



# Gain a Strategic Advantage

Flow Solutions for naval applications

Defense

**DESMI**  
Make life flow

# Gain a strategic action

As the world's foremost provider of pumps and supporting systems for defense applications, we help you operate and maintain a highly dependable and effective fighting force.

Our class-leading products keep critical processes flowing while meeting the extreme demands in military scenarios. We offer a broad selection of pumps for naval ships plus helicopter refueling systems and much more – plus the support you need to ensure reliable operation.

We have worked with defense for decades and understand your processes and requirements to the letter.





# Solutions for naval vessels

Navies the world over trust us to deliver outstanding military-grade solutions for a variety of ship applications including engine room pumps, fire-fighting systems, ballast water treatment, washdown systems, radar cooling, and more.

Our range includes more than 100 pump types that fulfil most client expectations. We never compromise when it comes to product quality and offer fully shock rated pump designs.

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- We understand the technical requirements and applications of navies
  - We choose materials that suit the specific applications
  - Our pumps are available in fully shock rated design
  - We supply pumps for fully submerged use in action damaged compartments
  - Our field engineers evaluate pump and system requirements on site

## With their Excellent Quality and Durability, our Products adapt well to the Additional Requirements in Naval Applications



The DESMI design team adapts our standard range to Military Off-The-Shelf (MOTS) equipment, meeting the clients' shock requirements. We 3-D model the equipment according to contract requirements

- and our project management includes the provision of test certification and integrated logistics support documentation.



