognized by armed forces around the world, both Navy, Air Force, and Army.

Based on our well-proven product and dedicated project and engineering team, any Navy ship based pumping system can be supplied by DESMI.

Including everything from the biggest shock-proof seawater or fire pump to the on-deck installed helicopter refuelling systems with our Helicopter In-Flight refueling equipment, Naval Ballast Water Management Systems, and High performance phased array radar cooling, and CBRN washdown systems, DESMI Defence & Fuel is your first choice for naval pumps and pumping solutions and integration. Our many years' experience with systems suitable for working in extreme and harsh conditions and environments enables us to provide total liquid management, from project management and systems integration to procurement and logistics planning.

Pump Solutions for Naval and Coast Guard Ships

DESMI has a long history of providing pumping solutions for military applications, not least within the naval sector. Client demands for equipment reliability under adverse conditions have made our solutions the choice of many navies, of course up to the highest NATO standards in relation to noise, vibration, and shock.



Fuel Handling in Extreme/Harsh Conditions

DESMI offers practical solutions across the full range of fuel handling applications. For use in both the military and commercial sectors, our fuel systems offer proven equipment with reliability and versatility as a key function.

Helicopter Refuelling Systems

To operate a helicopter from the deck of a ship requires availability of fuel for the helicopter. DESMI provides

first-class helicopter refuelling systems, also in explosion-proof and shock-proof versions. Picture shows helicopter in flight refuelling system (HIFR).

Naval Ballast Water Management Systems

DESMI offers Navy and Coast Guard customers all over the world with ballast water management systems that comply with both strict noise and shock resistance requirements of the modern surface combatant and support vessels operating in the naval war scenes over the seven seas.

Being a supplier of pumps and pumping systems for Navy and Coast Guard, DESMI is a strong and reliable partner with deep roots in the commercial marine sector supplying complete pump packages. Our fuel handling solutions have proven their flexibility and versatility on all continents, both in tropical and arctic conditions.

UTILITY

Energy efficient and reliable pump solutions for district heating, combined heat and power, waste-to-energy plants, district cooling, HVAC, etc.

High Efficiency Solutions

DESMI is focusing on energy efficient solutions and has a very competitive product portfolio.

Flexibility - Customer Made Solutions

DESMI has an almost complete range of centrifugal pumps where know-how and flexibility are essential in relation to the individual project requirements.

Tried & Tested, Global Solutions

DESMI has produced pumps for more than 140 years and, therefore, offers "Proven Technology". We have produced pumps for district heating for approx. 90 years. Proven pump technology from Denmark, the country with most know-how in district heating, combined heat and power plants, etc.



Examples of Applications:

District Heating

Denmark was one of the first countries in the world to construct district heating networks. DESMI has taken active part in this development and has developed a very strong product portfolio with focus on high energy efficiencies.

Combined Heat & Power Plants

Also in this area Denmark holds a leading position throughout the world – as the plants mentioned are often linked to district heating networks.

DESMI is able to provide solutions for a long list of special pump applications in such plants, e.g. for the scrubber cleaning system.

Medium/Larger HVAC

Our scope of pump applications includes HVAC solutions in airports, data centers, skyscrapers, hotels, shopping malls, etc. Our offering mainly covers the medium/larger types of pump requirements.

Power Generation

Over the years, DESMI has supplied solutions for a number of power plant applications around the world e.g., for oil fired power plants in Saudi Arabia and UK, nuclear power

plants in China, combined cycle power plants in Lebanon as well as thermal power plants/combined heat and power plants in a number of countries.

Leisure Industry

DESMI's many years of experience with seawater (and chlorinated water) means that we have pump solutions available in bronze alloys, which are very much in demand for larger pools.

Solar District Heating

A key component in solar district heating is obviously the solar panels, but energy efficient pumps are also in focus, and our pumps are used for circulation.

Waste Water

DESMI has many years of experience in designing and planning pumping stations, which are essential parts of a sewage system. We use this experience for each project and ensure that our customers are not exposed to unnecessarily high costs, whether it concerns installation, operation or renovation.

In the utility sector, DESMI focuses on energy efficient pump solutions. We provide solutions that reduce the carbon footprint significantly, while at the same time offering financial viable systems.

Our pumps are specifically developed for use with green technologies such as district heating, district cooling, waste-to-energy plants, etc.



AUTOMATION

With DESMI Automation you get a solution that increases efficiency, competitiveness and enables you to meet future challenges with a green and sustainable profile.

Systems delivered by DESMI, all have a specific and advanced automation solution and with DESMI you get a solution that increases efficiency, competitiveness and enables you to meet future challenges with a green and sustainable profile.

DESMI offers a wide range of automation solutions developed for both the maritime as well as the industrial segment.

Our product portfolio covers solutions from simple motor starters to advanced PLC based energy saving solutions.

