

MARITIME

**Screw Pump Solutions for
Fleet Operation and Shipbuilding**



BUILT FOR HIGH SEA. ENGINEERED FOR GOOD.

Expertise, Engineering, Certification and Performance Parameters.

■ State-of-the-art technology, brilliant engineering, premium quality add up to the single most valuable benefit on and below deck: reliable operations.

Others ask for the route. We're on and below deck already.

Our expertise is hands-on. We love going into detail. And we don't mind getting dirty. We've been in the bowels of your fleet and back. For answers that last. And solutions that endure.

Quality, precision, innovation setting the pace.

We manufacture to state-of-the-art quality and precision. Core technologies are made in Germany. Our R&D is working on new materials and optimised parts.

Tried and tested.

Our testbed in the *Leistritz* Plant in Germany, envied by some, feared by many. Our pumps are tried in gruelling conditions. Less wear and tear means smooth operations.

Approved and certified.

Tough quality means a smooth ride, even in heavy seas. For decades. And for tough certifications such as: ABS, BV, DNV, GL, LRS, RINA. IMO, MARPOL and others on safety, efficiency and sulphur emission.



■ Solutions for steering gears and pitch propellers



■ Solutions for ship fuel oil systems



■ Solutions for ship engine lube systems



■ Tanker and cargo loading and unloading



■ Pump support for hydraulic devices



■ Customised screw pump systems

SOLUTIONS IN STORE

Keeping your product moving smoothly.

Loading and unloading cargo fluids from low viscosity diesel oil to high viscosity bitumen or molasses with easy to adjust delivery is daily exercise for the *Leistritz* pump task force. Cast iron, nodular cast iron, cast steel and stainless steel outfits allow you to select the perfect finish for your fleet and your task.



