



EnviRo-Clean

Proven Technology for Oil Spill, Seaweed & Clean Waterways

PROVEN TECHNOLOGY

DESMI


EnviRo-Clean

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

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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EXPERTISE

DESMI has a heritage based on know-how and technological excellence. We have more than 185 years of operational experience and our international teams are well placed to advise on all aspects of environmental solutions for oil spill, seaweed and marine debris clean-up. Our skilled and dedicated specialists have one goal in mind: to deliver to your needs with no compromise to quality or reliability.

We have focus on F.E.E.D. (Front End Engineering & Design) which includes e.g. feasibility studies, gap analysis, audits, consultancy and the general communication and advice that is so important before equipment specifications are developed. We invite you to tap the vast wealth of knowledge and expertise within our group.





OFFSHORE

- including PSV & Salvage Packages

In the rugged and harsh offshore environments, DESMI is the market leader for booms, recovery systems, burn kits and storage systems for oil spill response.

The world renowned Ro-Boom, which is available up to 3.2 metres / 10.5 ft in height, is unsurpassed in its manufacture, operation and longevity. It can be supplied in containerised, standard systems with DNV certification, ideal for deep water offshore operations. Ro-Boom continues to set the standard for containment and deflection in the challenging offshore environments.

In addition, we have developed the Hi-Seas

Speed-Sweep - a sweep system that can be operated effectively up to 3 knots. This is a heavy duty system that is manufactured from Ro-Boom material and can be simply connected to existing boom systems to increase the area of influence.

Under the correct conditions, in-situ burning with the PyroBoom® burn kit system has proven to be an efficient method of removing large quantities of oil. The simplicity, reliability, and fail-safe design of the PyroBoom® systems are well proven in the Gulf, as well as in the Arctic. PyroBoom® adds another option to the responder for the removal of oil.



Whatever your requirements for the deep water offshore & offshore environment, DESMI can advise, supply, and train on the widest range of proven solutions available in the industry today

The DESMI Giant Octopus LARS – a high capacity offshore recovery system – has set new standards in innovation, efficiency and recovery. It is an umbilical system and can be operated by one person with wireless control. The unique brush rail splayed heads and the twin on-board DESMI oil pumps are proven to recover the widest range of oils and have secured this machine with the serious responders.



Having the best boom and recovery systems for the offshore environment means little unless there are sufficient provisions for the temporary storage of the recovered oil. In this regard our oil spill response equipment includes the famous Ro-Tank. This very

tough, abrasion and puncture resistant construction is vulcanised with the same material as Ro-Boom, thus ensuring reliable operation and survival in the hostile offshore arena.



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

The Giant Octopus Offshore Recovery System includes the DESMI Giant Octopus brush rail skimmer with twin onboard DOP pumps, hose set and reel, power pack and the jib crane.

