

MARINE CARGO PUMPING SYSTEMS

# Framo service, support and training



## The customer in focus

The marine industry is a 24/7 business. Your bottom line is dependent on every one of your vessel's systems performing as expected all day, every day. That means when a challenge does occur, you need it fixed and you need it fast.

Framo service and support is set up with the customer in focus. If you encounter an issue with your Framo pumps we are there to help. We find a solution. Whether that is helping by remote assistance or sending a replacement part with one of our specialist service engineers; we fix it! For over four decades, our philosophy has been to solve the challenge first.

We commit to give you support, service and spares you can depend on throughout the life of your vessel – backed by unmatched experience of pumping systems. You have peace of mind knowing your pumps are always up and running. With our focus on you, you can put your focus on your business.

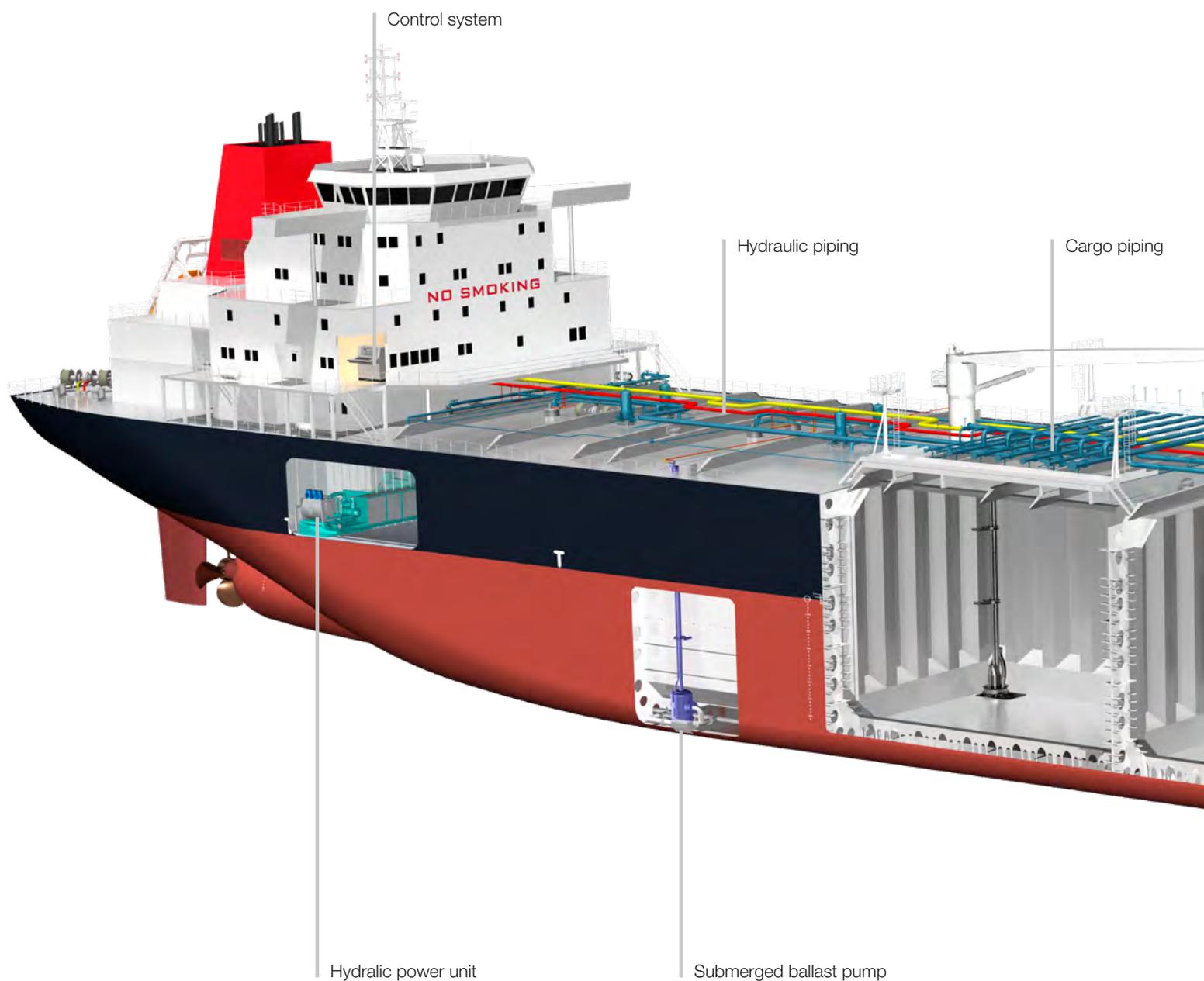


*Framo will be your partner for finding the best possible solution to your pumping issues – anywhere in the world, at any time.*

