Sealless Centrifugal Pump Type SLM NV

KLAUS UNION

SLM NV

A revolution in pump construction

This new pump manufactured to DIN EN 22858 is much more than just another modification to a well established range of centrifugal pumps.

With the SLM NV Klaus Union is presenting a completely new pump manufactured to the highest standards and designed to offer you the best and most economic solution to your pumping problems.

Our considerable experience in the Chemical and Petrochemical industry handling aggressive, toxic and explosive fluids under the most severe safety conditions has taught us that maximum flexibility is of prime importance. Optimum interchangeability of parts and accessories coupled to short delivery times can be guaranteed.

Only a completely new pump type can solve these problems. Klaus Union has the best preconditions for this business: More than 40 years experience in development, construction, production and application of magnet drive pumps.

Also for the new pump type SLM NV sealex this universal successful safety system with magnet drive is used.

The sealex system eliminates the need for shaft passages since the motor torque is transmitted to the perfectly sealed chambers in the absence of any mechanical contact.

The „V" of the pump type SLM NV means „variable" as a result of the modular construction. These are the critical development purposes: As few parts as possible should be used and they should where possible be multi-functional. So a volume production with marketable prices is promoted with essential advantages for all design variations and accessories.

The new SLM NV turns design variations into standard designs. Individual demands of the customers can be realized in short time with reduced storage.

Become acquainted with this revolution in pump construction!

Bearing Lantern

additional heating through jacket heating with direct heat transfer to the isolation shell.

Flushing System

Sufficient pressure is maintained with all internal re-circulation in order to be able to safely control liquids which are being processed close to boiling point.

Isolation Shell

self-venting and fully drainable. In connection with berings with dry running capability it is made of zirconium oxide.

Thrust Bearing Load

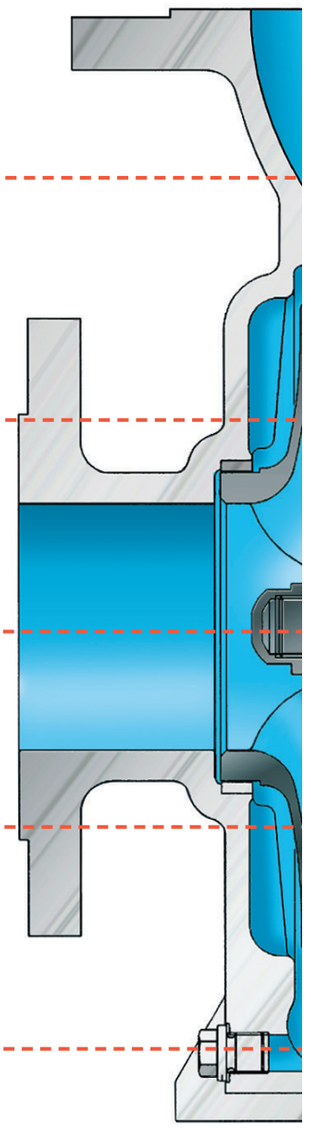
Hydraulic measures reduce axial thrust for the complete performance range.

Journal Bearings

Double bearing made of SSiC. Counter centered combinations ensure the universal use with different temperatures.