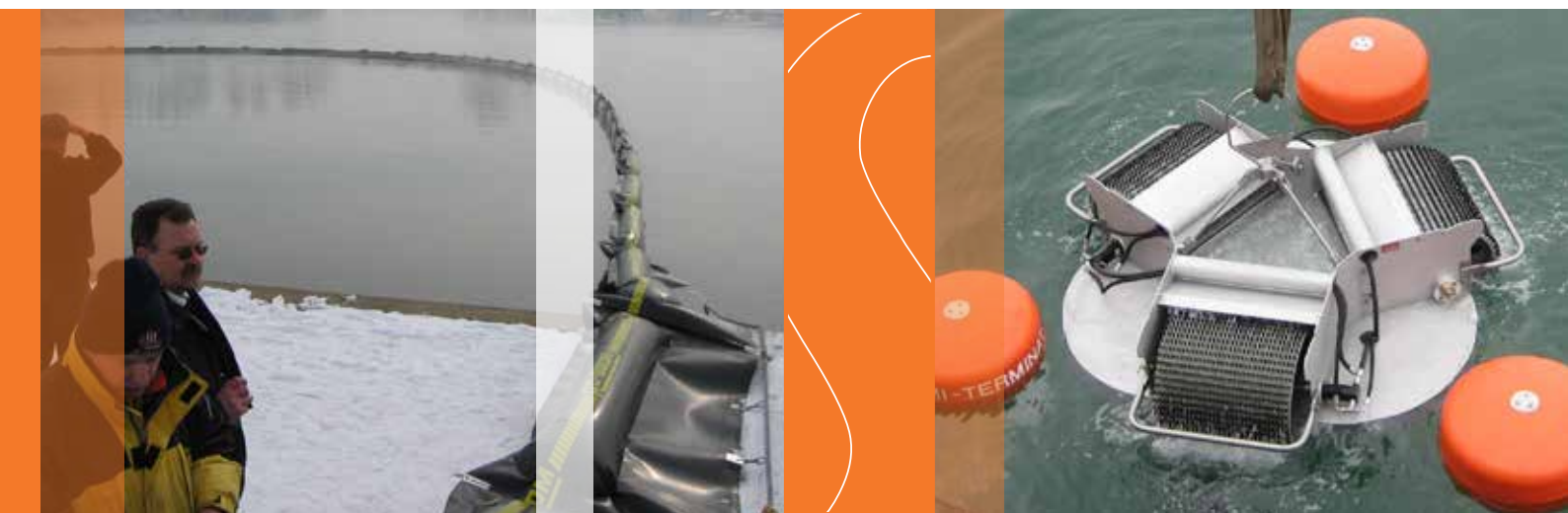
COASTAL & NEAR-SHORE

For coastal and near-shore use DESMI provides the well known Ro-Boom but in smaller sizes whilst maintaining the integrity of the larger product offerings. Alternatively, you may want to consider SPI or a lighter weight boom if there are deployment and recovery considerations or restrictions. Under these circumstances, the Troilboom AF (Air Filled) offers a lightweight rapid response solution. It is manufactured as standard in bright orange polyurethane fabric offering durability and strength. Top tension wires are also available to enhance performance.

A wide range of combination skimmers have been developed for the coastal environment. These

include weir, brush, disc and belt recovery systems with on-board pumps. This results in systems being able to recover a wide range of oils including emulsions and weathered compounds. An example of this is the Terminator skimmer system. This unit has cutting knives on the inlet side of the on-board DOP pump to slice through trash and debris to ensure the continuous flow of recovered oil.

The recovered oil can be stored in the durable Ro-Tanks which are available in a variety of sizes. Providing the ultimate in a flexible storage solution the Ro-Tanks can be used on the deck of vessels, on land and even on trucks and trailers.



Although considered less challenging than offshore, the coastal & nearshore environment has its share of challenges and equipment demands

We have a range of Oil Spill Recovery Vessels (OSRV) such as the Pollcat and Pollkitten. These are steel workboats up to 24 metres / 78.74 ft with in-built oil recovery and storage facilities.

Dispersant spraying, debris collection, boom deployment and a host of other equipment can be operated and commanded from the Pollcat.



Troilboom AF

DOP Offloading Pumps

The DESMI Pollcat



Lightweight solutions

DOP-250 DUAL, DOP-200 DUAL & DOP-160

19 m steel oil spill response vessel

BEACH & SHORELINE

For oil spill response in beach and shoreline environments DESMI offers a whole range of equipment to handle any eventuality.

The smaller sizes of Ro-Boom and Ro-Beach are unequalled in application and robustness while the

range of lightweight Troilbooms meets the lower cost expectations. In addition, the famous Termite and Mini-Max weir skimmers are proven performers in recovery.



Recovery systems are also available in vacuum designs from the well known Ro-Vac to the highly portable Ro-Vac Mini - the latter even with its own transfer pump system to divert the pollutant.

Although the Ro-Tank can be used on land or on a trailer, the Troil range of open top tanks

offers the perfect solution for storage of the recovered oil. These tanks are very lightweight and need no special tools to erect. The tanks offer a wide selection of capacities - indeed, the smaller units are ideal for decontamination duties.

Oil Spill Solutions for Beach & Shoreline



PORTS, HARBOURS & TERMINALS

Ports, harbours and terminals demand special consideration as the equipment requirements can vary significantly. This could range from the simple, inexpensive, environmentally friendly 'A' boom to a fully packaged containerised solution, strategically

positioned for the quickest and most effective response. Whether the requirement is for permanent or semi permanent boom installation, DESMI has a solution that matches your need.



