

OIL AND GAS PUMPING SYSTEMS

Framo service, support and training





## SERVICE, SUPPORT AND TRAINING

# Qualified response

Framo Services AS is a dedicated service company handling installation, commissioning, start-up, service and spare part production and distribution for all Framo products.

### Our services

Each installation where Framo products are installed will have a dedicated and technically skilled point of contact (Project Engineer) appointed. All matters related to the specific installation will be handled by the Project Engineer. This way of thinking ensures that your Framo contact has good knowledge of the installation-specific requirements in addition to knowledge about the pumping system and its operational history.

- Installation (onshore and offshore)
- Commissioning (onshore and offshore)
- Start-up
- Service
- Repair
- Modification
- Optimization of pump systems (as operational condition changes)
- Annual inspections
- Condition monitoring
- Training
- Spare part production
- Spare part distribution
- Rental equipment

*The majority of our service work is handled through long-term frame agreements with our clients.*



### Responsiveness

Customers' production processes depend on our pumping systems. Hence, personnel and spare parts will be mobilized from one of our service centres within 24 hours if required.

By having:

- Spares available in stock
- Our own large and flexible workshops and machinery
- A high number of service engineers
- Dedicated Project Engineers
- A 24/7 service phone line

...our service response is world class.

### Spare parts

At Framo Services AS, quality control is paramount. All manufactured spare parts, reconditioned spare parts and purchased material are controlled by our material control department in accordance with relevant requirements. That's why we call them Framo Genuine spares. We guarantee that spare parts will be provided as long as the product is in operation.



## EXPERIENCE AND EXPERTISE

# Continuous development

Framo Services AS has experience and expertise in servicing various rotating equipment, stretching from marine gearboxes to high-pressure water injection pump systems. As our products and our customers' needs have changed, we have developed our expertise accordingly.

### **Our facilities**

To ensure efficient service, our service centre has a large and flexible workshop with all machinery required.

The main features are:

- 11 CNC machines
- 3000 square metre workshop
- Hydraulic workshop
- Mechanical seal workshop
- Balancing
- Run-out
- NDT
- Welding
- Glass/sand/plastic blasting

### **Site work**

Service engineers are available for service work onshore and offshore worldwide. Our service engineers are highly competent, and to ensure that the team can always offer the skills required, we have developed our own training programmes. Our service engineers have the required offshore training and health certificates.

All on-site work (including the installation and commissioning reports) is documented through standard-format site reports. All service reports are filed in our document handling system and linked to the subject installation. This ensures that our Project Engineers have easy access to the operational history of the pumping systems.



### **Modifications, upgrades and extended lifespan**

Framo Services AS follows the pump systems throughout their operational lifespan.

A Framo pump may operate on the same installation for more than 30 years, during this period technology develops, the pump duty changes and the pump parts get worn.

Framo Services AS has a team of engineers who can evaluate the pumping system and the operational conditions and suggest solutions for improved operation and extended lifespan for your pumping system.

### **Spare parts**

We can upgrade or repair your pumping systems to:

- Meet changes in duty
- Meet changes in operational condition
- An updated pump system of the latest design
- A pump overhauled to "as delivered"
- A pump able to continue its operation

Our team of engineers aim to provide the most cost-efficient solution.

### **Overall expertise in rotating equipment**

Framo Services AS has, over the years, acquired vast overall expertise in rotating equipment. Through various contracts, we perform service, maintenance and repairs on gas compressors, turbo expanders and various pump types.



#### PROACTIVE SERVICES

## Preventive measures, condition-based maintenance and integrated operations

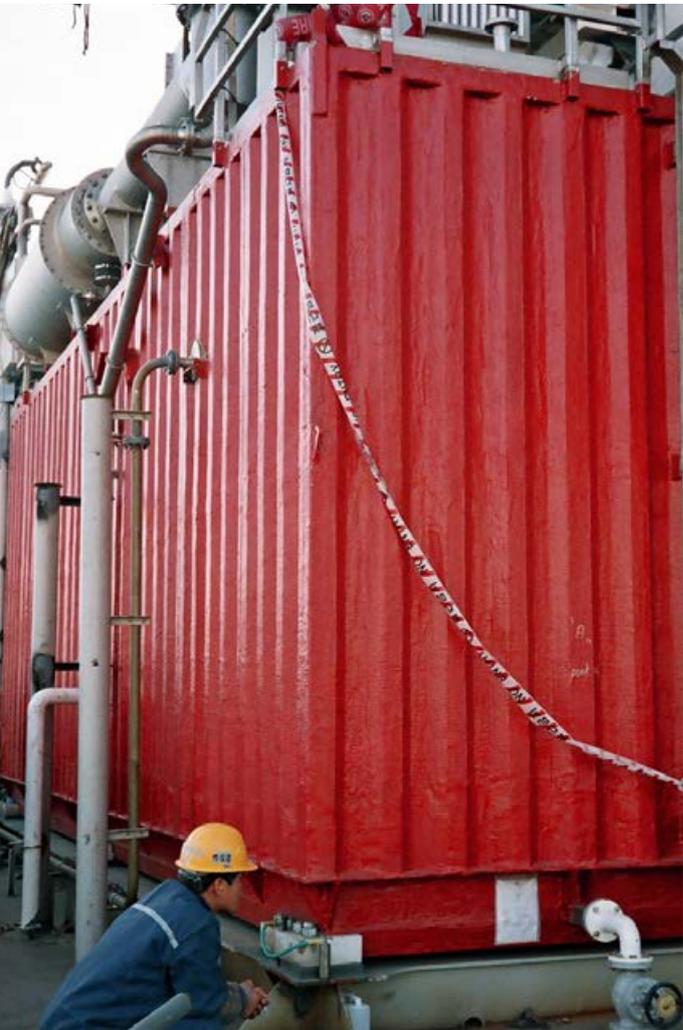
Maintenance philosophies are many and develop continuously. Framo Services AS focuses on training, annual inspection and integrated operations to reduce maintenance cost and increase the reliability of our pumping systems.