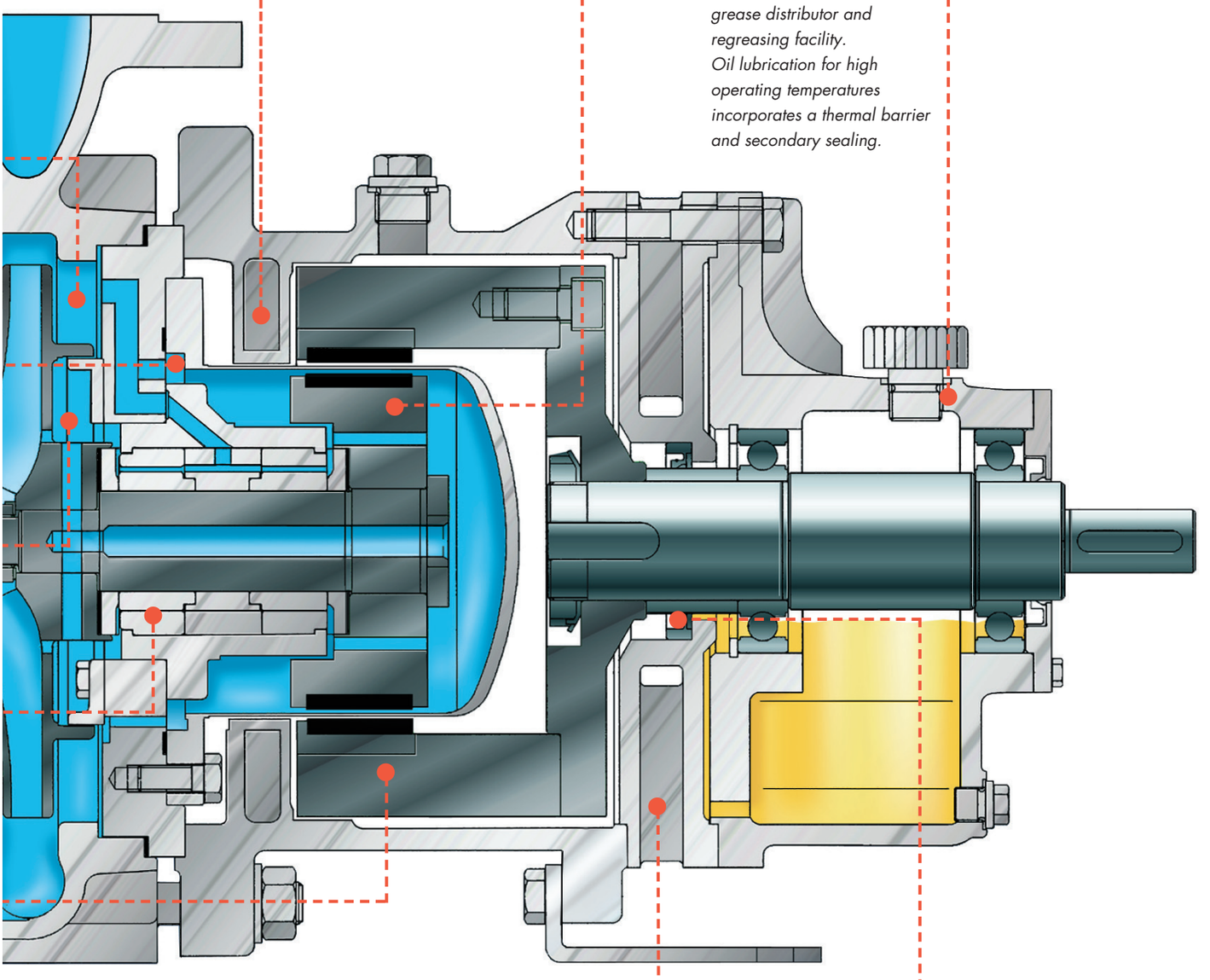
Magnet Drive

Hub fastened with screws. Short-circuit body with mechanical rub ring.



Magnet Carrier
with mechanical rub ring.

Bearing Support
Grease lubrication with grease distributor and regreasing facility.
Oil lubrication for high operating temperatures incorporates a thermal barrier and secondary sealing.



Thermal Barrier
Reduces the heat transfer to the bearing support (or motor in the case of close coupled pumps) where high operating temperatures are required.

Secondary Sealing
Prevents liquid from entering the atmosphere in the unlikely event of isolation shell failure.

SLM NV

The modular concept makes everything possible

This is a new and revolutionary design:

The modular system allows each customer to „put together" the pump that meets his particular special requirements.

To meet this need a wide range of modules and safety components are available. All parts have been developed and designed to coordinate with each other to provide maximum flexibility and the perfect solution to your particular pumping application.

The new SLM NV modular concept offers maximum flexibility:

Grease or oil lubrication, close coupled, secondary sealing, thermal barrier, dry running capability, heating and cooling arrangements, centreline mounting and even pumps to ANSI and API standards.

The illustrations show a few examples – but only some out of the many variations available.

Call us about your particular application or problems and we will show you what the best solution will look like.