Oil Spill Solutions for Ports, Harbours & Terminals

Many of the recovery systems in the near-shore and shoreline segment can be employed in ports, harbours and terminals. However, we also offer the versatile 'Mop' systems which can be installed

to influence a large surface area. Indeed, 'Mop' skimmers have also proven themselves in open waters, oil pits and industrial applications.

GlobeBoom, Troilboom and Ro-Fence boom also contribute to the range and with all the types of available fabrics, sizes, moorings and accessories, we can supply the right boom for whatever application, even security.



GlobeBoom



Can be reel-mounted

Ro-Mop



Large area of influence

FAST WATER, RIVERS & LAKES

Oil spill response operations are notably difficult in rivers with strong currents. In addition, when considering response times for river spills in relation to the mobilisation time required for conventional land or vessel-based boom systems, a timely response is often a logistic impossibility especially in more remote regions. Therefore, equipment must be readily at hand near the sites of operation and pre-rigged lines, cables and mooring areas are a must. Selection of a good location to deploy the oil containment system is dependent on prior planning and understanding of the currents. Drift studies, river run-off histories, tidal current tables and charts, plus computer modelling are all useful tools to understand the flow patterns and to develop recovery strategies. Reading the currents and flow patterns requires practice and understanding of the hydrodynamics involved. Several things may

be helpful to define these patterns. Selection of a containment area where a lower current exists is desirable and this will allow wider deflection angles and reduce drag forces on the boom.

Natural collection sites should be identified and listed in the relevant contingency plans as part of the planning process to select control points for spill response operations. This can be effectively accomplished by surveying and then conducting an investigation of suitable sites by land or water. Viable control points should have favourable currents, helpful circulation patterns and logistic support such as roads, wide-open banks, and sufficient water depth for a fully loaded vessel and good mooring selections. These sites also collect oiled debris that will complicate the collection and removal process.



The unique GlobeBoom offers unequalled operation especially in fast water environments. Its unique Globe float minimizes reaction forces on the fabric and offers the best operational stability of any boom in its class.

Proven oil spill technology.



An accurate determination of current direction and velocity is important in order to select the proper tactic and deploy the equipment correctly. Wind loads are not significant in high-current areas but the loads created by wind-induced currents can affect the equipment performance so the effect of the wind must be considered. Once the current is known, the angle for boom deployment can be determined. Oil losses can be minimized if the boom is set at a maximum angle.

In this regard, DESMI has many years of experience and in addition a boom with proven oil spill response that has exceeded all other booms in the difficult fast water and river environments. DESMI can boast that the GlobeBoom has outperformed all other products in its class.

SEA WATER INTAKES & OUTFALLS

Desalinated sea water is a major water source for many countries. These facilities are often built with power generation plant, and a major factor for all installations is reliability. This reliability starts with the sea water intake, and regardless of the desalination technology (MSF, MED, RO), unplanned plant shut downs due to the ingress of hydrocarbons or a sudden jellyfish attack are absolutely unacceptable.

The DESMI Oil Spill Response segment has many years' experience in the design, manufacture, installation and commissioning of permanent oil boom and jellyfish net systems for a vast range of sea water intake systems. We have an impressive history of proven oil spill technology at various locations around the world including the harsh Middle East environment.

Special attention is paid to climatic conditions, water velocities, water quality, wave height and a host of other parameters to ensure that our design, equipment, and installation give reliable operation with the best life cycle costs.

In most applications, a fence or solid flotation boom is employed although secondary response systems, where required, are of the more traditional air inflated or curtain boom design. Tide sliders, anchoring systems, navigational lights and other accessories complement the boom in its presentation to the water and subsequent operation.

Our unique OilFence boom has a record of durability unmatched in the industry and routine maintenance can be achieved without removal from service. If required, strong water currents can be accommodated by the heavy weight GlobeBoom and in more traditional applications, Ro-Fence can be employed. The famous TroilBoom GP can be considered for lighter duties or even small outfall facilities.

Whatever the application, DESMI EnviRo-Clean has the experience and product to provide a total solution, from cradle to grave.