## The heart of your operations

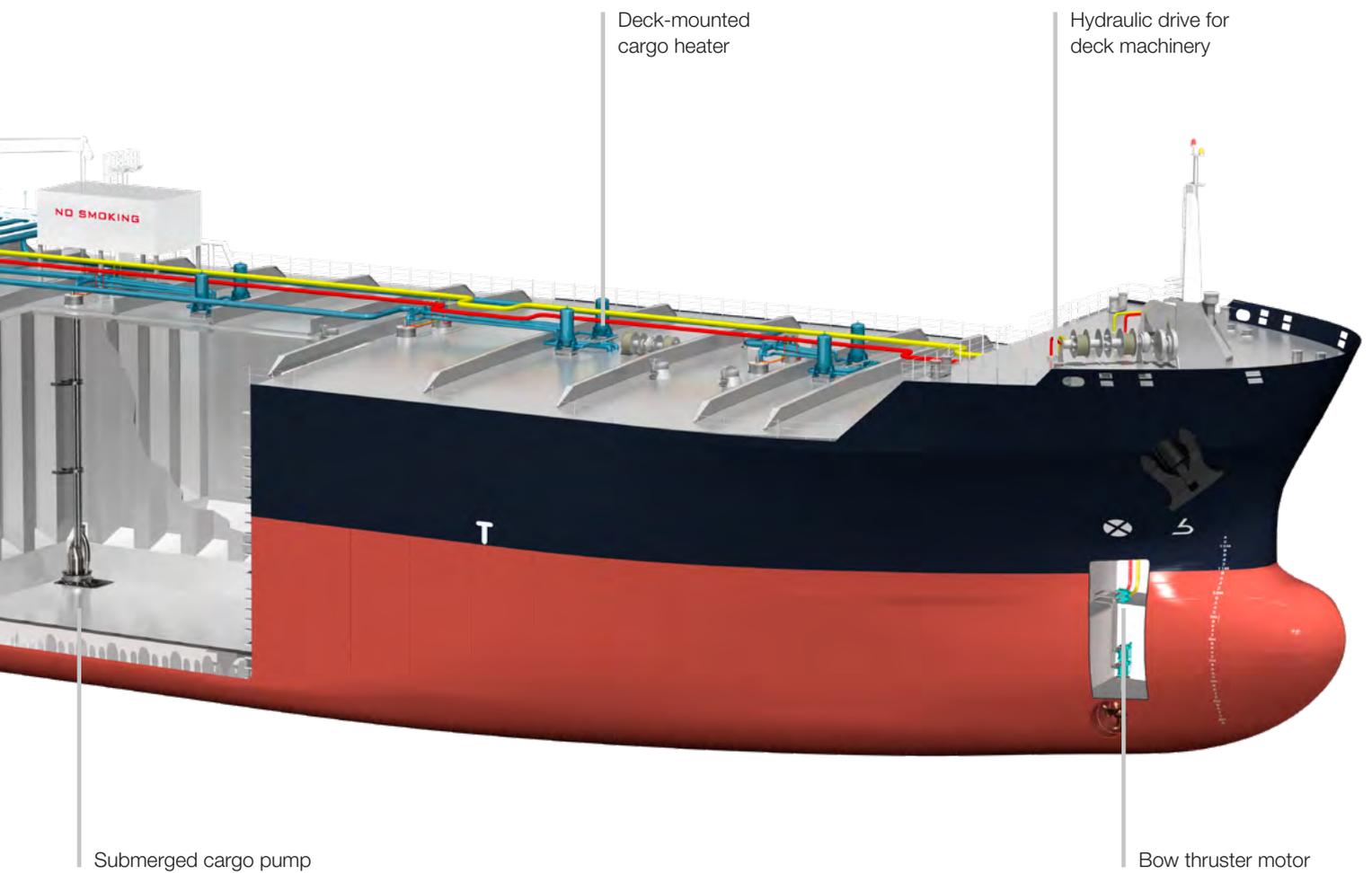
Pumping systems are at the very heart of your tanker's operations and are integrated throughout your vessel. The performance of the pumps therefore impacts the overall performance of your ship and, indeed, your entire operation.

