



Ultimate Speed-Sweep Systems

Proven Oil Spill Technology



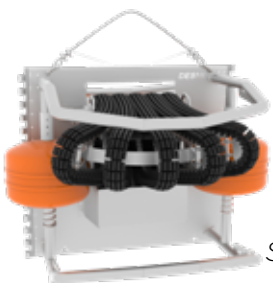
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DESMI SPEED-SWEEP SYSTEMS

The DESMI Speed-Sweep System, (fully tested at OHMSETT in USA) is a heavy duty advancing recovery system based on our world famous Ro-Boom fabric. It is designed to allow for the **collection of oil** at greater speeds than has previously been possible and allows the vessels of the Speed-Sweep system to travel **at up to 3 knots** relative to the water/oil. There are three 900mm / 35 inches 'Kevlar' vortex screens, fitted with special circular floats, which are used to interrupt the laminar flow and speed of the surface water/oil, creating a 'still' surface water/oil area at the apex of the system.

In this reduced flow water/oil environment it becomes an easy job to recover the oil with a suitable skimmer (our DESMI Ro-Skim or DESMI Octopus In-line Skimmer) integrated into the apex of the Speed-Sweep skimmer system or a free floating skimmer (e.g. our DESMI Terminator, DESMI Helix, and DESMI Giant Octopus).

The Speed-Sweep is manufactured from the Ro-Boom offshore containment boom made from a unique substrate compound of synthetic rubber with a CSM (Hypalon) external layer. The seamless and flexible structure has a very high abrasion resistance, peel resistance and tensile strength. It will withstand the effects of sun, seas and oils. Ro-Boom is suited for harsh climatic conditions,

both hot and cold and has proven to give extremely long operating/storage lifetime.

The System complies nine individual three-meter buoyancy chambers, tapered down at each end to match DESMI Ro-Boom 1300, which is the ideal guide boom for the sweeping system. As the outer chamber in each end of the Speed-Sweep is gradually reduced in height from 1500mm / 59 inches to 1300mm / 51 inches and assembled with a 1300mm / 51 inches ASTM Slide connector the guide booms will fit directly on the Speed-Sweep.

Prior to the DESMI Speed-Sweep System, vessels were restricted to less than 1 knot relative speed between the boom and water when capturing oil. This resulted in significant 'clutching' between ship engines and propellers in an effort to control this relative speed between the water and boom.

- **Unique and High Efficiency**
- **Tough and Strong System**
- **Integral, High Capacity Air Blower**
- **Operates with 2 Vessels; 1 Vessel and a Jib Arm and/or 1 Vessel and a Ro-Kite**
- **Please note, DESMI Speed-Sweep is available in different sizes, namely 1500, 2000, 2200 and 3200**



DESMI Speed-Sweep Systems



DESMI RO-KITE 1500

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 1500 has been designed especially for the requirements of a DESMI Speed-Sweep 1500 system, but can of course be used in combination with any other sweeping systems with similar force requirements.



DESMI Ro-Kite



Launching Ro-Kite

DESMI Ro-Kite



Ro-Kite Starts Towing
Speed-Sweep

- ✓ “Soft” design that prevents risk of personal injuries by handling
- ✓ Easy dismantling and packing for compact storage
- ✓ Modular design for easy maintenance
- ✓ Robust and non-vulnerable design that allows collision with ship structure
- ✓ Hydrodynamic principles that minimize the required dimensions
- ✓ Choice of long term proven materials for oil boom design
- ✓ Can be handled manually on deck and does not require crane lifting
- ✓ Possible to deploy from Port and Starboard
- ✓ Simple to deploy
- ✓ Can pull DESMI Speed-Sweep incl. guide booms and
DESMI Ro-Skim / DESMI Octopus In-line Skimmer
- ✓ Has a very little sensitivity to wave activity

Basic physical dimensions:

Draught: 1.80m / 5.9 ft
Freeboard: 0.52m / 1.7 ft
Operational width: 0.45m / 1.5 ft
Air chamber length: 3.00m / 10 ft
Tensile strength air chamber: 250N/mm
Tensile strength skirt section: 315N/mm

Deflated outer dimensions:

Overall length: 3.30m / 11 ft
Skirt length: 1.80m / 5.9 ft
Height: 3.00m / 10 ft
Weight: 155kg / 280 lbs.

