

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.

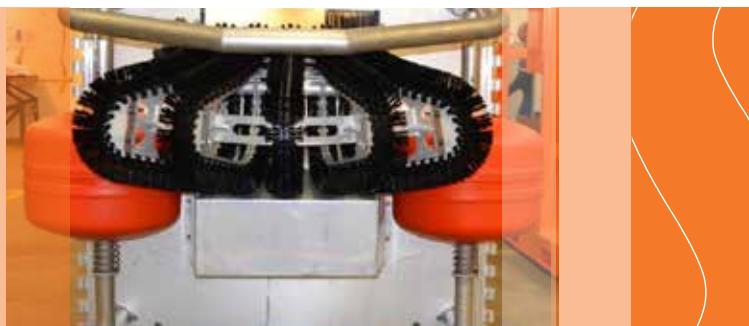
OCTOPUS IN-LINE SKIMMERS

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.

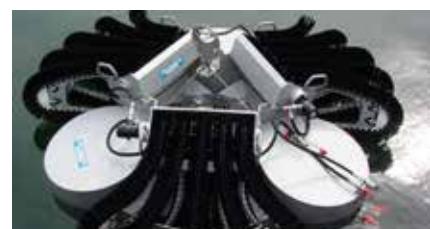
The collecting system enables the skimmer to operate at high pickup rates with a minimum of water content. This was proven at the ASTM standard test protocol program in OHMSETT were an oil efficiency was measured to 98.4% on oil type I-II (7°C) 500-800cSt.



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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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 $375 \text{ m}^3/\text{hr}$. rating with up to 10

bar discharge pressure. In addition, thrusters are fitted as standard to manoeuvre 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.

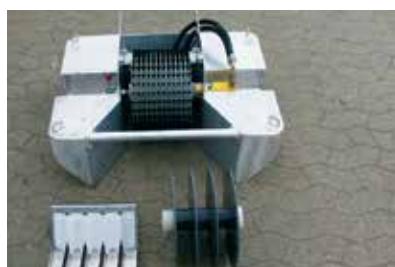


DBD - DISC, BRUSH-DRUM SKIMMERS

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.



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.



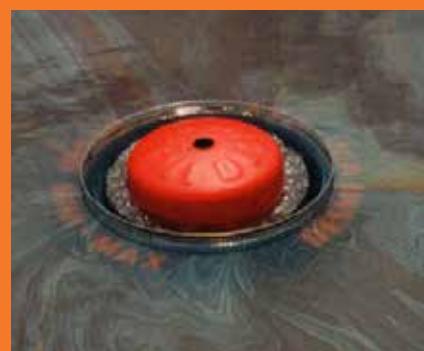
MINI-MAX

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!

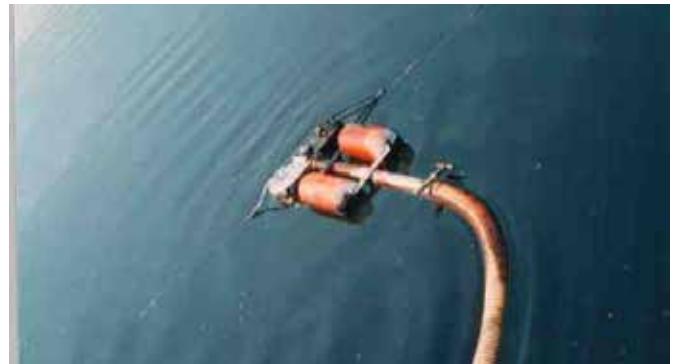
We typically package the MINI-MAX with a diesel driven 3in diaphragm pump in a convenient aluminum, PE or wooden storage box. We can also provide various other pumps as options for the MINI-MAX as per customer requirements.



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 sums. 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.

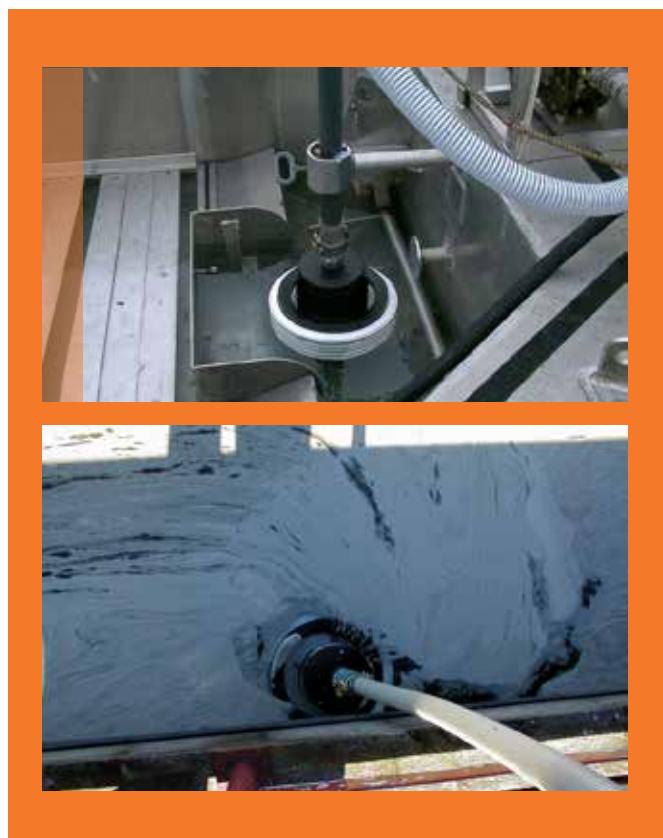
It is an extremely low cost but powerful skimmer system which requires a minimum amount of storage space.



TERRAPIN

The TERRAPIN has been designed with industrial applications in mind. The unit may be used free floating with a 1½in 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.