*MOTS - Military Off-the-Shelf Pumps*



*Shock Rated Engine Room Pumps*



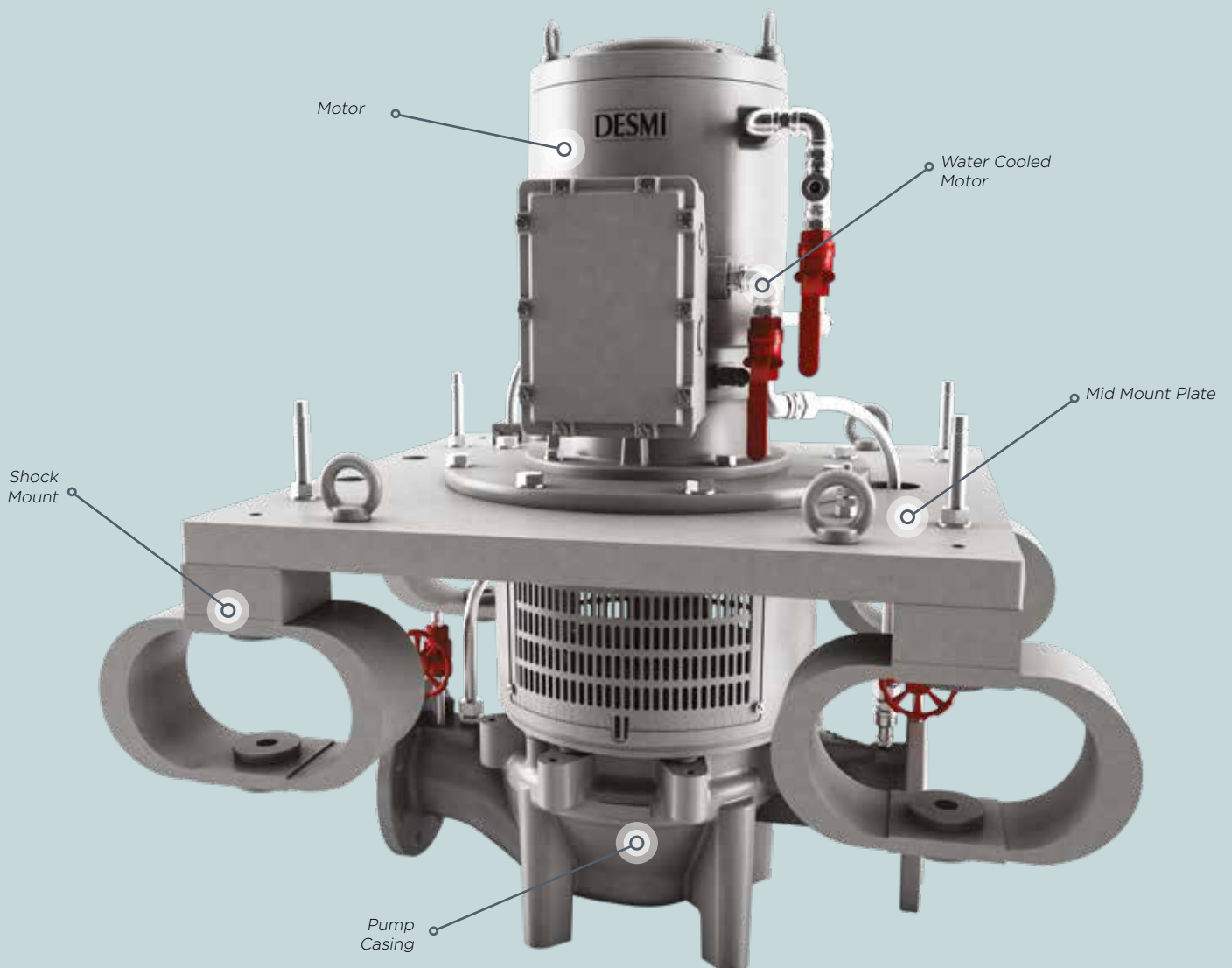
*Helicopter Refueling Systems*

# Shock Rated Pumps

DESMI has a clear understanding of naval technical requirements and applications when it comes to pumps and systems.

We select the correct materials and design for each individual application - for example bilge, fire, ballast, general service, cooling, fuel and lube oil transfer, to name just a few.

Any of these pump applications can be supplied fully shock rated and for fully submerged operation in compartments that are vulnerable to 'action' damage.



## Made to Withstand Shock and Remain in Operation both Before, Under, and After a Shock Impact

All DESMI centrifugal pumps are available in shock rated design. The pumps are made to survive, and it is crucial that these pumps are working in order to

