



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.

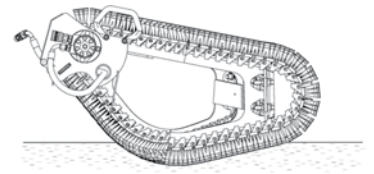
System 2

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)

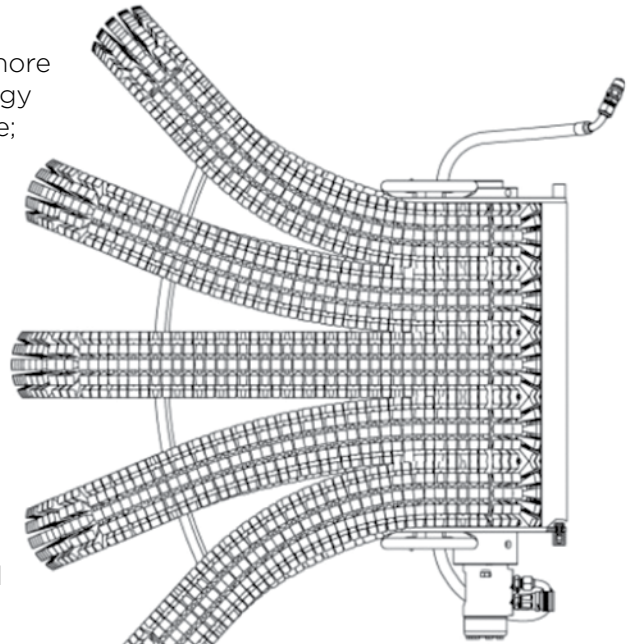
The ultimate, high capacity offshore skimming system with wireless umbilical. Giant Octopus skimmer head, including twin DOP pumps, 80m / 262 ft umbilical reel, power pack, crane, remote wireless control and 20' flat rack.
(Power pack not shown)

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 skimmer's 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 125m³/h / 550 gpm giving a total of 250m³/h / 1101 gpm. The brush capacity is 3 x 132.6 m³/h / 584 gpm - 397 m³/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.

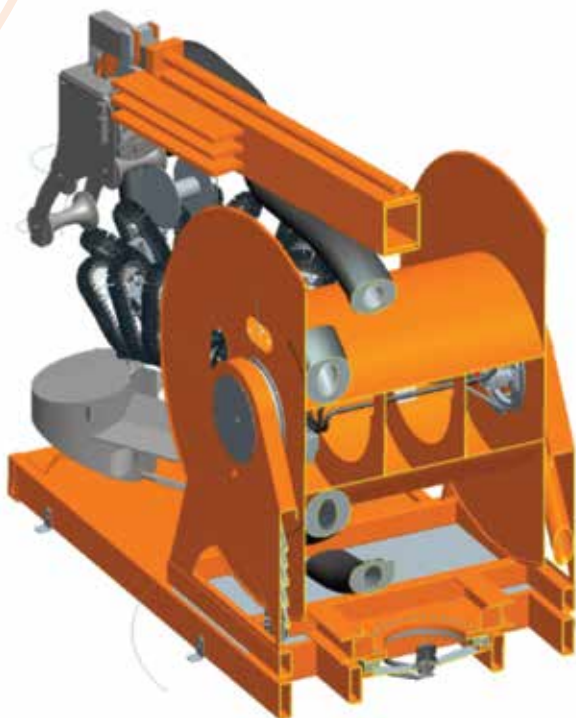
Ship to Ship (STS)

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