#### **Training**

At our main service centre, as an integral part of its service activities, we have developed a training centre with classrooms, a pump assembly/disassembly workshop and a pump operation area. We strongly believe that proper theoretical and practical training will ensure the correct use of our pumps, hence reducing maintenance and increasing product lifespan.

#### **Annual Inspections**

An Annual Inspection is a complete inspection of the Framo pumping system. The Annual Inspection is designed to document the condition of the pumping system at the time of inspection, and will identify any malfunctions, inconsistencies or potential improvements. The inspection is performed according to set procedures and checklists. The result of the Annual Inspection is a detailed report providing a condition-based status of the pumping system.



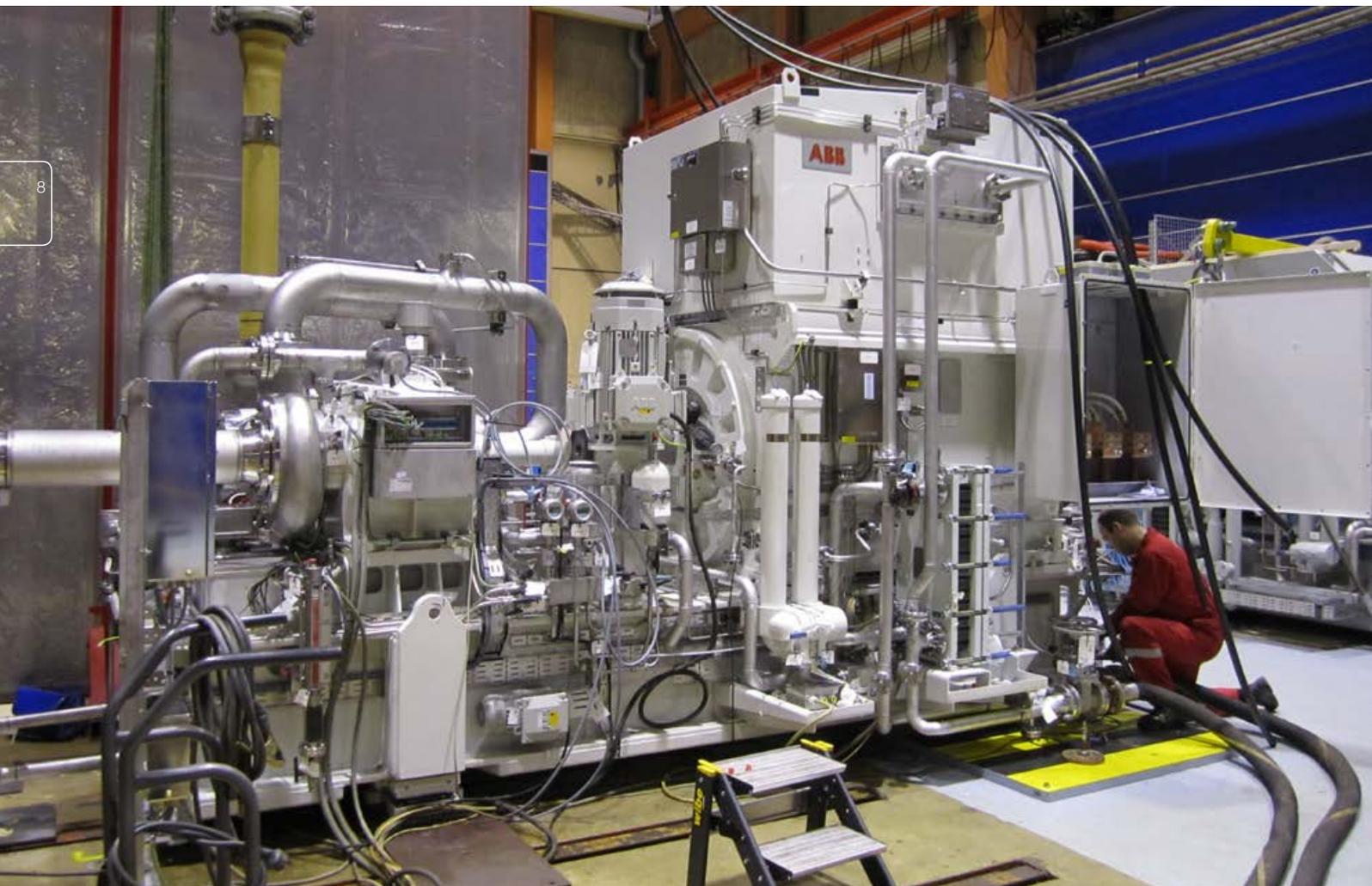
### **Integrated operations / condition based maintenance**

Framo Services AS offers the asset management strategy of the future.