SLM NV acc. to DIN EN 22858
In the following is a selection out of many variations:

❶ ***SLM NVN***
Basic design · grease lubrication · from -120°C up to +250°C

❷ ***SLM NVO***
Oil lubrication · thermal barrier · secondary sealing · heated bearing lantern · from -120°C up to +300°C

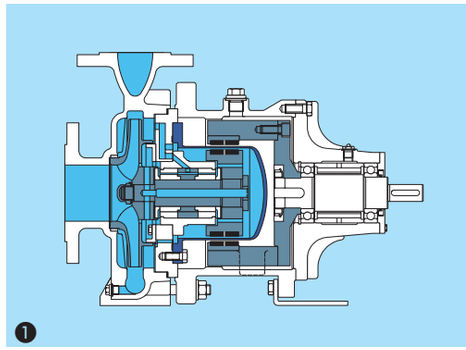
❸ ***SLM NVS***
dry running capability · grease lubrication · thermal barrier · secondary sealing

❹ ***Modular Combination System***
Due to the variable modular system, each combination variation is possible. All parts are conforming to each other! Each combination can be made individually according to your requirements.

❺ ***SLM NVB***
Basic design · close coupled · from -120°C up to +160°C

❻ ***SLM NVB***
close coupled · heated bearing lantern · thermal barrier · secondary sealing · from -120°C up to +250°C

❼ ***SLM NVB***
close coupled · fully heated · thermal barrier ·secondary sealing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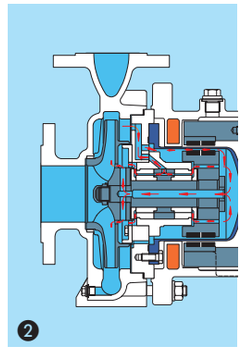
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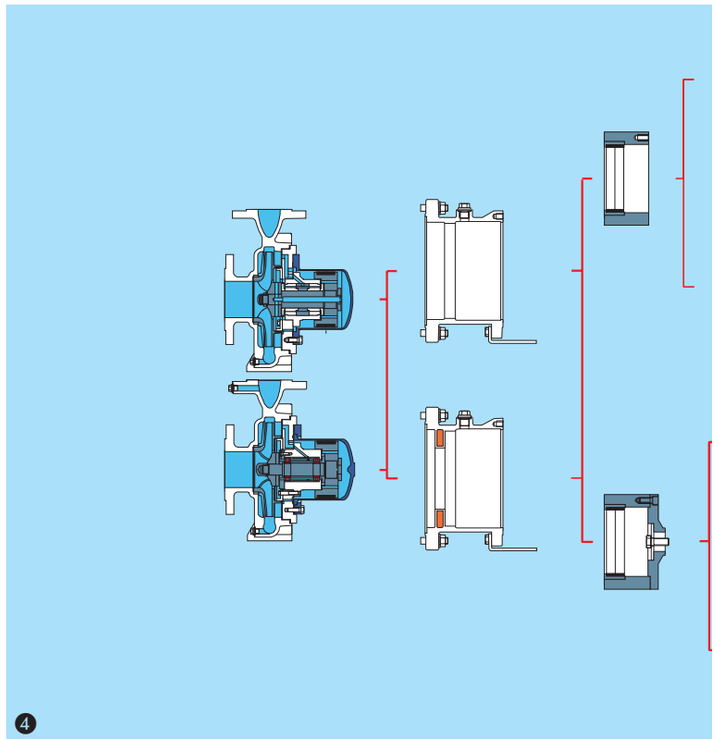
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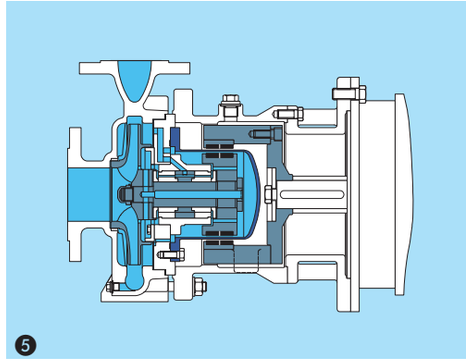
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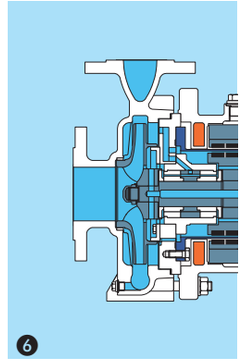
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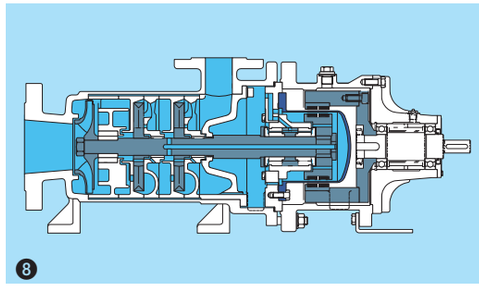
❽ ***SLM SVS***
Side channel pump · process type · 1-8 stages · selfpriming · from -120°C up to +250°C