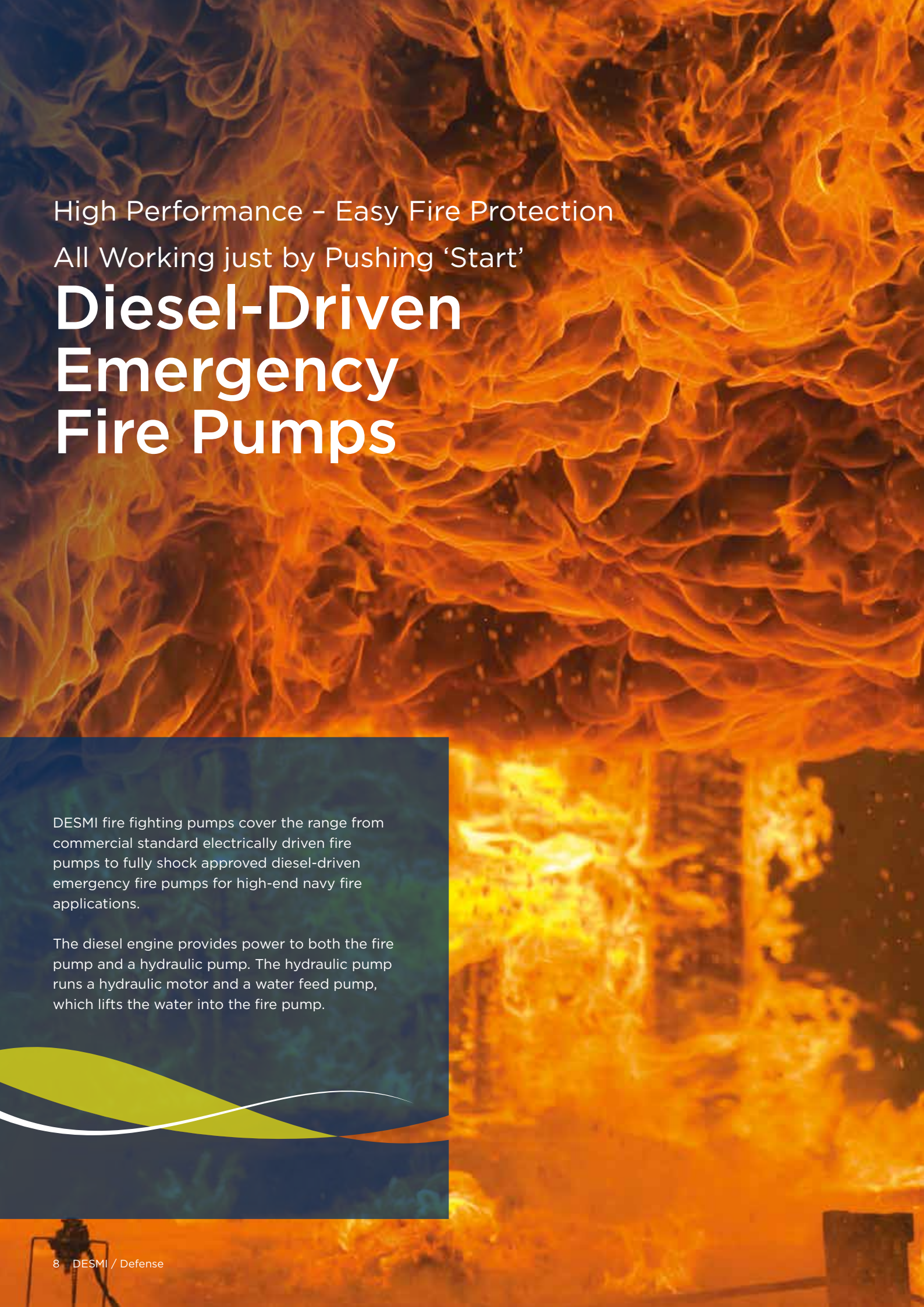
bring the sailors back home safely. They are made to withstand shock and remain in operation both before, under, and after a shock impact.



*Shock Rated Engine Room Pump*



*Shock Rated Engine Room Pump*



High Performance – Easy Fire Protection

All Working just by Pushing ‘Start’

# Diesel-Driven Emergency Fire Pumps

DESMI fire fighting pumps cover the range from commercial standard electrically driven fire pumps to fully shock approved diesel-driven emergency fire pumps for high-end navy fire applications.

The diesel engine provides power to both the fire pump and a hydraulic pump. The hydraulic pump runs a hydraulic motor and a water feed pump, which lifts the water into the fire pump.



## Portable Emergency Diesel

### - DRIVEN FIRE PUMP - SP-D3-2

First-class pump solution with a capacity of 40 m<sup>3</sup>/h at 7 bar. Low magnetic signature and designed especially for a life at sea. Weight is 65 kg.



## Shock Rated Diesel-driven

### EMERGENCY FIRE PUMP - DES100

These pump units are designed to withstand the rough life at sea and to be ready for action at all times. Even after the ship has been exposed to shock. Capacity is 100 m<sup>3</sup>/h at 7 bar.



*Diesel Hydraulically Driven  
Emergency Fire Pump*



*Customised Emergency  
Fire System*



# Helicopter Refueling

The DESMI refueling systems are intended for use in both the military and commercial sectors. DESMI is the preferred supplier of systems for both fixed and rotary wing aircrafts. Each system is specifically designed for pumping, filtering, and dispensing fuel for military and naval use and will at all times deliver dry clean fuel at the end of the nozzle.

The ship-based helicopter refueling system is used for pressure and gravity fueling of aircrafts on board naval vessels, and the system is also fitted with a facility to defuel the aircrafts. The refueling system comprises a 'pump and filtration module', a 'dispenser module', and an electrical and mechanical control system which can be interfaced to the ship's control system.

