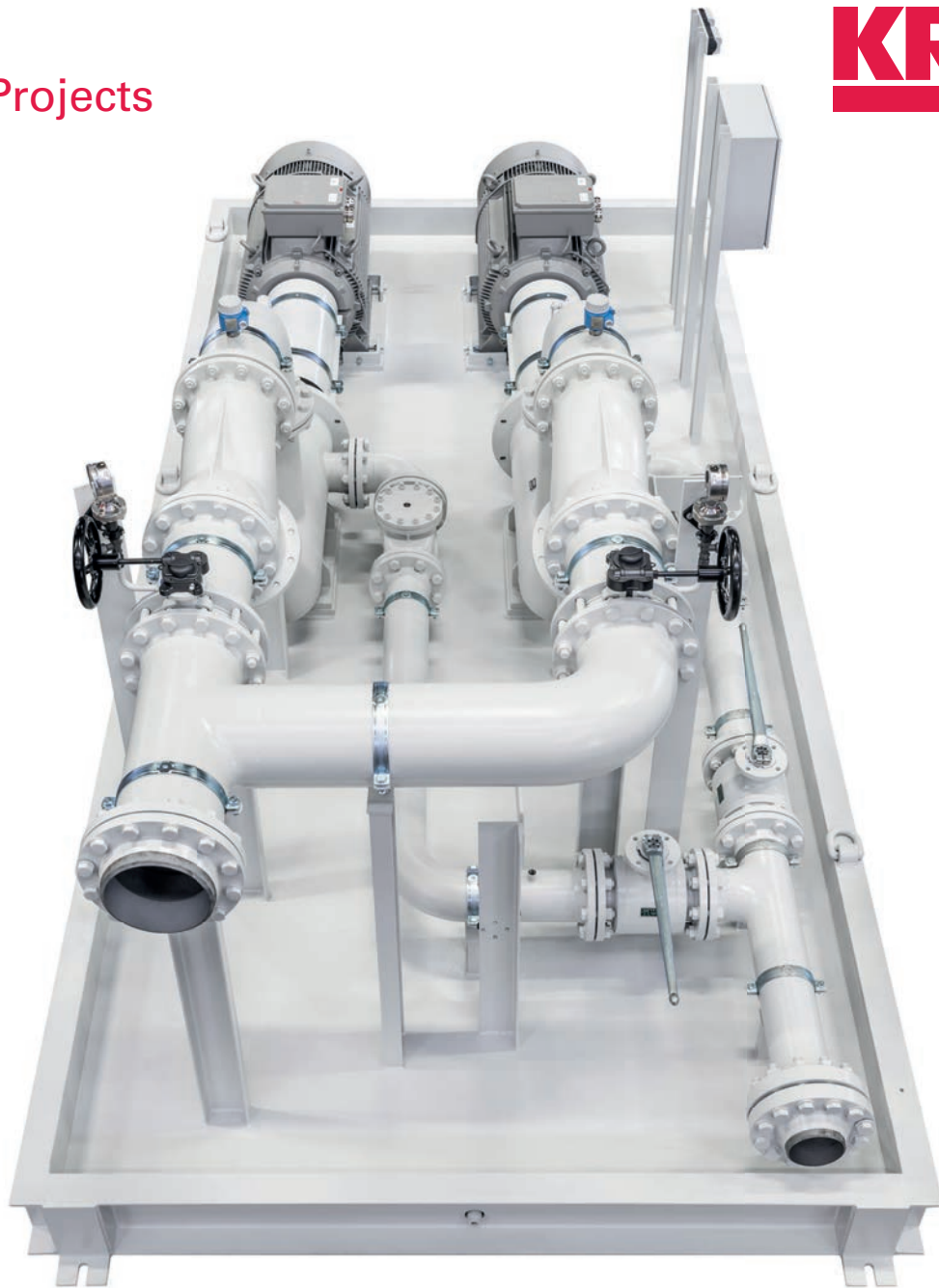


Special Projects

KRAL



Pump Modules.

Fluid complete solutions from the KRAL brand.



Special Projects

Expertise and Experience.

KRAL AG is a leading company in the field of pump and flow measuring technology.

KRAL AG has been manufacturing pumps, pump stations and flowmeters for decades. We have installed our products for a great many customers on-site, and taken those products into operation.

When you assign us to design and construct pump modules, you will benefit from two KRAL strengths.