FLOW VOLUMES
up to
5,000 m³/h



VISCOSITIES
up to
> 3,000 cSt



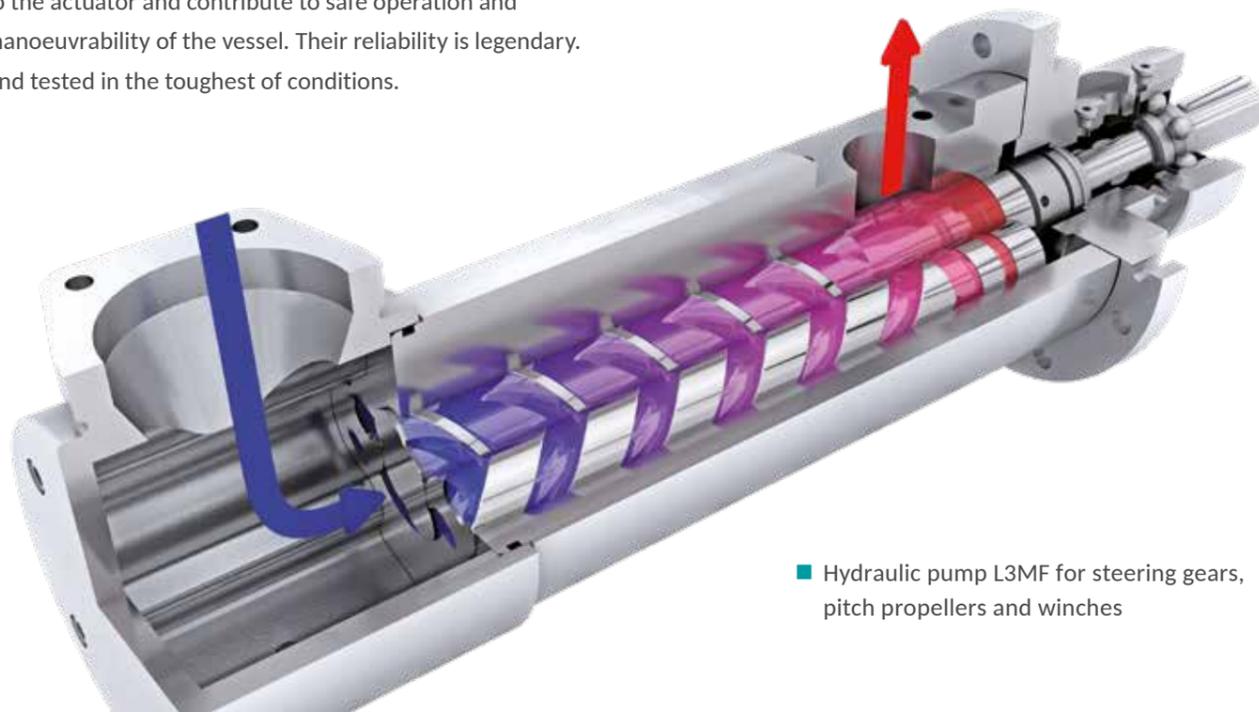
DIFFERENTIAL PRESSURES
up to
100 bar



OPERATING TEMPERATURES
up to
-60° to 180° C

Steering gears and pitch propellers

Leistritz screw pumps systems provide appropriate pressure to the actuator and contribute to safe operation and manoeuvrability of the vessel. Their reliability is legendary. And tested in the toughest of conditions.



Hydraulic pump L3MF for steering gears, pitch propellers and winches

Scope of Technical Options

- Frequency converter with air or water cooling
- Monitoring (PLC) for viscosity and temperature and automatic speed adjustment
- Alternative pump drive by hydraulic motor and/or gas tight bulk head
- Penetration sealing (type-approved) for installation of electric motor in "non ex area"
- Pump casing materials available for specified needs of pumped fluid: cast iron, nodular cast iron, cast steel, stainless steel

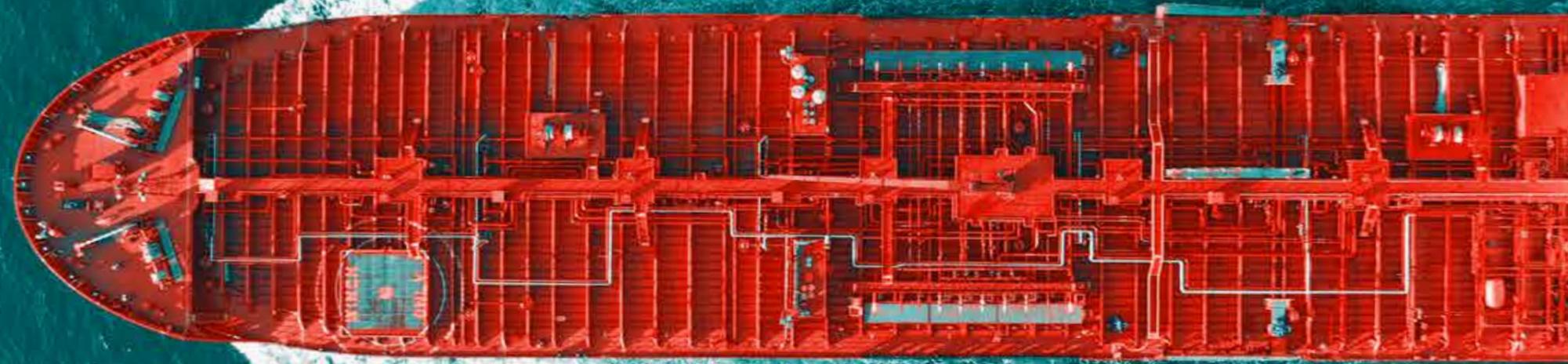
Anti-Heeling Support

Improved safety for the ship, machinery and people on board is achieved by corrective, anti-heeling applications. *Leistritz* pump systems transfer ballast water between heeling tanks, achieving up to 400 m³/h. This makes centrifugal pump installations with complicated valve periphery redundant.



MOVING CARGO

Keeping your Fleet on Schedule. And Your Product on Time.



■ Tanker and cargo loading and unloading

The *Leistritz* scope of pumping solutions is designed to comply with MARPOL and other standards with resistance to sensitive and aggressive chemical cargo fluids and products. Cargo of nearly all viscosities – from kerosene to asphalt – can be unloaded and effectively stripped from tanks and suction lines. The pumps are designed as five-screw (or two-screw), single flow pumps for high-capacity unloading and stripping.

Their function as circulation pumps also helps to keep viscous products flowable and on temperature during transportation.

Cargo pump applications

The screw pump technology ensures almost pulsation-free discharge for fluids from low viscosity diesel oil to high viscosity crude oil or molasses.

Stripping pump applications

Leistritz submerged cargo pump solutions inside the barrel put their excellent suction ability to use. This helps strip piping line and tanks, even with highly viscous products. Your benefit: optimised cargo discharge time.