## Pump and Filtration Module

The pump and filtration module consists of filter water separators and DESMI ROTAN® positive displacement fuel pumps.

The twin pump refueling system has built-in redundancy for maximum reliability. The service and transfer pumps and filter water separator duties are fully interchangeable by use of valves.

All DESMI aviation fuel systems will be adapted to specific customer needs to ensure that the best possible option is selected for the job.

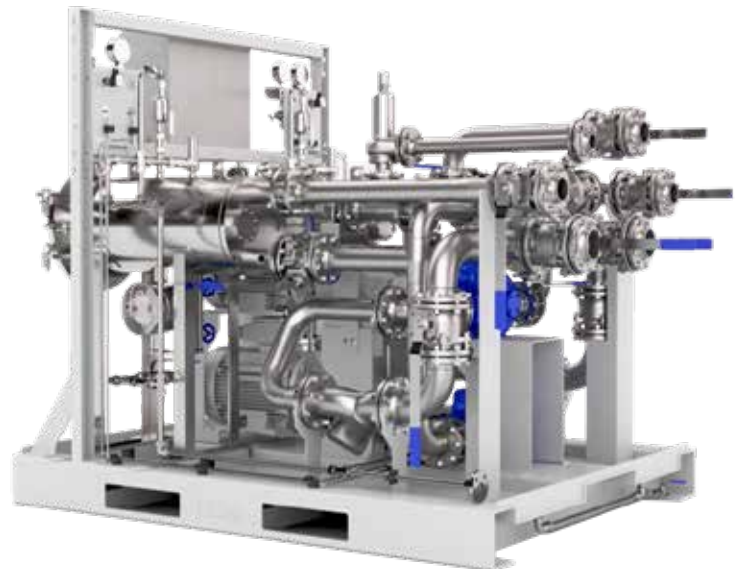
## Dispenser Module

The dispenser module consists of a mechanical meter, defueling pump, hose, hose reel, pressure refueling nozzle, gravity refueling nozzle, and an optional filter water absorber.

A Helicopter In-Flight Refueling (HIFR) unit can be connected to the pressure refueling nozzle hose or a deck-mounted connection on the flight deck.



Dispenser Module



Pump and Filtration Module

# Ballast Water Management Systems



DESMI manufactures Ballast Water Management Systems with shock noise vibration according to naval standard.

The name of the system is CompactClean, and it is the most compact BWMS on the market which combines very low space with large flow rates.

The operation of the system is based purely on mechanical treatment, and therefore, it does not involve any use of chemicals or active substances.

This eliminates risks of hazards to crew, vessel, and the environment.

CompactClean has no salinity or temperature limitations.

The CompactClean BWMS is type approved in accordance with USCG and the IMO BWMS system code (also referred to as the revised G8) and can be classed from various classification societies.



*CompactClean 135*

## The Most Compact and Effective Ballast Water Management System on the Market!

- IMO & USCG Approved
- Low holding time
- Chemical Free Treatment
- Shock mounted to withstand shock events
- Down to UV-transmission of just 42%  
- Also in US territory!
- No salinity or temperature limitations
- Automatic flow control and lamp dimming
- Very low footprint
- Multipurpose Backflush/Recirculation/  
Stripping pump included
- No water cooling or compressed  
air system required
- Fully automated operation
- Automatic generation of PDF reports  
to authorities
- Easy to maintain and Worldwide Service  
Network available
- Computer Based Training and Service app  
available for download
- Short delivery time
- Shock noise vibration according to naval  
standard
- According to naval standard



Proven Technology

# OptiSave™

## Energy Saving System

The main challenge with regard to warships is EMC noise coming from the frequency converter as well as from the electric motors when using converters. This noise is unwanted at increased alert status as it must be as difficult as possible to detect the position of the vessel.

The DESMI OptiSave™ includes the possibility of instant by-pass of all systems including stop of frequency converters without any interference with the vessel's operation. The

vessel can instantly change from routine to a higher alert status.