Packed dimensions, approx.:

Assembled:
2,4m x 2,4m x 0,4m, 395kg
8 ft x 8 ft x 1 ft, 871 lb
Unassembled:
2,4m x 0,5m x 0,5m 245kg
8 ft x 2 ft x 2 ft, 540 lb

DESMI Ro-Kite



DESMI Speed Sweep with Ro-Kite

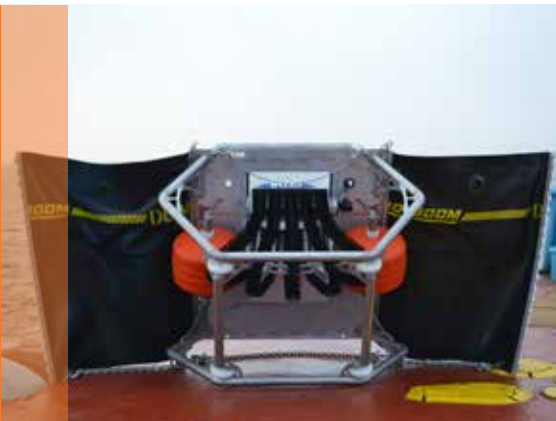
DESMI OCTOPUS IN-LINE SKIMMER

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 / 45°F) 500-800cSt.



- ✓ Giant Octopus Technology 98,4% efficient
- ✓ Multipurpose, low to high viscosity oil types
- ✓ DOP250 Dual Archimedes Screw Pump
- ✓ Hydraulic driven brush belt
- ✓ Simple point lifting
- ✓ In-line sweep apex skimmer

DESMI Octopus In-Line Skimmer 125 m³/h

Basic Physical Dimensions:	
Skimmer dimension:	Approx. 1.7 x 2.5 x 2.3m / 6 x 8 x 8 ft (Incl. lifting eye for crane lift)
Draft:	Approx. 0.7m / 2 ft when operating
Skimmer head:	Sea water resistant aluminum
Discharge connection:	6" DIN flange
Brush belt drives:	1 x Danfoss OMP 100
Brush capacity:	1 x 132.6m ³ /h / 584 gpm (DNV Certified)
Pump type:	1 x DESMI DOP-250 Dual
Pump casing:	Sea water resistant aluminum
Discharge pressure:	10 bar / 145 psi max.
Pump viscosity range:	0 - > 1 million cSt
Solids size:	Ø 50mm (2") max.
Pump capacity:	1 x 125m ³ /h / 550 gpm max.
Hydraulic motor:	Danfoss OMTS 160
Hydraulic flow input:	0 - 160 l/min / 42 gallons
Hydraulic connections in stainless steel:	2 x 1" P/R for pumps 1 x 3/8" P for drain 2 x 1/2" P/R for Brushes
Skimmer weight empty:	Approx. 350kg / 772 lbs.

DESMI Octopus In-line



NOFO test in oil

DESMI Octopus In-line



Speed-Sweep 2000 prepared for deployment

DESMI Octopus In-line



Speed-Sweep with Octopus In-line

DESMI RO-SKIM 1500

The DESMI Ro-Skim is a weir skimmer integrated in the apex of the Speed-Sweep skimmer system. This skimmer design is ideal in open sea sweeping operations.

When sweeping the oil will build up against the face of the Ro-Boom at the back of the U-Sweep formation. The Ro-Skim is placed at the back of the sweep where the oil is collected.

By building the skimmer into the highly buoyant boom system the weir lip will closely follow the wave movement and thereby the surface of the collected

oil. A rough grid placed in front of the hydraulically adjustable weir lip prevents larger pieces of debris from entering the funnel. Depending on the thickness of the collected oil, the height of the weir lip can be adjustable while skimming.