We have a flexible work force with a core of skilled automation engineers and technicians, who are located globally.

DESMI handles:

- Technical clarification
- Design
- Programming
- Installation
- Commissioning and service

Automation solutions are developed according to specified rules and regulations, UL standard, EN/IEC standard, ATEX/IECex standard, and all major marine classification societies.

Our commitment to innovation, and hence to developing new automation products for world-wide applications guarantees long-term sustainable company development, and therefore a secure future.

DESMI has a wide portfolio of pumps and pumping solutions, and oil spill equipment, which are integrated with DESMI Automation for optimizing energy consumption.



DESMI DESERVE



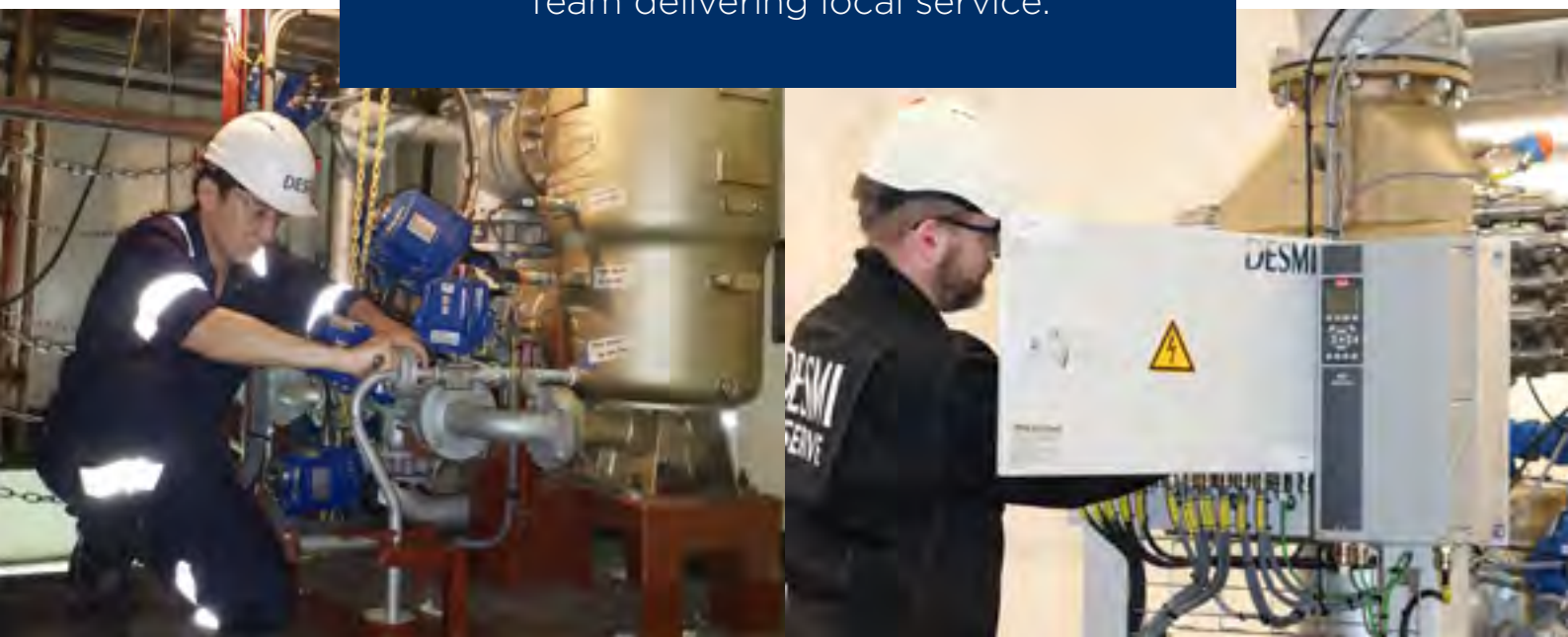
DESMI has for more than 185 years serviced and supported our full product range. One of the key factors in being around for this long is: reliability and trustworthiness, and having a profound respect for our customers and their needs.

The DESMI Service Team operates globally and around the clock. We can offer all services from simple advice over the phone to full on-site maintenance and service programs. The team is highly experienced, factory-trained, and fully capable of meeting both your technical and practical demands.

The DESMI DeServe Team can also offer customized programs to meet specific client requirements and be your preferred partner of choice in case of emergency breakdowns or equipment life-time support.

We can send most equipment within 48 working hours or access our global parts database and ship out needed spare parts from one of our regional warehouses often from day to day to ensure your DESMI equipment is always operational.

Our dedicated global DESMI Service
Team delivering local service.





DESMI always strives to provide our customers
with the very best service!

That's why we have established DESMI DeServe
- your guarantee for an excellent
service 24 / 7 / 365.