The OptiSave™ control and monitoring system includes the facility of monitoring the pump's revolutions and gives an alert when the calculated pump maintenance is required. The maintenance intervals are normally prolonged due to reduced pump rpm, and thus, saving spare parts and work compared to conventional pump operation.



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### The many benefits of DESMI OptiSave™ are::

- Energy saving up to 80%
- Short return on investment
- Prolonged lifetime of pumps due to less wear and tear
- Minimum changes in existing electrical installations
- Proven technology
- Proven savings
- Reduced OPEX
- Worldwide service support

### What can OptiSave™ do for you?

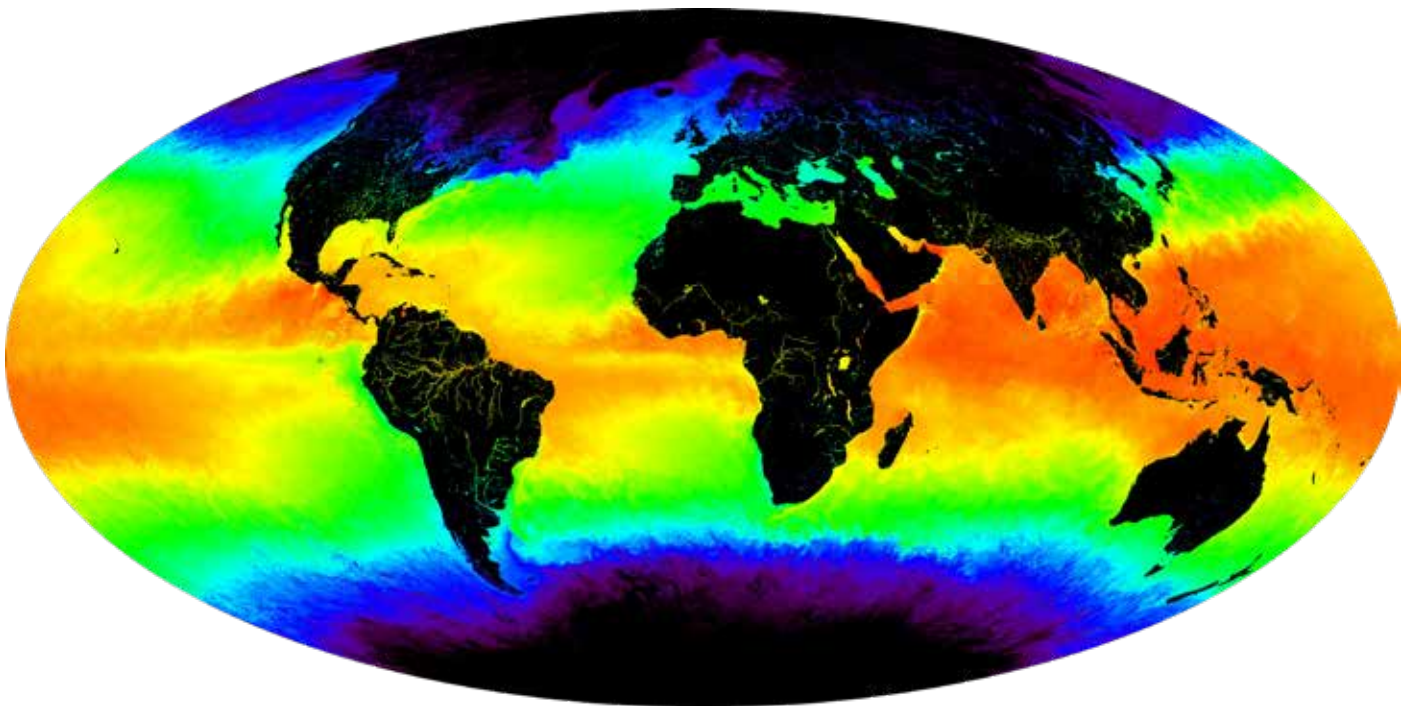
Any diesel driven vessel is still only transforming some 30% of the fuel energy into mechanical energy, meaning that some 70% of the fuel is converted into heat, either to the motor parts or to the exhaust. When designing cooling water systems for engines, the heat energy to be removed from the engines is known, but the actual seawater temperature is unknown, which means that designers are forced to use 34°C / 92°F as seawater temperature. Therefore, the system is heavily over-dimensioned when sailing in e.g. Danish and North Atlantic waters.