To get the most from your vessel, condition knowledge of your Framo pumping systems is essential. Framo services gives the tools you need to monitor the system condition, perform the timely correct maintenance and thereby keep your pumping systems running.



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#### FRAMO SERVICE

## Reliable expertise when every minute counts

Having the correct expertise available at all times is essential. The Framo service team can assist you with online trouble shooting, field and workshop service, inspections, project and docking planning. Whatever you need, when you need it. 24/7, around the world.

#### **Cost-free remote troubleshooting**

Whenever possible, we aim to help your crew resolve issues on their own, so you can resume operations even faster. No matter where in the world you are, the Framo service team can provide troubleshooting for any matters via phone, e-mail or video conferencing any time of day, any day of the year. And their expert advice is always cost-free.

#### **Keeping track of your pumps**

We document all on-site work using standardized reports, which are filed in our document handling system. This ensures our service and project engineers always have easy access to the operational history of your pumping systems, and can therefore provide the best level of service, fully tailored to your vessels installation.



### The experience you need

Framo has developed extensive service training programmes, based on over half a century of experience in marine cargo pumping. All Framo service engineers go through our trainings to ensure they have the competence, skills and necessary certificates to solve complicated problems in challenging offshore environments.



#### GENUINE SPARE PARTS

## The right parts for optimal performance

The cargo tanks of product and chemical tankers are incredibly inhospitable environments. When transporting dangerous cargoes, you can't afford to cut corners. Only original spare parts, designed and tested by Framo, can ensure reliable performance from your cargo pumping systems.

#### **Quality assurance**

At Framo, quality control is paramount. Our material control department inspects manufactured parts to verify that standards are in accordance with all relevant requirements. All of our spares are developed using carefully selected materials and undergo rigorous testing to ensure that they have the correct qualities for the tasks they perform.

Because genuine Framo spare parts are specifically designed for Framo pumping systems, they are the surest way of maintaining optimal performance for your vessel's equipment as well as preventing damage to the system and the risk of operational hazards.

#### **Fast, worldwide availability**

Our goal is to be your vessel's "spare parts warehouse." We offer over 8000 unique spare components that are designed, manufactured and tested at our facilities in Norway. Each of these is tracked in our database to make sure you can easily get the exact part you need, when you need it.

The most critical wear parts are readily available from Framo's global service centres. From our large spare parts stocks, situated in strategic locations, spare parts can be shipped out in a matter of hours. For several key items, Framo also carries an exchange stock in the same warehouses.



For critical cases in remote locations, Framo service personnel can even fly out to deliver the part in person. This ensures the part you need arrives and is properly installed as fast as possible.

**Continuous dialogue**

The experts at Framo service centres help your crew understand which spares are critical to stock on board, and which should be ordered as needed. To guarantee each part is stored under best conditions for the longest performance life, we work with you to make sure you only purchase the components you absolutely need.

As part of an ongoing conversation with our service team, we can also track and monitor turnover of wear parts on your vessel. If a certain part is being replaced too frequently, we work with you to identify and solve the problem. This way, you can be sure you get the longest – and most cost-effective – performance from your Framo equipment.



## GLOBAL SERVICE CENTRES

# Service where you sail

Framo understands that when your vessel is in need of service, you can't afford to spend days and days waiting for an engineer to arrive. We have established service centres in strategic locations around the world to ensure that we can reach your vessel quickly whenever you need our support and expertise. No matter where you sail, we're never too far away.

Framo global service centres and the following services are available in these locations:

### **Bergen, Norway**

- Service technicians
- Training seminars
- Pumping system rentals
- Original spare parts

### **Rotterdam, The Netherlands**

- Service technicians
- Training seminars
- Pumping system rentals
- Original spare parts

### **Houston, USA**

- Service technicians
- Training seminars
- Pumping system rentals
- Original spare parts

### **Rio de Janeiro, Brazil**

- Service technicians

### **Singapore**

- Service technicians
- Training seminars
- Pumping system rentals
- Original spare parts

### **Tokyo, Japan**

- Service technicians
- Training seminars
- Pumping system rentals
- Original spare parts (limited selection)

### **Busan, Korea**

- Service technicians
- Training seminars
- Pumping system rentals
- Original spare parts (limited selection)

### **Shanghai, China**

- Service technicians

### **Dubai, UAE**

- Service technicians
- Training seminars
- Pumping system rentals





#### OIL MONITORING AND INSPECTION PROGRAMME

## Expert analysis for better performance

Download Service  
Bulletins at  
[framo.com](http://framo.com)

While our pumps are carefully designed and tested to ensure lifelong reliable operation, regularly scheduled service is critical to getting the most from your pumping system. Founded on a philosophy of condition-based maintenance, the Framo oil monitoring and inspection programme (OMP) is a tool to assist your ship's crew and the responsible superintendent with recommendations for maintenance. It can also be used to provide a manufacturer's statement to various external inspectors, such as vetting, class and port authorities.