Oil Spill Solutions for Sea Water Intakes & Outfalls





ARCTIC

As the oil and gas exploration enters areas of greater environmental vulnerability, the need for proven, reliable and robust equipment is doubly important.

DESMI continues to answer this challenge with existing as well as specially developed oil spill recovery systems to operate in the most difficult and harsh environments known to man. This

equipment is known as the ARCTIC range.

This is a special tool kit of systems to enable the successful containment, recovery and storage of hydrocarbons in the Arctic environment. In addition, we offer a range of 'fail-safe' fire booms for use in controlled burning of oil in ice.

Wherever you see the ARCTIC logo, you can be confident in knowing that the systems have been specifically developed for the challenging conditions in the Arctic.



Containerised Solutions



Cleaning, transport and storage

INDUSTRIAL



We have a specialist range of skimmers and systems to suit the requirements of industry, including in-tank skimming

The removal of oil and chemicals from water within the industrial environment is a key requirement – not only due to increased legislation but also because it is considered a dependable and cost effective way to achieve the desired level of water purity. It can also increase the efficiency of existing installations, such as large scale API oil-

water or parallel plate separators, without the need for expensive capex expansions or new builds. DESMI Industrial skimmers are usually offered in weir, disc or mop configuration depending on the application. They are typically manufactured from high nickel alloys to resist ‘sour’ applications and can be hydraulically, air or low voltage driven.



DESMI offers the complete system solution including the power packs and ancillary equipment which may even include items such as antistatic hoses.

In applications that require ATEX or similar qualification, DESMI provides the necessary documentation and equipment approval. Detailed document packs are also offered together with installation, commissioning and training.

RIVERS & TRIBUTARIES

Marine & Aquatic debris is one of the most widespread solvable pollution problems plaguing the world's oceans, rivers and lakes. Successful management of the problem requires a comprehensive understanding of marine and aquatic environments together with the necessary

experience and the correct selection of proven equipment. Knowhow is the key and dealing with DESMI brings benefits.

With EnviRo-Care solutions, we combat ocean bound plastic by mapping the tributaries of the worlds most polluting rivers and aim to reduce the



influx of plastic pollution in the big rivers. We offer safety training and education to support all of our EnviRo-Care products. All products are built to stand up to the tough job collecting marine debris trash. All solutions are suitable for both acute clean-ups and scheduled waterway maintenance. The range of products includes the DESMI Manta - a remote or on-site operated floating platforms, the DESMI EnviRo Enhancer which is a boom for

the collection of floating debris, municipal trash and plastic articles, the DESMI EnviRo Tube, a light weight, portable trash recovery unit for lower recovery areas, the DESMI Impounder which collects municipal rubbish and plastic articles from the surface of water and from land, The DESMI River Sweep, a trawls with sweeping wings and an entrance net to recover unwanted floating material.

EnviRo-Care Solutions for Rivers & Tributaries





Solutions for the excessive seaweed without disrupting marine life

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.

Our seaweed solutions include products like the DESMI Mesh Boom, a floating boom for the collection of seaweed, the DESMI Sea Turtle MKI Skimmer, which helps transfer the collected seaweed to containers or trucks for easy transportation.



DESMI Mesh Boom



For fast response or permanent installation

DESME Sea Turtle MKI



An ecological solution for marine growth challenges

LIFE CYCLE SUPPORT

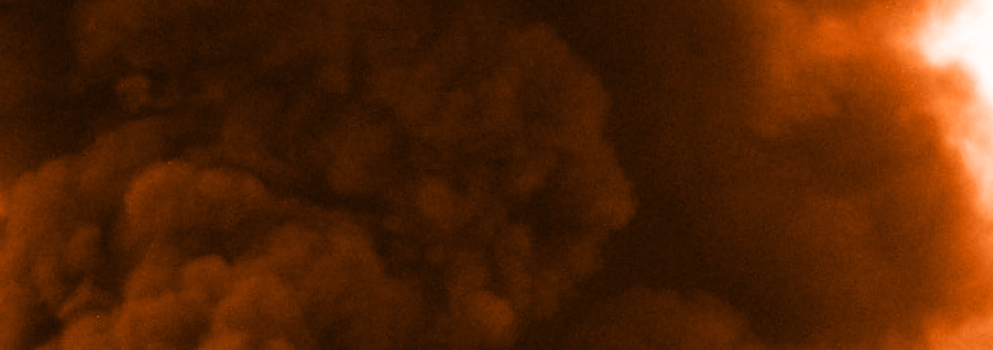
After delivery of the systems, we offer worldwide comprehensive commissioning. This includes every aspect of operation and maintenance. We continue this support with further advanced training and exercises in addition to any scheduled maintenance required. We also advise on new developments and indeed upgrades or enhancements of existing systems. The DESMI 360 degree Life Cycle Support