Solutions for bunkering tanks

Viscosities from 1 to 2,000 mm²/s in bunkering refueller tankers equipped with a blending station are handled without the need for an additional heating system.

FUELLING POWER

Keeping your Vessel Running Safely

Solutions for Fuel Systems

Leistritz screw pump systems serve as fuel oil supply and transfer pumps for boilers and separators. They handle heavy fuel oils as well as very thin diesels (low sulphur fuels). Serving as feeder and booster pumps, they run safely without maintenance, even with heavy fuel oil at temperatures above 120°C.

Solutions for Lube Oil Systems

Leistritz pumps ensure appropriate flow and pressure, smooth operations in rough seas, small installation space, reliability, robust design and long service life.

Leistritz customised solutions include this directly coupled lube oil screw pump. It ensures a consistent supply of lube oil in sync with the screw speed.



■ **Solving problems before you have them**

Pump solutions may not be exciting, but that's the point: running smoothly, you have no hassles and no costs where budgets are strapped and schedules tight. Our scope is our engineering pride, coming to grips with your fleet operations. It's not the pump, it's the people behind it that deliver solutions to problems before you have them.

Powered by your applications

We're on your side, even when we're not around. That's a sign that all is well. Our pump technology has a reputation for being indestructible, running 15, 20, even 30 years without a hitch.

HOME BASE FOR YOUR PEACE OF MIND

Leistritz Pump Technology: Who we are and what we do.

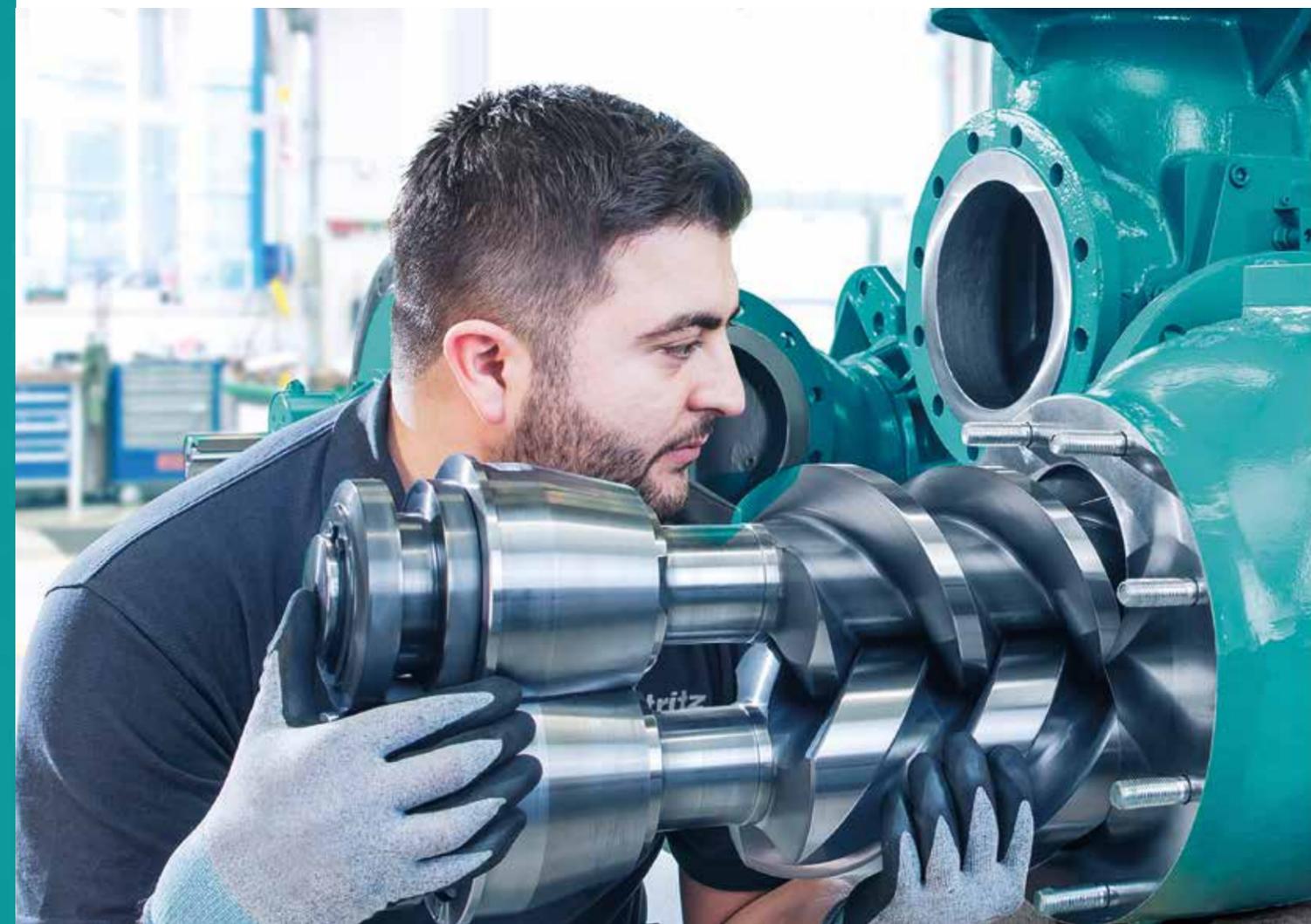
Saving you time and money, so you are free to concentrate on your business. Which is maritime operations. Never pumping. Let us take care of that for you.

