



MARINE PUMPS
HIGH QUALITY. POWERFUL PERFORMANCE.



SET OUT TO SEA WITH A TRUSTWORTHY PARTNER

Are you looking for a dedicated pump supplier who offers high quality products as well as unparalleled global presence? The Grundfos range of thoroughly-tested marine pumps is built on more than 60 years of experience within the pump business and we take pride in having been the first to have our products certified in

accordance with ISO 9001. Covering the engine room, general services and utilities, our marine range includes robust pump systems for boosting, cooling, A/C and heating as well as pumps for fuel oil, lube oil, oily bilge and sludge.

Get your spare parts in 24 hours

Even when you are sailing the seven seas, Grundfos is never far away. With more than 80 sales and service companies in more than 45 countries, you are guaranteed local service and support in the native language whenever you need it. Thanks to our close cooperation with international express transport companies spare parts can be sent to any port around the world within 24 hours. This effectively reduces the risk of downtime onboard your ship and offers peace of mind to both shipowners and engineers. Should a more critical problem occur, a Grundfos service specialist will meet you at the nearest port to find a solution.

Your requirements is our specialty

All Grundfos marine pumps can be adapted to meet individual customer requirements. In fact, more than one million different variants of our standard products can be manufactured – and new variants are added to that number on a daily basis. Every year, we devote 5% of the turnover to

research and development, striving to push the boundaries in pump technology and bringing to life the pumps of tomorrow. This is why we are confident that you, too, will find a unique solution for your application within our extensive and already thoroughly-tested range. To ensure high quality in every aspect, a new product is not released unless its performance significantly exceeds that of the existing product.

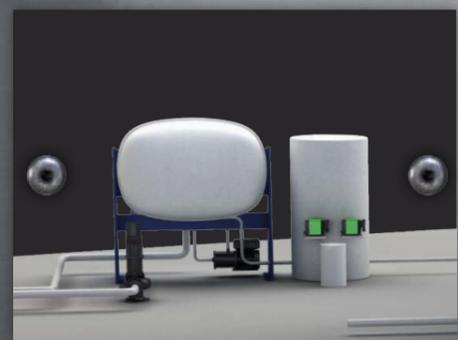
Significant savings in the long run

In a highly competitive market, a certain focus on price is only natural. However, experience shows that on average the purchase price of a pump amounts to as little as 5-10% of the total cost – while as much as 90% stems from the energy the pump uses when in operation. Which is why one of Grundfos' main objectives when developing new products is to ensure low energy consumption and consequently reduced operating costs for you. And why we are eager to share our extensive know-how and experience with you.

Grundfos Facts

- > 80 sales and service companies in 45 countries
- > 580 certified service partners worldwide
- > 18,236 employees
- > Over 16 million pumps produced every year
- > 5% of annual turnover dedicated to research and development