❾ ***SLM SVB***
Side channel pump · close coupled · fully heated · thermal barrier · secondary heating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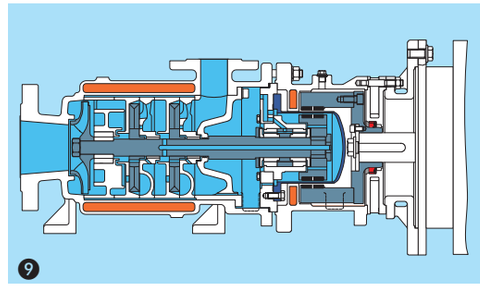
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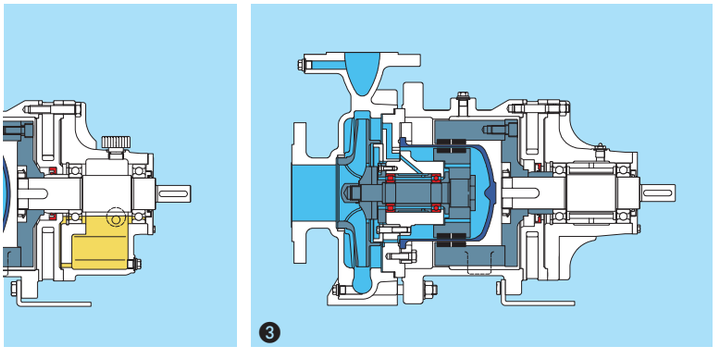
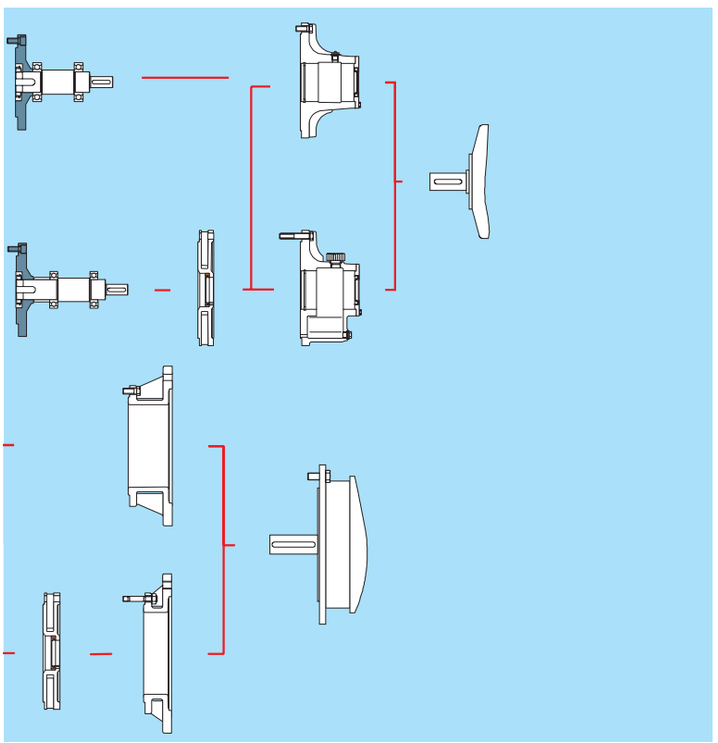
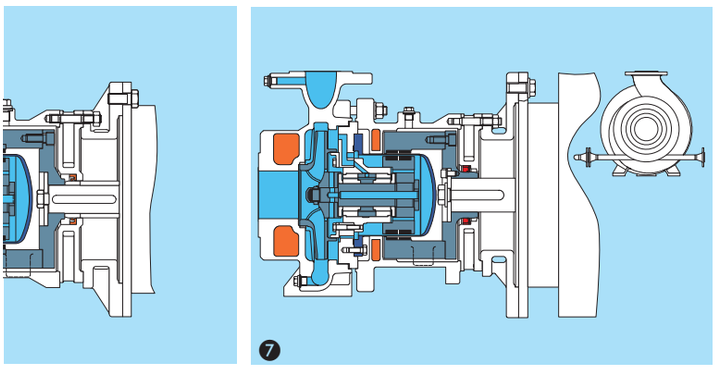






SLM NV

Systematic design with safety in mind

Klaus Union has taken full advantage of over 40 years experience in the design and manufacture of magnetic drive pumps.