#### **The most cost-effective pump maintenance**

With OMP, Framo service experts provide quarterly analysis of hydraulic oil samples in order to diagnose the condition of your pumps. When combined with annual onboard inspections from a Framo service engineer, you gain critical insights into the true operation of your cargo pumping equipment.

Monitoring the condition of your vessel's pumping systems in this way allows you to address potential issues before they cause downtime or require major costly repairs. It also helps you optimize your pumps' performance to reduce maintenance needs and spare parts consumption, meaning significant savings over the total lifetime of your equipment.



### **Programme scope**

Our service team will teach your crew how to properly collect hydraulic oil samples from your equipment, which you will then send to our laboratories for particle counting and water content testing three times per year. The fourth sample will be collected on board by a skilled Framo service engineer during an annual visual inspection into the overall condition of your systems. Every five years, when your vessel is due for docking, a more thorough pre-docking inspection takes the place of the standard annual inspection.



## PURGING

# True insights into pump seal condition

Download Service  
Bulletins at  
[framo.com](http://framo.com)

All Framo cargo pumping systems feature a cofferdam that creates a protective area around the pump. Purging the cofferdam on a routine basis is a simple way to monitor the condition of shaft seals and ensure that your pump is operating as intended.

### The purging process

The pump cofferdam is purged using pressurized air or nitrogen, which is then expelled through the exhaust pipe on deck. Results from each purge are logged. The trend of logged purging result is used to plan any corrective maintenance as change of the shaft seals.

Framo recommends purging the pump cofferdam shortly before and after every loading and discharge operation, as well as every fourth night when the ship is sailing. Our service personnel can teach your crew the proper procedures for purging and logging the results in one of our training seminars.

### Expert insights and advice

You can always submit data collected during your vessel's purging operations to Framo for cost-free analysis. Our service technicians review the information and provide recommendations for service when necessary. They can also walk your crew through certain troubleshooting procedures, such as removing a blockage through a heating process.

A new digital system from Framo lets you automatically submit purging data for analysis. If the test results are within acceptable limits, your crew receives an "OK" response within minutes.



#### FRAMO TRAINING SEMINARS

## Practical instruction for dependable performance

Download Service  
Bulletins at  
[framo.com](http://framo.com)

Framo offers in-depth training to help you safeguard the operation of your pumping system for efficient and cost-effective performance. Our courses provide your crew with critical skills for maintaining pumps and resolving issues on board.

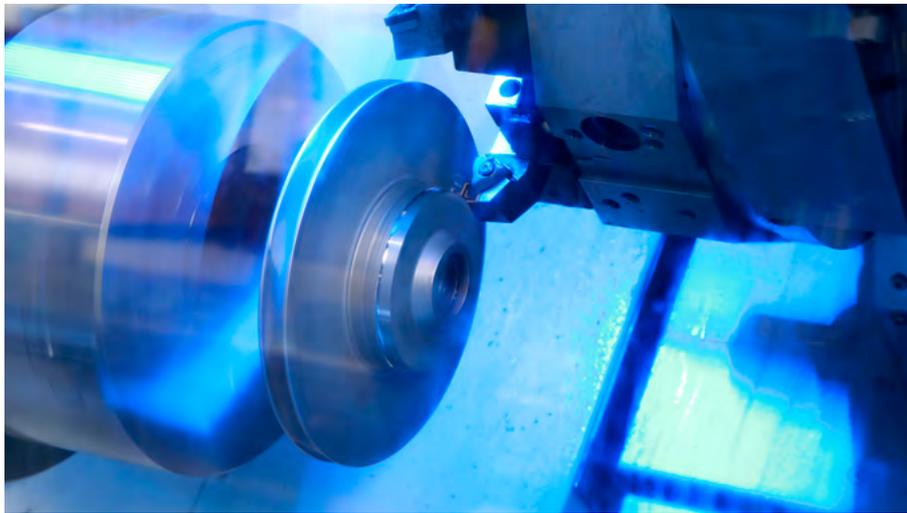
#### Training to fit your operation

Every year, Framo training instructors lead over 130 courses with more than 1200 participants. Crews receive theoretical training combined with practical, hands-on instruction using the systems on board your vessel or similar equipment at one of our global service centres.