Package begins from first customer contact throughout the development of the equipment specification. This support extends throughout the lifespan of the equipment, even lifespan extension upgrades of equipment. Customers' personnel are kept up-to-date through commissioning and training, including IMO, based upon DESMI's experience.

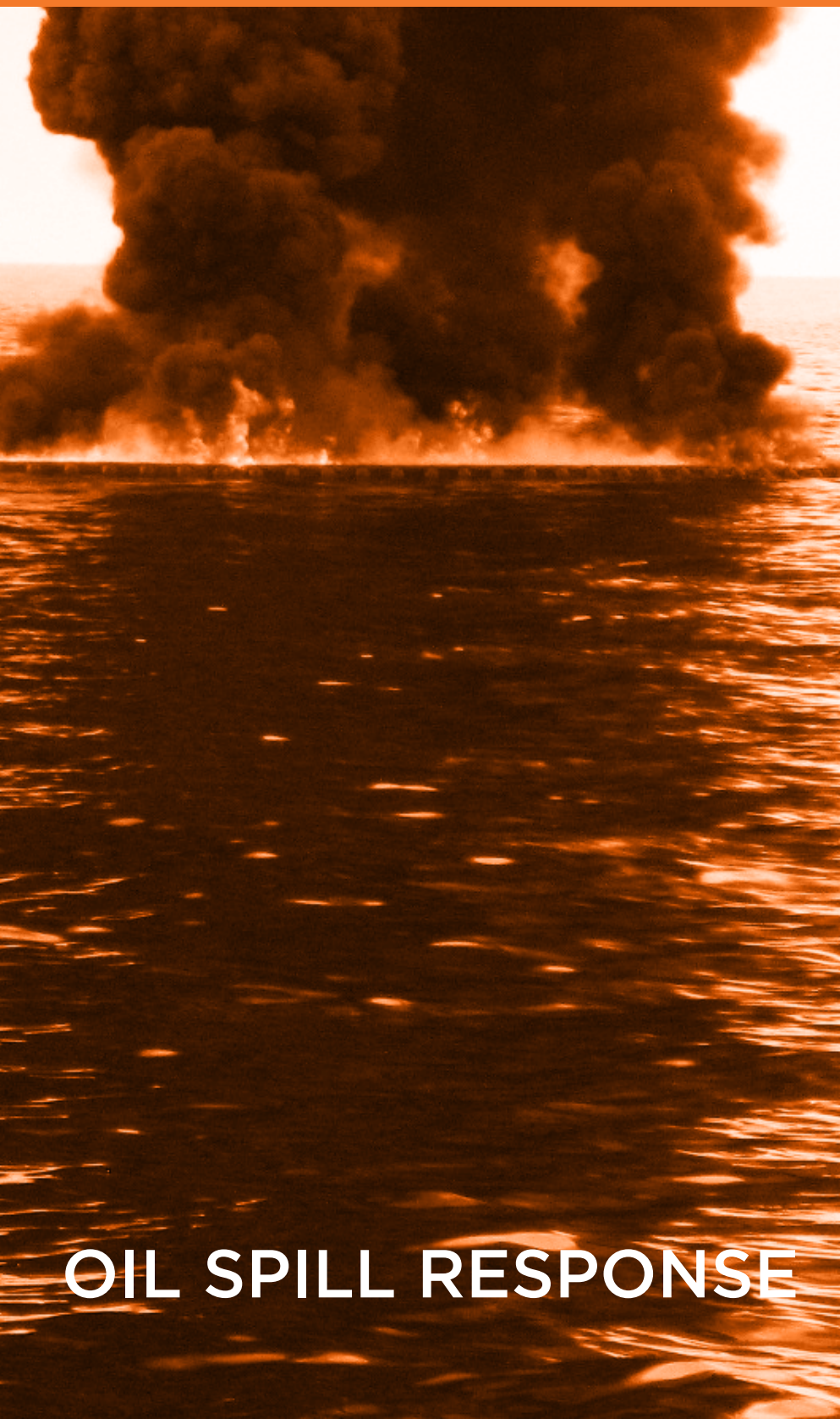


Training courses can be provided to internationally recognized accreditation levels, including IMO.