We fully appreciate the high safety requirements demanded by the markets we serve and this is always reflected in the design and construction of the pumps and monitoring systems.

The design and concept of this completely new pump takes full advantage of our experience and uses well proven techniques and technology.

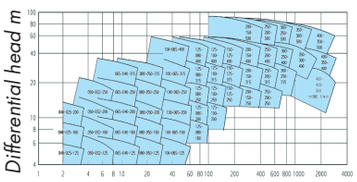
Rub Ring Protection
In the event of journal bearing or ball bearing failure, the rub rings prevent immediate damage to the isolation shell from either the inside or outside. For the rub rings to be effective they must be used in conjunction with an input power monitoring arrangement on the drive motor. (LC Controller)

Replacement of Anti-friction Bearings and Secondary Sealing without Draining of Pump
By splitting the bearing bracket into bearing lantern and bearing support, wear parts (anti-friciton bearings and radial lip seals) can be replaced without costly disassembly and draining of the pump. The same applies to the replacement of the motor in case of a close coupled pump.

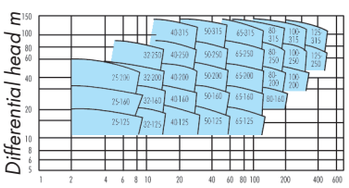
Temperature Sensor
The internal recirculation can be monitored by measuring the temperature of the isolation shell.

Load Detector (LC)
This monitors the shaft power and trips the pump if it detects underload caused by cavitation, flow interruption or desynchronisation of the magnetic drive or overload due to mechanical contact of the rub rings.

n = 1450 min^{-1}

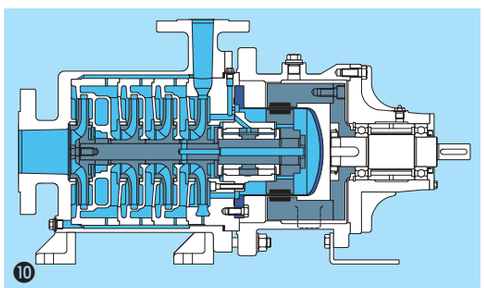


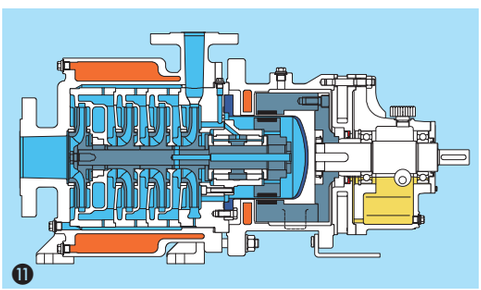
n = 2900 min^{-1}



⑩ *SLM GVS*
Multi-stage casing pump · process type · 1-4 stages · from -120°C up to +250°C

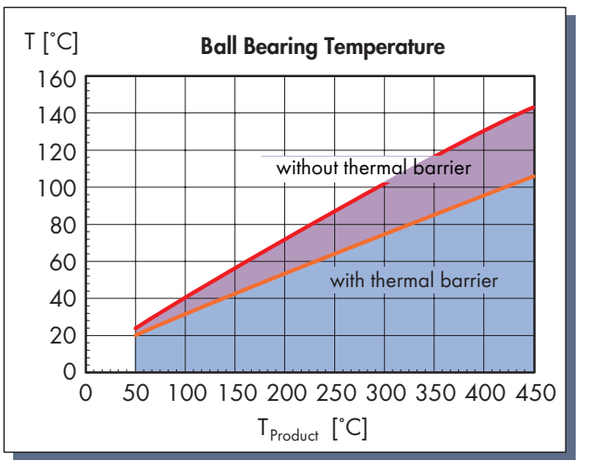
⑪ *SLM GVO*
Multi-stage casing pump · process type · fully heated · thermal barrier · secondary sealing · oil lubrication · from -120°C up to +300°C





Thermal Barrier

The thermal barrier protects the bearing support from high liquid or heating chamber temperatures. It works like an air cooler providing a large surface area for the dissipation of heat by convection. For the first time the thermal barrier permits the use of close coupled pumps at high operating temperatures.