Framo training options include:

- **The standard seminar** – A three-day course for your whole crew covering basic pump theory, operation, maintenance, repair and troubleshooting as sea.
- **The superintendent seminar** – A three-day course for your superintendents with additional topics including pre-docking inspection and spare parts consumption.
- **Custom training** – A tailor-made course based on your specific systems and the needs of your crew, designed around information you provide to Framo.
- **Onboard training** – Training specific to your equipment, which can be arranged when your vessel is docked at a shipyard or when sailing between ports. These courses can also be combined with a pre-docking technical inspection and report.

Find courses on [www.framo.com/training](http://www.framo.com/training)



#### PARTS RECONDITIONING

## Cost-effective exchange that ensures uptime

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Bulletins at  
[framo.com](http://framo.com)

All rotating equipment is sensitive to wear and tear after extended operation. Framo offers parts reconditioning to extend the lifetime of certain pumping system components. The possibility of reconditioning for key parts saves you money on spares and replacements, while still ensuring optimal performance from your pumps.

Reconditioning services are offered for:

- Impellers and impeller hubs
- Hydraulic pumps (exchange or repair)
- Mechanical seals
- Cargo pump body parts, including housings and pipestacks
- Various types of hydraulic valves and controls

Further refurbishment services are offered for:

- Ceramic sleeves

#### **Exchange programme**

With Framo's reconditioning exchange programme, your crew can quickly receive a new part for time-sensitive maintenance issues. Once a replacement becomes necessary, our service team will swap out your existing part with a reconditioned equivalent from one of our global service centres. In this way, system downtime is kept to a minimum.

Following the installation of the replacement, your original part is taken back to Framo's service facilities, where it is reconditioned for later exchange.



PIPING

# Smarter pipe replacement

Download Service  
Bulletins at  
[framo.com](http://framo.com)

Hydraulic piping aboard a vessel is exposed to some of the harshest environments on the planet. Proper maintenance is necessary to ensure a long lifetime for hydraulic pipes. Framo has developed a unique service for safely installing new pipes when required, while simultaneously minimizing downtime.

**Plug-and-play piping**

With Framo's plug-and-play piping system, our expert engineers visit your vessel to inspect and measure pipe sections, free of charge. Based on the measurements, they produce drawings for fabricating replacement pipes. The new pipes are produced in our workshops and factories, and they are delivered as replicas for a quick and easy installation. No hotwork or onboard grinding is required.

The process is not only safer than traditional pipe work, it is also faster. Once Framo has taken the measurements, we will supply layout drawings of the hydraulic piping, making it as easy to order new pipes as it is to order normal spare parts.



## PUMPING SYSTEM RENTALS

# Rent an expert

Download Service  
Bulletins at  
[framo.com](http://framo.com)

Founded on our own range of portable pumps, Framo has established a worldwide rental network of pumps, equipment and personnel. The combination of self-developed systems, engineered planning capability, global availability and 40 years of daily experience is why we say that you can “rent an expert.”

### Equipment and solutions for you

Framo strategically stores a wide range of portable pumps, hydraulic power packs and auxiliary equipment at our service stations around the world. All equipment is ready to be mobilized on shortest notice, for local or remote jobs.

Framo pumps can be used for pumping any type of liquid. Examples of rental applications include:

- Molasses stripping/assistance
- Difficult cargo assistance
- Booster pumping
- Vessel off-spec fuel de-bunkering
- Ballasting/deballasting
- Tank cleaning and sludge pumping
- Frozen liquid tank heating
- Salvage offloading and emergency offloading
- Inclination testing by ballasting
- Terminal/refinery storage tank assistance
- Shore basin pumping
- Dry dock pumping assistance



ABOUT FRAMO

## A partner to rely on

With a history stretching all the way back to 1938, Framo takes the long view when it comes to our relationships with customers. We believe in creating an active partnership with you and your crew, built on reliable experience and competence.

Feedback from our customers is the best way to improve our products and service, and we strive to make annual visits to all customers with Framo equipment onboard a vessel in their fleet. The exchange of knowhow, experience and expertise helps us to help you improve your business.

Our service desk was first established in 1975 with this same philosophy in mind. For more than four decades, we've ensured that Framo experts are there locally in the harbours where you need them, when you need them. That's what you can expect when you choose Framo.

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**24/7 service**

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to get to: local 24 hours service!