Firstly: We have been developing and manufacturing pumps since 1950. You benefit from our mechanical engineering expertise. Our pumps have the reputation of being the highest quality screw pumps on the market. This philosophy has been implemented in our work with fluid handling systems.

Secondly: Our service engineers have installed, taken into operation and maintained many pumps, flowmeters and systems. We know what is required for pumps and flowmeters to run reliably in a wide variety of systems.

As pump specialists, we manufacture the core products of pump modules on our own.



Detail Engineering. Our Core Competence.

The project manager supports the customer throughout all phases of project execution.



Review of specifications.

KRAL has project managers who are specifically trained for this job. Your professionals cooperate with KRAL-specialists. The high level of competence on both sides is the basis for executing the project successfully.

Fast, competent project execution.

We promise to deal with your wishes in a straight forward manner. KRAL responds quickly when you request a return call, need information or would like to discuss technical alternatives.



The highest level of detailed engineering.

It is important for you that your suppliers live up to the same high standards as you do because you want to offer your customers best quality.

KRAL AG is known for quality. You cooperate with KRAL as equals.

We can implement customer requirements at the highest technical level, and we play a constructive role and focus on solutions.



Much praised documentation.

We create two types of documentation, components and quality documentation, in multiple languages upon request.

Quality documentation is created during production. This ensures ongoing quality control. The results are documented promptly in form of certificates and reports. This is how we ensure that deviations don't remain unnoticed until or after delivery.



Delivery and commissioning.

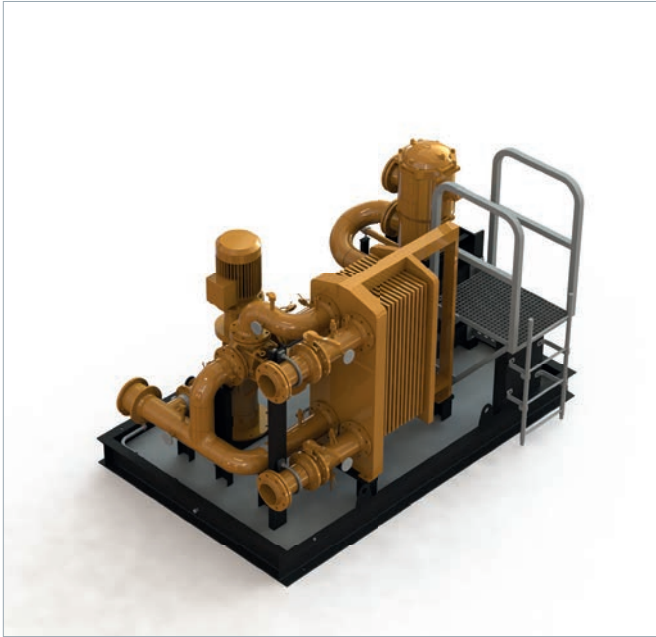
Adhering to schedules is extremely important to you. The start-up date is fixed.

Our quality management system and customer satisfaction analyses prove that KRAL has achieved peak levels for adhering to schedules.

Upon request, we assist you during installation and commissioning. You profit from our broad experience because we have taken a large number of KRAL pumps, pump stations and flowmeters into operation for our customers.

Product Examples.

Customized solutions on request.

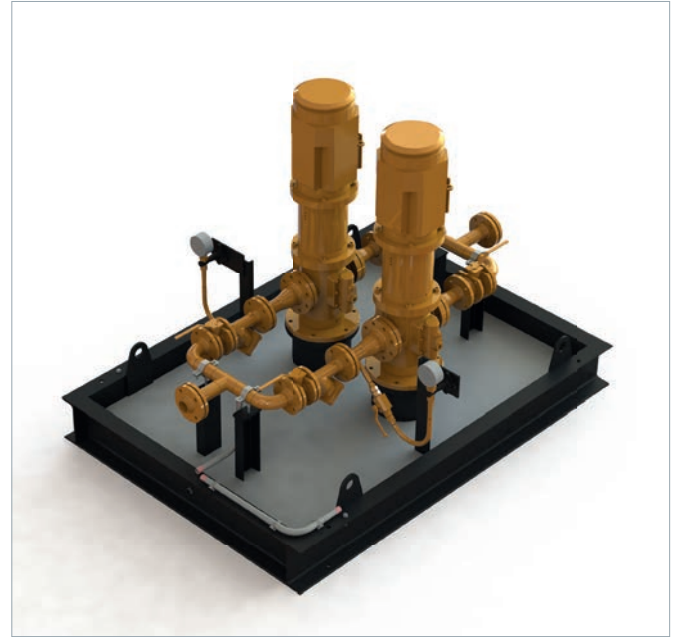


KRAL lube oil modules.