COVERING YOUR PUMP REQUIREMENTS AT SEA



Freshwater generator

- > Centrifugal pumps – VLS, CR and CM
- > Dosing



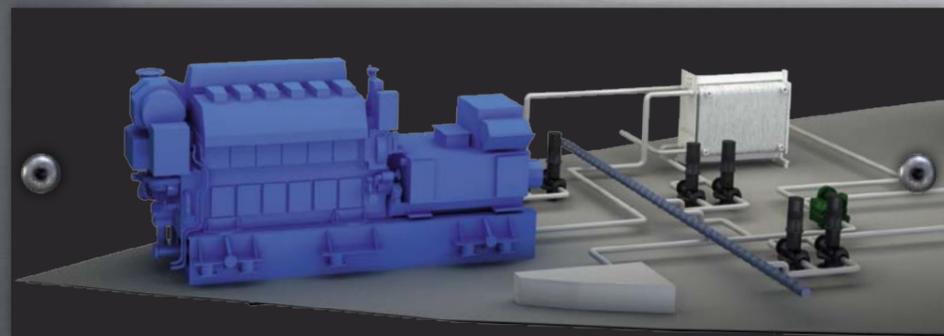
Boiler

- > Centrifugal pump – CR
- > Boiler



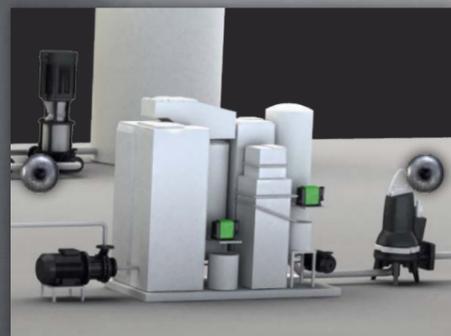
Firefighting

- > Centrifugal pumps – VLS and CR



Engine room

- > Centrifugal pumps – TP, NB/NK, VLS and CR
- > Dosing



Waste water

- > Centrifugal pumps – SEG, SEV and MTB
- > Dosing

Grundfos' marine pump systems are developed with one primary goal: To provide you with equipment that you can trust even in the harshest conditions at sea. We offer proven products for a wide range of marine applications onboard a ship – from the crucial engine room over general services to utilities. On top of reliability, easy maintenance and low operating costs are built-in advantages in every one of our marine pumps and we are very willing to use our know-how to optimise your operations.

Additional pump requirements

In close cooperation with other recognised suppliers Grundfos is able to deliver pumps for all marine applications, not covered by our own range.



COMPLETE RELIABILITY BELOW DECK

With tens of thousands of Grundfos pumps already at work on ships all over the world, we understand the importance of high performance and reliability. Particularly in the engine room where downtime is not

an option. Choosing Grundfos as your pump supplier in this critical area, you will be equipped with sturdy solutions that will not let you down.



PACO VLS

The robust PACO VLS pump equals quality at sea and perfectly handles all water services aboard marine vessels. Offering a double volute design and a vented mechanical seal, this thoroughly-tested pump promises an extended operating life. Additional benefits include:

- > Low operating costs due to high efficiency of up to 88%
- > Low NPSH value
- > Easy maintenance

The PACO VLS is available in cast iron and bronze.



Engine room applications

Seawater cooling:	VLS
Ballast:	VLS
Fire and general services:	VLS, CR
Bilge:	VLS
Scrubber cooling:	VLS, CRT
Ejector pump:	VSL, CRT
Deck sealing:	VLS
Freshwater cooling:	VLS, NB/NK, TP, CR

NB/NK

The range of NB/NK multi-purpose pumps offers a close match between duty point and pump size, leading to lower operating costs. High efficiency and easy maintenance are additional benefits of these powerful pumps. The end suction NB/NK pumps are available in cast iron and duplex steel to ensure at long life at sea.



TP

The TP pump is the ideal choice if you prefer a close coupled inline pump for your marine applications. The comprehensive range of sturdy TP pumps offers capacities of up to and exceeding 4600 m³/h. In addition, the rigid shaft has been designed especially to ensure highly durable bearings and mechanical seals.



CR

The versatile CR pump is already at work on thousands of marine vessels all over the world. The extensive Grundfos range of high-quality pumps is particularly suitable for medium flows and ensures cavitation-free operation even outside the normal duty range of the pump.






Utility applications

Firefightng:	CR, VLS, BMP
Boiler feed:	CR
Thermal oil:	CR
Chilled water:	CM, Hydro MPC
Sewage:	SE1, SEV, SEG, Dosing
HVAC:	UPS, MAGNA, VLS, TP, NB/NK, Hydro MPC
Water treatment:	BM, BMEX, Dosing

DEPENDABLE SOLUTIONS STRAIGHT AHEAD

When it comes to utility pumps Grundfos is unsurpassed in every aspect. Since the foundation of the company in 1945, water distribution has been the backbone of the company – and we continue to set the standard on the market for utility pumps. All Grundfos pumps combine high quality and energy efficiency with in-depth

knowledge of virtually any application. It is this extensive experience we have integrated into the marine-specific solutions, making sure that the choice of material as well as the reliability are ideal for use in the rugged environment encountered at sea.



Hydro MPC

The Hydro MPC booster system handles even the most difficult boosting jobs with ease and accuracy. It is suitable for pressure boosting in water supply systems, water treatment systems and fire fighting systems, offering low energy consumption, easy installation and constant pressure. In addition, it can be used for cooling in the engine room.



CRT

The full-titanium CRT is the only pump of its kind produced in this corrosion-resistant material. Offering operating pressure of up to 25 bar, the service-friendly CRT can be used for seawater and chemicals.

DME

Straightforward and precise digital dosing are characteristics of the DME range, offered exclusively by Grundfos. The high accuracy of the dosing pump reduces operating costs and is ideal for injection of chemicals in water, oil and wastewater treatment systems. Moreover, the DME gives you peace of mind in terms of installation costs and highly accurate capacity setting in ml or l.

BMEX

Featuring state-of-the-art technologies, the BMEX system is extremely efficient and highly dependable for seawater desalination. The compact system is corrosion and wear-resistant thanks to internal ceramic components, and easy to dismantle for service.