We are big on innovation and technology, but even bigger on service. We're on site whenever and wherever you need us.

Powered by performance

Backed by the world's largest range of screw pumps, our scope of supply embraces standard and custom-built solutions for all marine and navel applications.

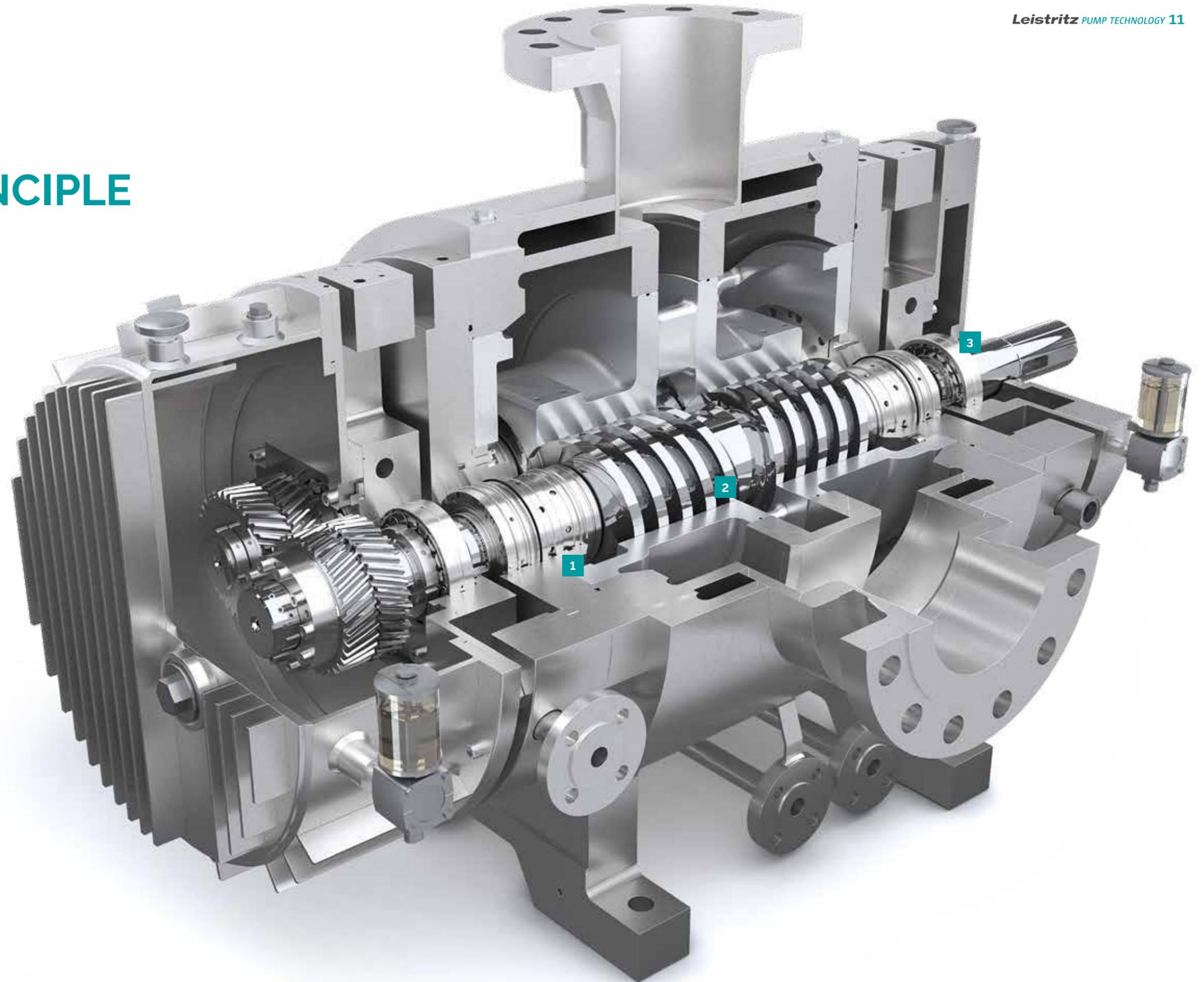
- Lube and fuel oil systems
- Pumping solutions for loading and unloading
- Special applications such as hydraulic pumps
- Solutions for dry and submerged operation