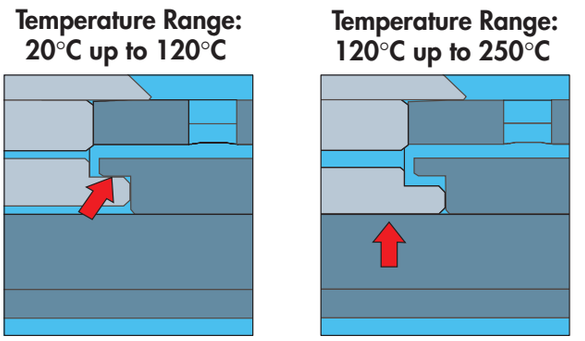


Secondary Sealing

In case of damages it protects the bearing support (with close coupled pumps the motor equally) from the pump liquid and prevents the liquid from exhausting to the atmosphere.

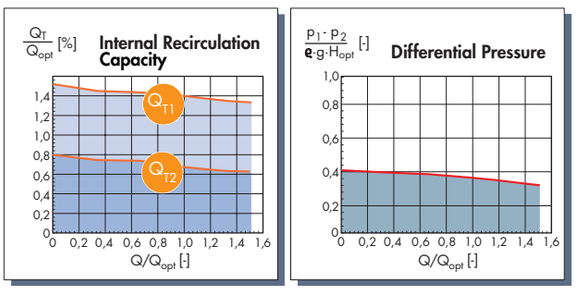
Journal Bearing

This completely new design of wear resistant journal bearing manufactured in SSiC is used universally across the range. The different coefficients of expansion of the materials used are compensated for both axially and radially by a counter centring design. The operating range of the new bearing cartridge is from -120°C up to +300°C.