By adding monitoring of seawater temperature, seawater cooling outlet temperature, and a frequency converter it is possible to adjust the seawater cooling flow to the actual requirement. On top of this saving the change to LED lights, OptiLED™, will increase your savings even more.

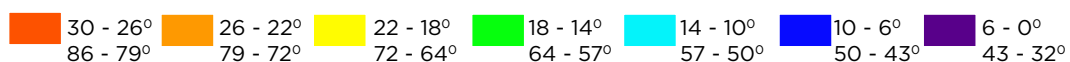
### What we do:

- Operate Seawater Cooling Pumps according to the actual temperature – meaning the colder the seawater temperature, the lower the amount of fuel used.
- For increasing the advantages also the Fresh Water Cooling Pumps are controlled.
- Engine Room Fan Control. The fans are controlled based on the actual conditions, i.e. pressure at engine room, and not a worst case scenario. All safety issues are taken into consideration.
- Change to LED lights is a quick way to save energy. Normally the existing light fixture can be used with new LED bulbs.

You can choose all saving parameters or only some of them, depending on the actual conditions.



Average Sea Surface Temperature °C / °F





## Airfield Fuel Pipeline Pump

# Special Pumping Solutions

Diesel-driven fuel pump for bulk fuel installation in remote areas. 120 m<sup>3</sup>/h at 6 bar in explosion-proof design.

For many years DESMI has supplied pumps and pumping solutions for the naval industries.

### Such as:

- Helicopter wash down booster pumps
- Airfield fuel pipeline pumps
- Diesel hydraulically driven fire pumps
- Hot fresh water modules
- Aircraft carrier refueling systems
- Heeling and anti-heeling systems
- Hydrophore sets
- and much more for navy ships around the world.

### Our list of references include:

Iver Huitfeldt Class, DK  
Queen Elizabeth Class, UK  
Mars Tankers  
Etc.





Aircraft Carrier  
Refueling System



Helicopter in Flight  
Refueling System



Call the  
DESMI Service Hotline  
round the clock  
at +45 96 32 81 10

# After-sales and service

from DESMI DeServe



Call us anytime and let us know what you need: Our global after-sales and service department DESMI DeServe offers parts and services that keep your aquaculture operation running.

Our spare part kits cover several pumps and contain the parts you need for overhauls, for example shaft seals, bearings, and O-rings. You can also order individual spare parts as needed, and for some parts or products, we ship within 48 hours.

Our highly experienced and factory trained service teams provide a long list of onsite services, from installation and commissioning to service, repair, upgrades, and maintenance, plus training and technical support – whatever it takes to optimize your critical flow processes.



Overhaul  
Videos



# We exist to help you complete your missions

DESMI works closely with MODs, OEMs, and shipbuilders to deliver critical flow processes that help governments on every continent achieve their national security ambitions. Our pumps and supporting systems are trusted worldwide for dependability and performance.

We help you maintain stringent operational standards through sector insight, tight security protocols, and the flexibility to navigate complex processes. We offer global support and after-sales service plus an efficient global supply chain.

Founded in Denmark in 1834, we have provided the expertise, solutions, and aftermarket support our customers need for nearly two centuries. We help you operate more efficiently and reliably, enabling you to complete your missions, achieve your tactical goals and strategic objectives - and get your vessels and crews safely back.

Together, we can make a difference, whatever the future holds. Because we, like you, are here to **make life flow**. For more information, visit [desmi.com](https://desmi.com)

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