KRAL lube oil modules fulfill an important function by reducing wear of rotating components on diesel motors. For example, crankshafts or connecting rod bearings are protected with a lubricating film. Because of the constant oil circulation, the oil is cooled and subsequently filtered.

Advantages: The reliability of the lube oil supply is a significant factor for the process and operational safety of the systems. Unexpected system standstills cause high costs. KRAL lubricating oil systems are quality products which provide the highest level of reliability.

- Liquids: Lubricating oil ISO VG2 to VG1500.
- Differential pressure: Up to 160 bar.
- Flow rate: Up to 600 m³/h.
- Temperature: -10 °C to 180 °C.



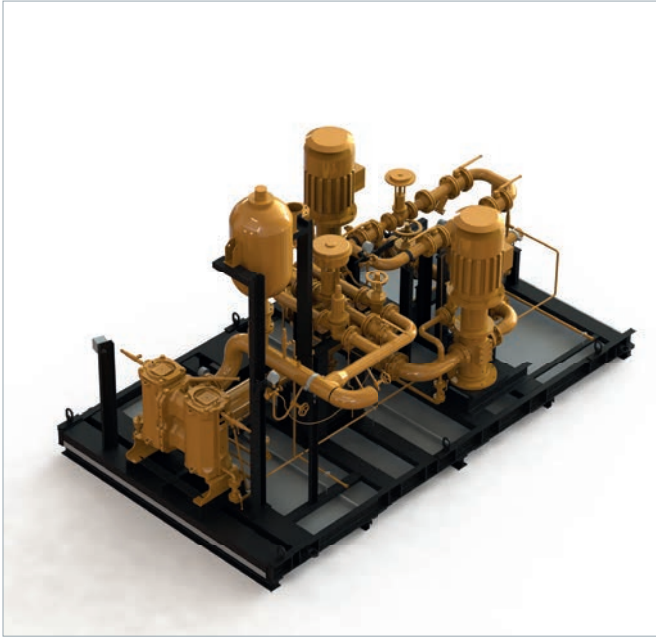
KRAL transfer modules.

KRAL transfer modules cover many applications. Examples include:

- Unloading and loading systems for fuels and lubricating oils.
- Transfer of fuels among the tanks.
- Circulation systems which generate constant preliminary pressure.
- Feeder systems for multi-stage fuel preparation systems.

Advantages: KRAL fulfills the highest safety standards and offers high pump performance for unloading, loading and transferring fluids fast.

- Liquids: Lubricating oil ISO VG2 to VG1500, light fuel oil, heavy fuel oil.
- Differential pressure: Up to 160 bar.
- Flow rate: Up to 600 m³/h.
- Temperature: -10 °C to 180 °C.

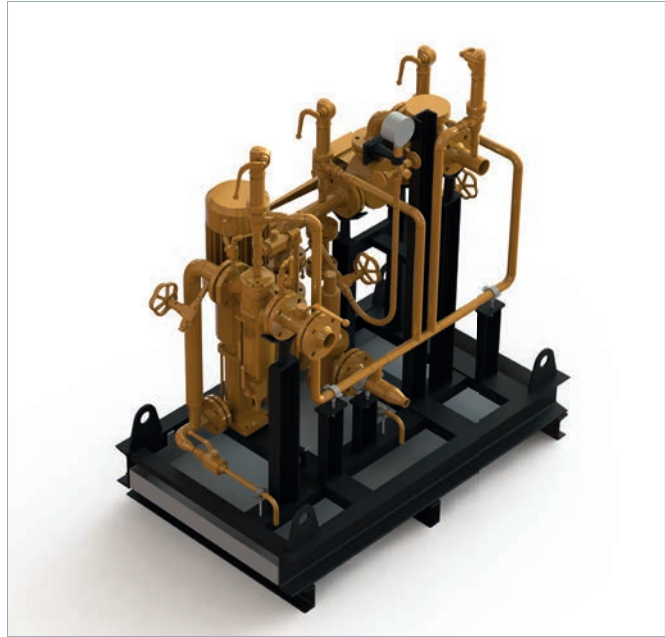


KRAL high-pressure modules.