THE SCREW PUMP PERFORMANCE PRINCIPLE

Superior Technology for Premium Performance

A convincing technological principle: screw pumps are positive displacement pumps with rotating 'screws'. The product is displaced constantly and without any loss of lubrication or turbulence. The pump range includes both single double volute series for low, medium, high and ultra high pressure duty. What sounds simple is true high tech for reliability and smooth operation.



Benefits for your ship fleet

- Efficiency on CAPEX and OPEX
- Self-priming
- Constant pulsation-free liquid flow
- High flow rates up to 100 m³/h
- Broad viscosity spectrum
- Low life cycle costs
- Low NPSH required

Technical Data: Screw Pumps

Flow rates	200 – 5,000 m ³ /h	880 – 22,000 gpm	< 755,300 bpd
Differential pressure	10 – 280 bar	145 – 2175 psi	
Operating temperature	180 – 350°C	356 – 662°F	
Viscosity	10,000 – 150,000 cSt		

1 Plug-and-Play Operation
Self-priming, high efficiency, low operating costs.

2 Easy Installation & Maintenance
Optimised installation and easy maintenance thanks to only one shaft seal, magnetic drive (seal-free design) or interchangeable casing insert.

3 Optimised Process Safety
Axially balanced rotors avoid forces on bearings. Dry run and solids capabilities.

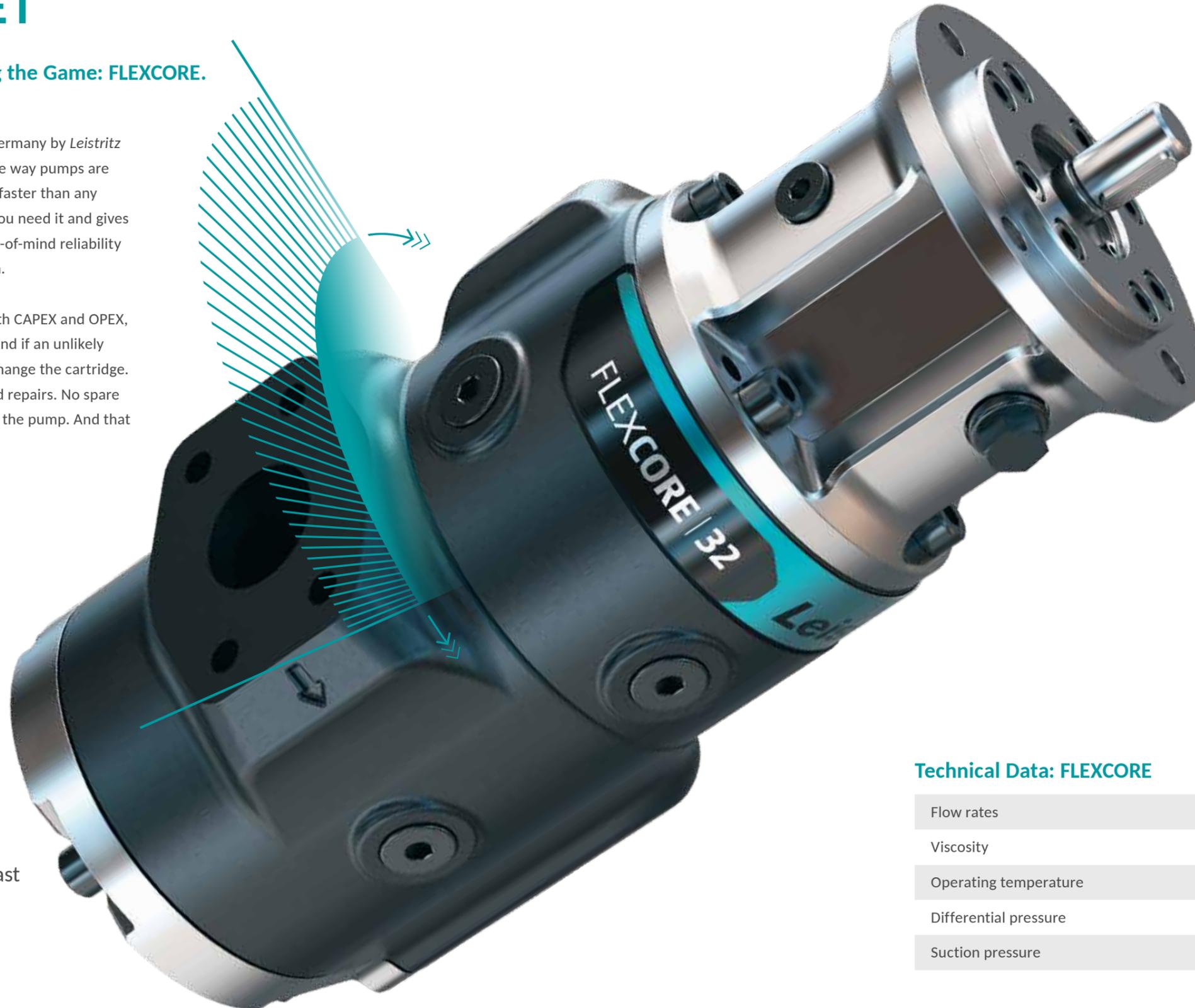
KEEPING YOUR FLEET ON ITS FEET

Setting the Pace. Changing the Game: FLEXCORE.

FLEXCORE, developed and made in Germany by *Leistritz* pump engineers, is revolutionising the way pumps are installed and operated. It turns 180°, faster than any rudder, switches pump direction as you need it and gives the same premium quality and peace-of-mind reliability for which *Leistritz* has earned acclaim.

What's in it for you? You optimise both CAPEX and OPEX, saving money and avoiding hassles. And if an unlikely problem does occur, all you do is exchange the cartridge. No costly downtimes. No complicated repairs. No spare part ordering. You are likely to forget the pump. And that makes us really happy.