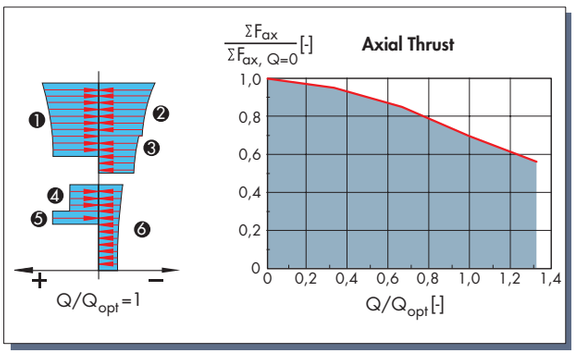
Flushing System

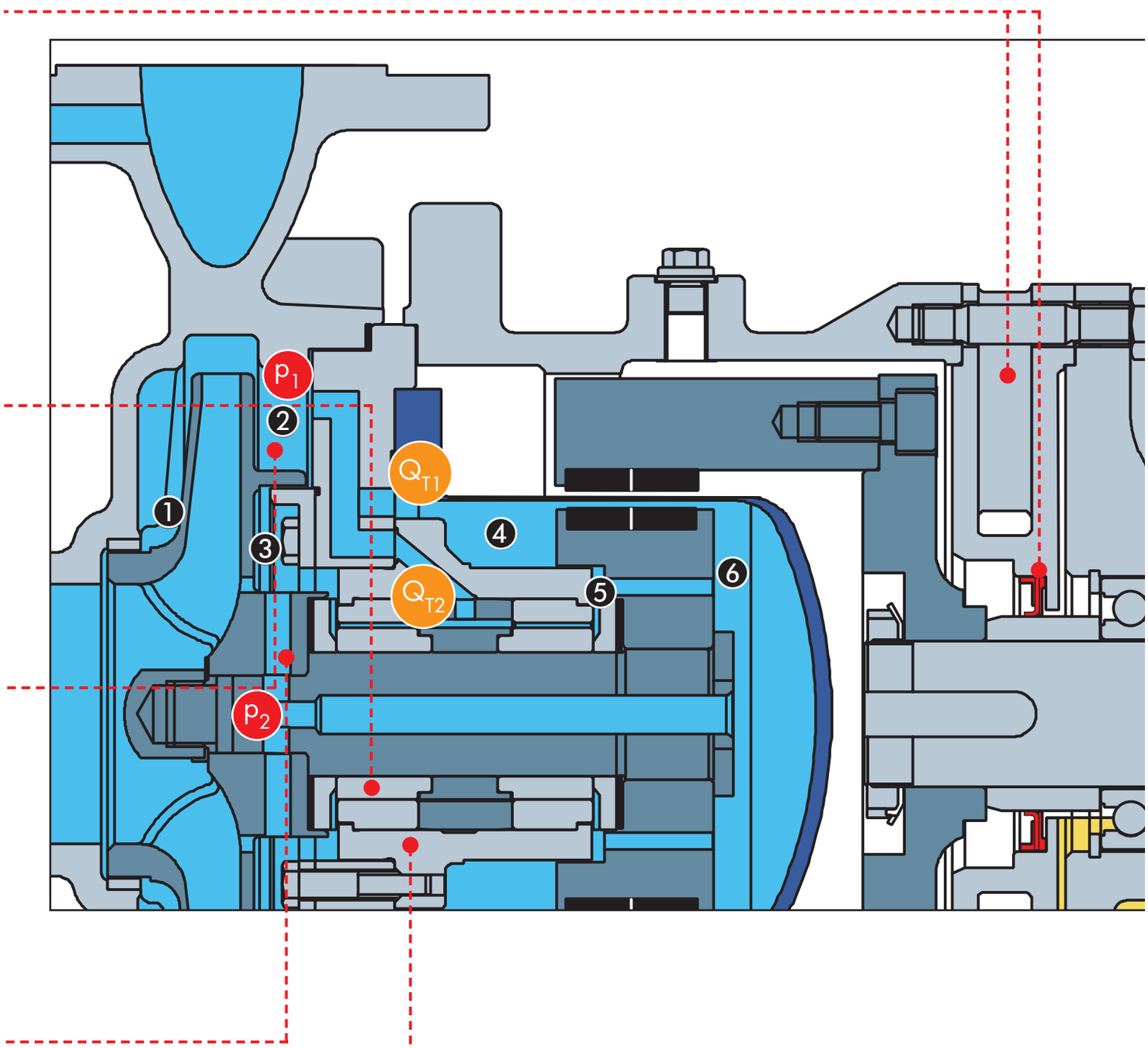
The internal recirculation ensures that adequate pressure is maintained at all times permitting the safe use of the pump even on liquids close to their boiling point. The flush flow is taken from an area with reduced solids and is separated into two distinct flow paths. Flush flow Q_{T1} dissipates the frictional heat generated by the journal bearing. Flush flow Q_{T2} dissipates the heat generated by eddy current losses in the isolation shell. This flushing system provides an almost constant flush flow rate and pressure even when the pump is misused.



Thrust Bearing Load

With the new design system the axial loads on the thrust bearings are significantly reduced across the entire operating range of the pump.

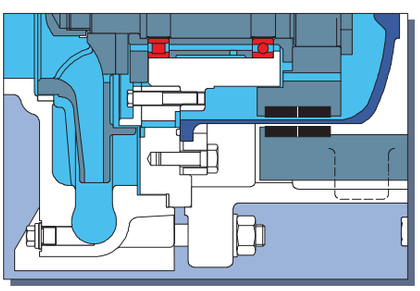




Dry running capability

Due to the cartridge with anti-friction bearings made of silicon nitride and a non-metallic isolation shell made of zirconium oxide or plastics, this pump can be considered a pump with dry running capability.

The pump with dry running capability is equipped with secondary sealing.