The Ro-Skim is fitted with the powerful DESMI DOP vertical screw pump. The high outlet pressure from the screw pump allows pumping of recovered oil over large distance. This is of high importance as it is in practice difficult to position an oil recovery tank near the skimmer.



Speed-Sweep, Guide Booms and Ro-Skim deployed and recovered to one winder without the use of a crane.

Very limited deck space is required for operations.

- ✓ High recovery efficiency
- ✓ Original DESMI DOP 160, 200 or 250 Dual Archimedes Screw Pump
- ✓ Weir skimmer design
- ✓ In-line sweep apex skimmer
- ✓ Adjustable weir opening port
- ✓ Wheels to ease launching

Basic Physical Dimensions:	
Skimmer dimension:	Approx. 1.5 x 1.1 x 0.75m / 5 x 4 x 2.5 ft
Draft:	Approx. 0.72m / 2 ft when operating
Skimmer head:	Sea water resistant aluminum
Discharge connection:	4" Kamlock with built-in water injection flange
Pump type:	1 x DESMI DOP-200 Dual (option: DOP 160 or DOP 250-Dual)
Pump casing:	Sea water resistant aluminum
Discharge pressure:	13 bar / 186 psi max.
Pump viscosity range:	0 - > 1 million cSt
Solids size:	Ø 40mm (1½") max.
Pump capacity:	66m ³ /h / 291 gpm max. Other pump capacities depending on pump type
Hydraulic motor:	Danfoss OMTS 160
Hydraulic flow input:	0 - 130 l/min / 34 gallons
Hydraulic connections:	1 x ¾" P/R for pumps 1 x ⅜" P for drain 1 x ½" P/R for weir lip
Skimmer weight empty:	Approx. 150kg / 331 lb

DESMI Ro-Skim



Hose set connected to manifold of skimmer

DESMI Ro-Skim



Recovery of Ro-Skim with wheels

DESMI ZIPPER UMBILICAL HOSE (ZUH)

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 also allows for the inspection and replacement of damaged or aged hoses.

Usually hose bundles (hydraulic and discharge hoses) are tightened loosely together and have loose buoyancy floats that may catch edges or even come loose during operation.

The DESMI Zipper Umbilical Hose is manufactured from a very robust, flexible, heavy weight, abrasion resistant polymer. It has integral sealed foam floatation and a very special & unique zipper 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 DESMI 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 DESMI ZUH can be supplied with any number of hydraulic hoses and sizes which are neatly tagged to the inner skin. In addition, the customer is free to use either lay flat or semi rigid discharge hoses thus increasing the flexibility of the DESMI ZUH.

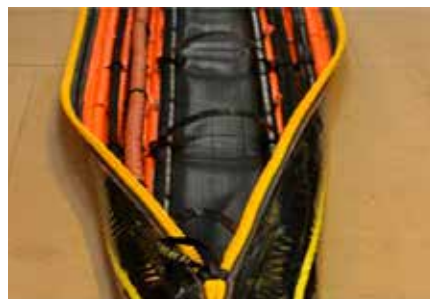
As a standard, the DESMI ZUH comes in three different lengths. Two standard lengths and a short connection sleeve, which makes it possible to build up lengths from 20 to 70 meters / 66 to 230 feet in 10-meter / 33 ft steps. This goes for all three sizes.