OUR ENVIRO-CLEAN SOLUTIONS



OIL SPILL RESPONSE



ENVIRO-



-CARE

SEAWEED

Our dedicated global DESMI Service Team delivering local service

The DESMI Service Team operates globally and around the clock. We can offer simple advice over the phone or full, on-site maintenance and service programmes.

The team is factory-trained and fully capable of meeting both your technical and practical demands. We have customized programmes to meet specific client requirements and be your partner of choice. DESMI Service Team supports a working culture based on an appropriate respect for health, safety and environmental issues.

In case of emergency breakdowns, we are always able to access our global parts database, sending spare parts or equipment 24 / 7 / 365.

Our service includes various concepts and services:

- Genuine spare parts kits
- DESMI 48 - Fast track delivery of pumps
- Technical advice by phone
- Skilled service engineers
- Maintenance agreements
- Etc.

Other services from our team also include:

- Documentation & project engineering
- Applications guidance
- Training seminars
- Etc.

And online you can access our:

- Pump selection programs
- Product videos
- Overhaul videos
- Manuals
- Etc.



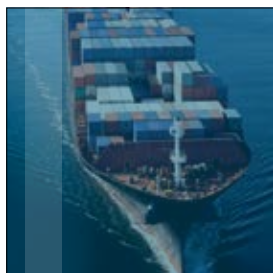
Reliability Global Service
Customized Programmes
Online / Phone Support
On-site Quality **Flexibility**
Documentation Support
Commissioning & Training

Partnership



DESMI is a global company specialising in the development and manufacture of pumps and pumping solutions incl. environmental equipment for oil spill seaweed and clean waterways for marine, industry, defence & fuel, and utility both locally and globally. Our product range - supplemented with agency products from other leading world-class manufacturers - is complemented by related services such as the design and installation of pumping systems, oil spill recovery packages, and a first class after-sales service which can include full technical support, commissioning and product training.

DESMI equipment is sold to more than 100 countries via a network of subsidiaries and distributors on six continents.



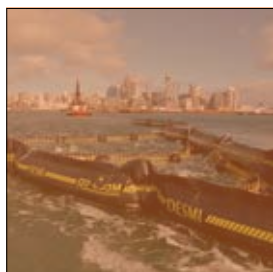
MARINE & OFFSHORE

Thousands of DESMI pumps 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. For more than 50 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. In recent years we have also taken on the supply for offshore installations worldwide.



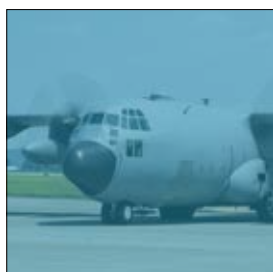
INDUSTRY

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.



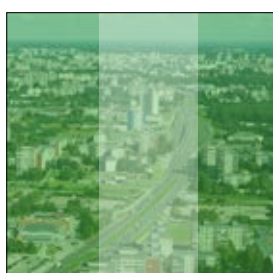
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DEFENCE & FUEL

Utilising products from other world class equipment suppliers to complement the extensive DESMI pump range, DESMI designs and builds liquid handling solutions used by military forces around the globe. Based on many years' experience with systems suitable for working in austere conditions and environments we provide total liquid management - from project management and system integration to procurement and logistics planning.



UTILITY

DESMI provides pumps and pump solutions for the supply of domestic water, district heating/cooling and waste water. Operational reliability, energy optimization and service-friendliness are essential headlines for a business that services cities, buildings and not least, people.

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Please note that we do reserve the right to make changes to content, description, terms, etc. at any time without notice.

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

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INDUSTRY

ENVIRO-CLEAN

DEFENCE & FUEL

UTILITY