DESMI DeServe offers a wide range of services to your DESMI BWMS system to ensure easy and trouble-free operation of your system.

We know that not two customers are alike, therefore, we also believe that understanding your needs and demands is the key to a long lasting partnership in servicing your DESMI equipment.

Our service program is, therefore, put together to offer our customers the highest flexibility to meet the expectations of keeping your BWMS system compliant in the most cost-effective way

Packages

- Pre-commissioning survey
- Yearly compliance survey
- 2,5 years' service
- 5 years' service
- Up-link support
- Training programs



QUALITY

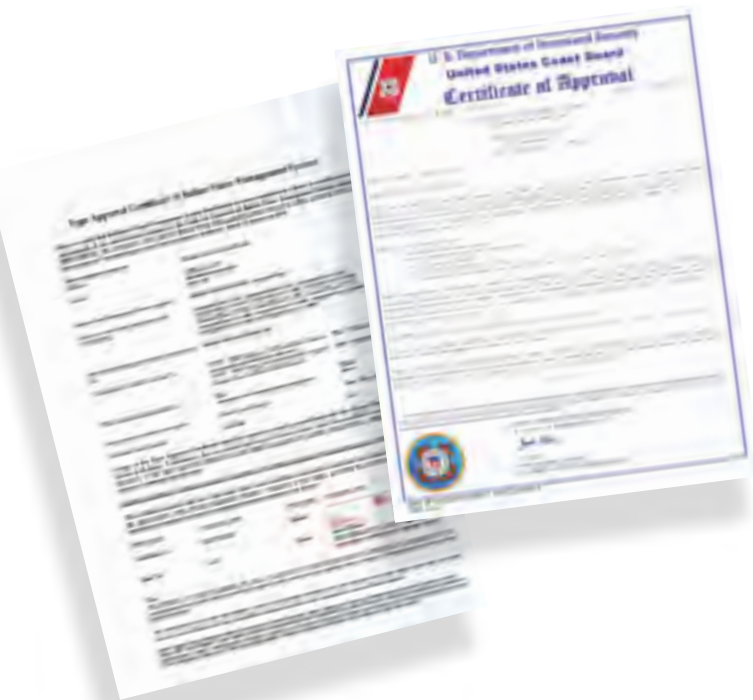
DESMI products are developed, produced, and marketed under the **ISO 9001** quality certification and satisfy all quality requirements as specified by customers.

DESMI products are of such a quality that they are considered to be reliable, functional, and of a good design.

DESMI products must not be dangerous or in any way be a security risk to the customers/end-users when handled and used correctly.

When DESMI performs contract work, the products will be developed and produced in accordance with the same quality instructions that apply to all DESMI products and any supplementary requirements specified by the customer.

The product quality, our ability to adapt, and a high technology level guarantee our customers a partner and a serious problem solver who offers recognised and durable products.



HSE & CSR

DESMI is a socially responsible and conscientious company playing an active role in the local community.



Health, Safety & Environment

DESMI ensures a healthy working environment. We care for each employee's physical, mental, and social well-being, and we are committed to providing safe working conditions in a working environment with contrasting diversity in language and culture.

Our Good Quality is Ensured by our Staff

DESMI's largest asset is our dedicated staff. Their key skills and combined competences ensure that the 'DESMI of the future' will continue to be based on good ethics and healthy values. Customer oriented behaviour, humour, and readiness to change are some of our key values.

Corporate Social Responsibility

Image, ethics and conduct, corporate social responsibility, environmental impact, and the principles of the UN Global Compact are all integrated in the overall DESMI group strategy as it is our belief that respect for the individual and sustainable products and production must be the basis of continued growth of the DESMI group.

Our best opportunity to improve our impact on the external environment is by developing products and concepts that support a reduction in energy consumption, thus reducing their environmental impact.

Consequently, we attach great importance to ensuring that our products are designed, manufactured, used, and disposed of in an environmentally sound way.

We will seek to base our work on a corporate social responsibility within all group companies through the boards of these companies, working on ensuring that all companies in the group still are certified in ISO14001, and continuous improving the environmental aspects.

UN SUSTAINABLE DEVELOPMENT GOALS

Sustainable Development Goals (SDGs) (or Global Goals for Sustainable Development) are a collection of 17 global goals set by the United Nations General Assembly.



This is a Collection of 10 USDG Goals Committed by DESMI.





THE GLOBAL GOALS

For Sustainable Development

For years, DESMI has been committed to sustainable growth and as a natural step now also to the UN sustainable development goals set up by UN, and we stand together with local authorities and other manufacturers to try to make a difference.

For more information, please visit our website



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- DESMI Dealers/Agents

In need of more information or specifications? Contact us at desmi@desmi.com or read more about DESMI and DESMI's other products and solutions at www.desmi.com

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