Production Programme Pumps

SLM-Pumps with magnet drives

Oil refinery centrifugal pumps acc. to API 685

Chemical centrifugal pumps acc. to DIN EN 22858

Chemical centrifugal pumps in close coupled design

Multistage casing pumps

Side channel pumps

Vertical centrifugal pumps

Submerged pumps

Self-priming spiral casing pumps

Screw pumps

Special designs

SLM agitator drives

Plastic chemical pumps acc. to DIN EN 22858

SLM-CIP (cleaning in place) for food and pharmaceutical industry

Pumps

Chemical centrifugal pumps acc. DIN EN 22858

Multistage casing pumps

Horizontal and vertical propeller pumps

Bottom flange propeller pumps

Vertical centrifugal pumps (Nobox system)

Submerged pumps

Double-suction chemical pumps

Special designs

Production Programme Valves

Globe valves with stuffing box

Globe valves bellow sealed

Check valves

Gate valves

Swing check valves

Strainers

Sight glasses

Bottom valves

Relief valves

Control valves

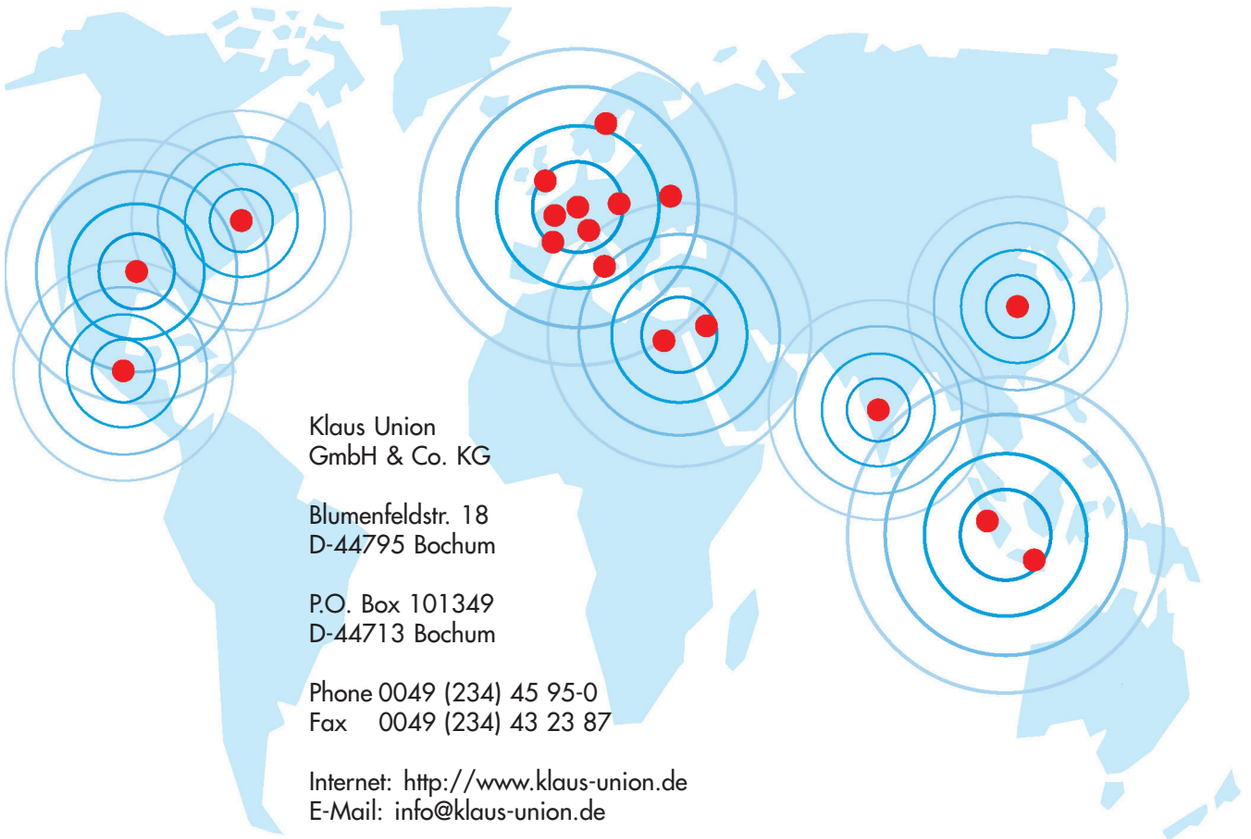
High pressure valves

Valves for cryogenics

Valves with electric or pneumatic drive

Our Service: Very close to customers – all over the world

This most unique drive system, a wide range of products in best quality as well as many years of experience have made KLAUS UNION a worldwide leading supplier of pumps with magnet drives and valves. All over the world we are represented with our own companies, sales offices and agencies. All over the world we are offering complete services from perfect proposals and advice up to technical after-sales service.



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