High-pressure modules pump the fuel oil and generate the necessary pressure for ideal fuel atomization.

Advantages: Because of finely graduated sizes, KRAL high-pressure modules offer the highest possible efficiency.

- Liquid: Light fuel oil, heavy fuel oil.
- Differential pressure: Up to 160 bar.
- Flow rate: Up to 600 m³/h.
- Temperature: -10 °C to 180 °C.



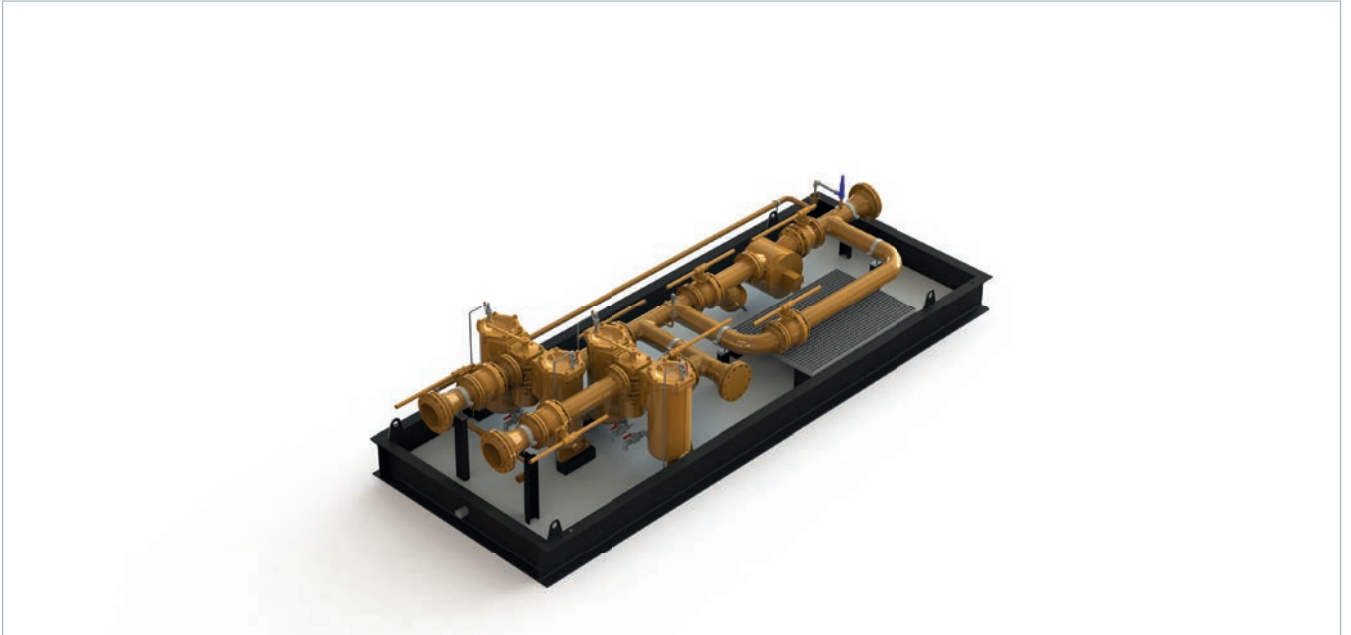
KRAL slop oil modules.

Draining processes from steam generators, pumps or other components are often combined and collected in a slop oil tank. This mixture is either fed back into the combustion circuit or disposed.

Advantages: KRAL slop oil modules have a high-pressure line to inject the slop oil into the combustion chamber and a low-pressure line to load tankers safely. Low-pressure and high-pressure lines are designed separately.

- Liquid: Slop oil.
- Differential pressure: Up to 160 bar.
- Flow rate: Up to 600 m³/h.
- Temperature: -10 °C to 180 °C.

Important note: Stylized illustrations ensure confidentiality of our customers while still exactly representing the systems which are actually delivered. Deviating specifications upon request.



KRAL measuring modules.

Power plant operators record all parameters which help lowering operating costs. This is particularly interesting for the expensive fuel oil.

Advantages: The measurement of bunker delivery allows a comparison between the actual flow rate and tank invoice.