DESMI ZUH



Zipper sleeve for hydraulic hoses

DESMI ZUH



Zipper sleeve for hydraulic hoses

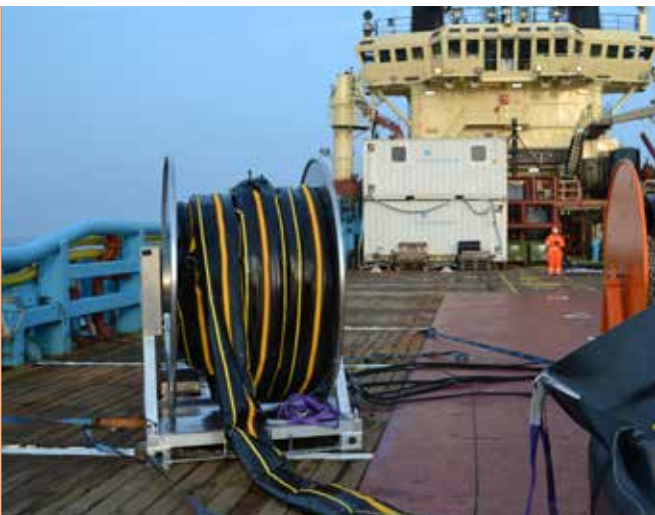
DESMI Zipper Umbilical Hose (ZUH)

DESMI Hose Reel is a durable and lightweight reel designed for transportation, storage and operation of large hose sets. It is hydraulic driven for easy deployment and recovery of up to 50m / 164 ft ZUH.

The hose reel is fitted with hydraulic connections on the side. The reel is easy to operate while operating the skimmer, even with part of the hose still wound on the reel.

The reel, completely made in marine grade aluminum, is equipped with ISO corners, lifting eyes at each bottom corner for lifting by crane. For forklift handling, forklift brackets are fitted under the reel frame.

Basic physical properties:	
Length: Length:	149cm / 59 in
Width:	181cm / 71 in
Height:	187cm / 74 in
Weight:	76kg / 186 lb
ZUH specifications:	
	Hose sleeves are available in three widths (minus zipper) 484mm / 19 in, 668mm / 26 in and 856mm / 34 in flat.
Cover layer:	OZ/yd2 PU Black
Inner layer:	PU/PVC Orange (900 gr/m ² / 2 lb/m ²)
Floatation:	Closed cell PE-foam



DESMI Multipurpose Power Pack

The DESMI 50kW power pack is a multipurpose diesel driven power pack designed to supply the hydraulic oil flow to the DESMI skimmers as well as a hydraulic driven hose reel and boom winder. The hydraulic pump provides flow to the hydraulic circuits. Twin directional, proportional valves offer complete control of the skimmer operation, the speed of the reels and the air blower unit.

The high capacity air blower for boom inflation offers a typical airflow of 27m³/min / 119 gpm/min, delivered through the air hose set comprising of; 4" + 2 x 2" filling hoses including 4" quick coupling and two stainless steel air filling / emptying probes. The power pack frame is manufactured in steel and painted in highly visible orange. It has lifting eyes in the top corners for lifting by crane and 4-way forklift channels for safe handling by forklift.





20" Container comprising of 50kW Power Pack, DESMI Speed-Sweep 1500 and Guide Boom, ZUH-hose on Reel, Ro-Skim 1500 and Ro-Kite 1500.



Speed-Sweep is launched directly from container



ZUH hose and Speed-Sweep launched

Your DESMI contact for Oil Spill Response

DESMI offices:

Africa

DESMI Africa Ltd.
Tel.: +255 757597827

Canada

DESMI Inc.
Tel.: +1 905 321 3471

China

DESMI Pumping Technology (Suzhou) Co., Ltd.
Tel.: +86 512 6274 0400

DESMI Pumping Technology (Suzhou) Co., Ltd.
Shanghai Liaison Office
Tel.: +86 21 6071 06 00-05, 6071 06 07-13

DESMI Pumping Technology (Suzhou) Co., Ltd.
Tianjin Liaison Office
Tel.: +86 22 2317 0467

DESMI Pumping Technology (Suzhou) Co., Ltd.
Guangzhou Liaison Office
Tel.: +86 20 2831 3973

DESMI Pumping Technology (Suzhou) Co., Ltd.
Chongqing Liaison Office
Tel.: +86 23 8823 3518

DESMI Pumping Technology (Suzhou) Co., Ltd.
Chongqing Liaison Office
Tel.: +86 23 8823 3518

DESMI Pumping Technology (Suzhou) Co., Ltd.
Chongqing Liaison Office
Tel.: +86 23 8823 3518

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Chongqing Liaison Office
Tel.: +86 23 8823 3518