SP

The SP seawater pump features submersible, space-saving and easy installation as well as high efficiency and built-in motor protection, offering capacities of up to 335 m³/h.

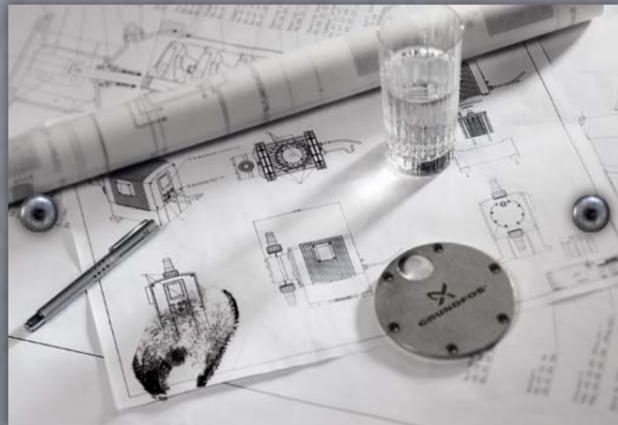
SAIL THE SEVEN SEAS WITH PEACE OF MIND

Across the world, Grundfos is always at your side, offering extensive service and support. From the planning of the pumps in the early phases to the drawing up of order-specific documentation, our marine specialists are there to assist you. And should our expertise be required on the open sea, service instructions are also available online.

From one specialist to another

Even if you know all there is to know about pumps, it could

prove helpful to talk to one of Grundfos' pump specialists in the early phases of planning, particularly if you are interested in saving energy. Experience shows that, on average, the purchase price of a pump amounts to as little as 5-10% of the total cost – while as much as 90% stems from the energy the pump uses when in operation. We pay great attention to this aspect when developing new products and you could achieve significant savings by talking to Grundfos. Furthermore, we are more than happy to provide you with individual documentation, customised to your specific order.



Certifications

As an acclaimed worldwide pump supplier, Grundfos is authorised by well-reputed international classification institutions to classify pumps and pump parts.



BUREAU VERITAS



- > Lloyds Register of Shipping
- > Det Norske Veritas
- > American Bureau of Shipping

- > Registro Italiano Navale Agenture
- > China Classification Society
- > Russian Maritime Register of Shipping

- > Biro Klassifikasio Indonesia
- > United States Coast Guard
- > Nippon Kaiji Koykai

WebCAPS – ALL THE INFORMATION YOU NEED IS ONLINE

Grundfos WebCAPS is an online product selection tool, yet it offers much more than that. The site includes all the product-related information you could ever need:

Catalogue

- > More than 140,000 product numbers. Includes all the products available in your region, complete with technical information, drawings, descriptions, performance curves, etc.

Literature

- > Find everything from data booklets through installation and operating instructions to product brochures. The newest version is always available.

Service

- > The place to find service instructions (including video tutorials), service parts lists, assembly drawings, etc.

Sizing

- > Enter your system requirements for instant recommendations. Includes Life Cycle Cost calculations.

Replacement

- > Enter the make and model of your old pump for an instant replacement recommendation.

CAD drawings

- > Download DXF and DWG files as required.



For offline use, WinCAPS is a CD-ROM version of WebCAPS. Contact Grundfos to order.

WebCAPS facts:

- > Catalogue – 36,000 monthly visits
- > Literature – 60,000 monthly document downloads
- > Service – 7,000 monthly visits
- > Sizing – 19,000 monthly visits
- > Replacement – 3,800 monthly visits
- > CAD drawings – 12,000 monthly downloads

GRUNDFOS MARINE SOLUTIONS

When you choose Grundfos as your marine pump supplier, dedication, solid know-how and high-quality products are built-in benefits. The world number 1 in pumps, we offer an unsurpassed global presence, allowing you easy access to service and support at ports on every continent. Covering the engine room, the general services and the utilities, our marine range includes robust pump systems for boosting, cooling, A/C and heating as well as pumps for fuel oil, lube oil, oily bilge and sludge. All pumps can be customised to comply with your specific application requirements – based on thoroughly-tested products and 60 years of experience. In addition to this, Grundfos offers:

- > High-quality pumps for all marine applications
- > Spare parts delivered to the nearest port within 24 hours
- > 80 sales and service companies in 45 countries
- > Access to comprehensive documentation and web tools
- > Easy installation and maintenance
- > Efficient solutions offering reduced life cycle costs

PT. TOYASAE BERKAH ABADI

Grundfos Authorized Dealer

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