Framo pumping systems are process critical, and optimum performance is required at all times. To facilitate this, our pumping systems can be remotely monitored (24/7) from an operations centre. Data from the pumps can be evaluated in real time regardless of installation location, and the information provided can be accessed through secure channels. Relevant information is only a click away.

By monitoring the equipment remotely, the condition can be continuously assessed by our specialists and necessary maintenance can be planned accordingly. Operators can then focus on their specialty, namely increasing the output of the production. In this way the assets can be utilized as effectively as possible with minimal downtime due to unnecessary scheduled maintenance.

Condition-based maintenance also increases the flexibility of the maintenance programme as the areas requiring maintenance are established ahead of the intervention. This enables opportunity-based maintenance to be carried out.



## TESTING

# Full-scale testing facilities

As part of our quality assurance, all pumping systems are tested at full scale in our test facilities to ensure that each system is in working order before being put into service.

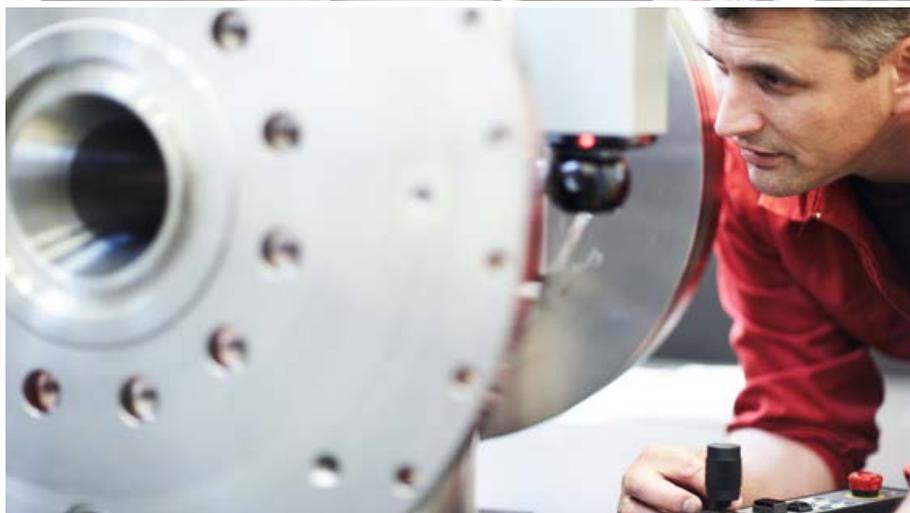
### Testing

Nothing is more time-consuming and costly than discovering shortcomings during the start-up phase out in the field. Consequently, all pumps serviced by Framo Services AS are subject to full-scale testing at dedicated test centres. This ensures that all pumps leaving our service facilities function as agreed.

### HSE & Q

Framo Services AS continuously strives to improve the effectiveness of our HSE systems in order to ensure that we work in a safe and environmentally friendly way.

Our objective is "ZERO", i.e. zero damage to personnel, zero damage to the environment and zero damage to equipment and materials.



### Service bulletins

We at Framo Services AS communicate our experience through service bulletins. These technical updates are distributed to help customers and operators to utilize their installed Framo pumping systems and carry out maintenance in the best possible way.



ISO 9001:2015 ISO 14001:2015  
CERTIFIED COMPANY



## OUR COMPANY

# A partner to rely on

Founded in 1938, Framo AS takes a long-term view on customer relations. We actively cooperate with our customers, ensuring that we are someone to trust, with experience and competence. Through continuous research and development we are preparing for tomorrow.

### **Driven by a simple idea**

Framo has a belief that pumps should never be isolated from the task they perform. It's a belief that revolutionized marine cargo handling, where a submerged pump in each tank is now the standard for faster, safer, more cost-effective business. And it offers similar gains to the oil and gas industry.

It's also a belief backed up by experience. Framo has existed for nearly 80 years, and for the last 50 years our sole business has been pumps and pumping systems.

### **Full control over production**

We don't just design Framo solutions. We see our designs through at our own facilities in Norway. No Framo product is delivered from anywhere else.

Our manufacturing in Flatøy is built on decades of experience, plus the most advanced machinery and techniques in the industry. Each of our skilled employees there takes pride in delivering the best – and is integral to the finished result.

### **From Norway to the world**

Framo is a recognized leader in pumping systems for oil and gas needs. Customers around the globe turn to us, both for pumps and for expertise in meeting their challenges.

Today Framo is also part of Alfa Laval, a world leader in heat transfer, centrifugal separation and fluid handling. As a result, our pumping technology contributes to still more comprehensive solutions.



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