- Available with nodular cast iron and steel casings
- 24-month warranty
- Made in Germany
- API compliant



- Vertical or horizontal installation. Turns 180° either way. Flexible, exchangeable pump core for easy maintenance. Ideal for fuel and lube oil services on board.

Technical Data: FLEXCORE

Flow rates	6 flow rate categories between 7 - 564 l/min
Viscosity	1.1 to 2,500 mm ² /s
Operating temperature	-10 to 180 °C
Differential pressure	1 to 40 bar
Suction pressure	max. 8 bar

YOU NEVER PUMP ALONE.

Leistritz Global Pump Services for your Peace of Mind.

Commissioning, support in operation

Leistritz Service is streamlined to meet the demands of your sites all over the world. We have your operations in view using state-of-the-art digital technology – supported by a global network of qualified partners close by. Our engineers support you in your production run to guarantee punctual start up and hassle-free operations. We train your operators hands-on. And on the job. Our service is yours to keep your production lines running as smoothly as clockwork.

Training, Services, Maintenance and Spare Parts

Home base for our global oil and gas operations is our special industry unit in the UAE. International service and support is provided from Service Stations in Nuremberg, Milano, Somerville, Chennai, Sharjah, Shanghai, Taicang and Singapore. That's Germany, Italy, USA, India, the United Arab Emirates, China and, of course, Singapore.

At a glance

- Planning and design
- Plant commissioning
- Process optimisation
- Modernisation / upgrades
- Customer training
- Extended Warranty
- Support hotline
- Maintenance
- Digital / remote services
- Repair services
- Spare parts



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Leistriz Korea Co. Ltd.
Seoul, Korea

Leistriz India Pte Ltd.
Chennai, India

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Sharjah, United Arab Emirates

*Distributor network
for regional and local service*