- Liquids: Lubricating oil ISO VG2 to VG1500, light fuel oil, heavy fuel oil.
- Pressure: Up to 250 bar.
- Flow rate: Up to 450 m³/h.
- Temperature: -10 °C to 180 °C.

Standard-Compliant Design.

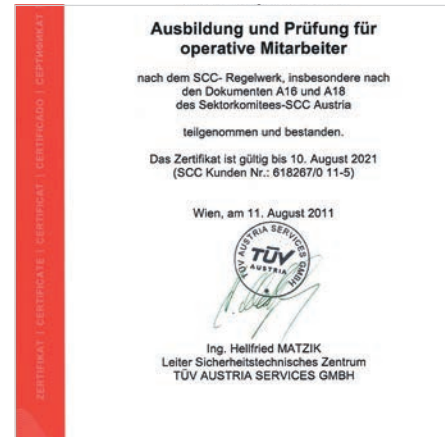
The high technical standard of our systems is based on expertise and certified by numerous certificates.



Quality management certificate.



Welding specialist certificate.



SCC certificate.

Quality management certifications:

- Quality management certification in compliance with ISO 9001: 2008.
- Welding specialist certification in compliance with EN ISO 3834-2.
- Certified welding personnel in compliance with EN 287-1.
- SCC certified service technicians.
- Shipping classification societies (ABS, BV, CCS, DNV, GL, NK, KR, LRS, RMRS, RINA).
- Qualification of welding procedures in compliance with EN ISO 15614-1 or AD-2000 Bulletin HP2/1.

EC directives:

- Machinery directive 2006/42/EC.
- Pressure equipment directive 97/23/EC.
- Low voltage directive 2006/95/EC.
- Directive on electromagnetic compatibility 2004/108/EC.
- ATEX directive 94/9/EC.

Harmonized standards:

- Metallic industrial piping in compliance with EN 13480.
- Unfired pressure vessels in compliance with EN 13445.

Non-destructive test:

- Certification of penetrant testing PT Level 2 in compliance with EN 473.
- Certification of visual testing VT Level 2 in compliance with EN 473.
- Radiographic testing RT.
- Ultrasonic testing UT.
- Magnetic particle testing MT.
- Electromagnetic testing ET.

General standards:

- ISO.
- DIN, EN, TRBS, VDE, VDMA, §19I WHG.
- ANSI, API, ASME, ASTM.
- JIS.

Special Projects



Building Options.

Competence, room and facilities for module building.



There are sufficient cranes for handling the modules.



One of five modern welding booths.

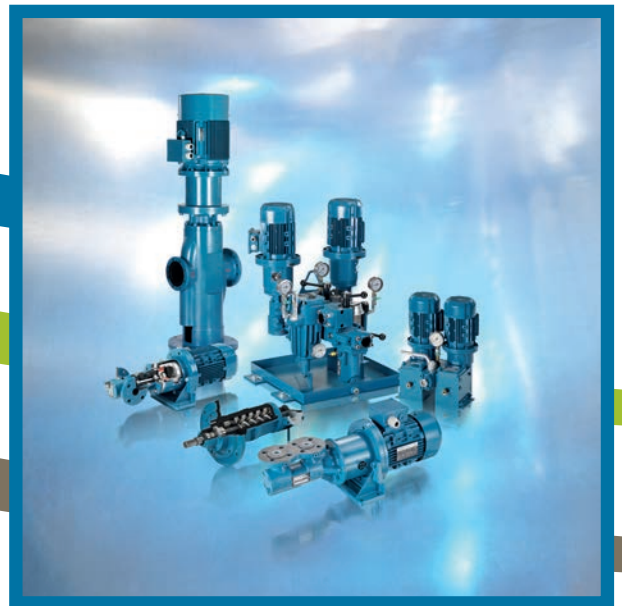


One of two paint shops.

Special Projects

KRAL AG.

Additional products and services.



KRAL Pumps

KRAL AG is a manufacturer of screw pumps of the highest quality and dependability, providing both outstanding suction capabilities and low pulsation.



KRAL || Flow Measurement

KRAL flowmeters offer the highest precision in fluids measurement. The application spectrum is broad: from low viscosity fluids like gasoline, acids and alkaline solutions to highly viscous fluids like fuel oil and printing ink.



KRAL || Services

Through the expert installation, commissioning and maintenance of your KRAL products, you'll be increasing their lifespans and minimising operational costs while also limiting downtime.