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Tel.: +86 23 8823 3518

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Chongqing Liaison Office
Tel.: +86 23 8823 3518

DESMI Pumping Technology (Suzhou) Co., Ltd.
Chongqing Liaison Office
Tel.: +86 23 8823 3518

DESMI Pumping Technology (Suzhou) Co., Ltd.
Chongqing Liaison Office
Tel.: +86 23 8823 3518

DESMI Pumping Technology (Suzhou) Co., Ltd.
Chongqing Liaison Office
Tel.: +86 23 8823 3518

DESMI Pumping Technology (Suzhou) Co., Ltd.
Chongqing Liaison Office
Tel.: +86 23 8823 3518

DESMI Pumping Technology (Suzhou) Co., Ltd.
Chongqing Liaison Office
Tel.: +86 23 8823 3518

DESMI Pumping Technology (Suzhou) Co., Ltd.
Chongqing Liaison Office
Tel.: +86 23 8823 3518

DESMI Pumping Technology (Suzhou) Co., Ltd.
Chongqing Liaison Office
Tel.: +86 23 8823 3518

DESMI Pumping Technology (Suzhou) Co., Ltd.
Chongqing Liaison Office
Tel.: +86 23 8823 3518

DESMI Pumping Technology (Suzhou) Co., Ltd.
Chongqing Liaison Office
Tel.: +86 23 8823 3518

DESMI Pumping Technology (Suzhou) Co., Ltd.
Chongqing Liaison Office
Tel.: +86 23 8823 3518

DESMI Pumping Technology (Suzhou) Co., Ltd.
Chongqing Liaison Office
Tel.: +86 23 8823 3518

DESMI Pumping Technology (Suzhou) Co., Ltd.
Chongqing Liaison Office
Tel.: +86 23 8823 3518

DESMI Pumping Technology (Xuancheng)
Co., Ltd.
Tel.: +86 563 2612 570

Denmark

DESMI A/S - Group Head Quarter
Tagholm 1
DK-9400 Nørresundby
Tel.: +45 96 32 81 11

DESMI Pumping Technology A/S
Tel.: +45 96 32 81 11

DESMI Danmark A/S
Tel.: +45 72 44 02 50

DESMI Contracting A/S
Tel.: +45 96 32 81 11

DESMI Ro-Clean A/S
Tel.: +45 65 48 16 10

DESMI Ocean Guard A/S
Tel.: +45 96 32 81 99

DESMI Latinoamerica S.A.
Tel.: +593 2 326 1939

Ecuador

DESMI Latinoamerica S.A.
Tel.: +593 2 326 1939

France

DESMI SARL
Tel.: +33 130 439 710

Germany

DESMI GmbH
Tel.: +49 407 519847

Greece

DESMI Greece
Tel.: +30 2114 111 893

India

DESMI India LLP
Tel.: +91-99 4933 9054

Indonesia

DESMI Ro-Clean APAC
Tel.: +62 21 570 7577

Korea

DESMI Korea
Tel.: +82 51 723 8801

Netherlands

DESMI B.V.
Tel.: +31 30 261 00 24

Norway

DESMI Norge AS
Tel.: +47 38 12 21 80

Peru

DESMI PERÚ
Tel.: +51 980 306 227

Poland

DESMI Sp. z o.o.
Tel.: +48 22 676 91 16

Singapore

DESMI Singapore Pte Ltd.
Tel.: +65 62 50 71 77

Sweden

DESMI Sweden
Tel.: +46 31 304 51 30

UAE

DESMI Pumping Technology A/S (Br)
Dubai Office
Tel.: +971 4 501 5530

Abu Dhabi Office
Tel.: +971 50-821 4979

U.K.

DESMI Ltd.
Tel.: +44 1782 566900

DESMI FHS Ltd.
Tel.: +44 1782 566900

USA

DESMI Inc.
Tel.: +1 757 857 7041

- DESMI Companies
- DESMI Dealers/Agents

You can read more about our oil spill response solutions at www.desmi.com

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