

The chemistry is right with KSB



Elements
of success

The range of **chemical pumps** for limitless applications

No matter whether the fluids are aggressive, corrosive or explosive, our chemical pumps will hold up to any challenge: with a new generation of technically optimised pump type series, reliable valves and the chemical expert's unique know-how.



Perfect solutions for every application

Besides reliable valves, KSB offers a unique modular pump design system for every application. A broad selection of hydraulic systems, impeller and casing designs, seal variants and a wide choice of materials enable the most demanding of fluids to be handled. Thanks to uniform standards and our widespread sales network, customers around the world can rely on the high quality and excellent service KSB provides.



The perfect combination – with efficient drives and automation

Only when combined with highly efficient drives and demand-driven control can the individual components of a plant perform to their full potential. In combination with the KSB SuPremE® IE4* motor, the world's most efficient magnet-less pump motor, and the PumpDrive speed control system, they offer extended service life and major energy savings at variable load profiles thanks to more efficient operation.



*IE4 to IEC (CD) 60034-30 Ed.2

Zero-leakage handling of chemicals puts heavy demands on a pump and its materials. That is why, besides top quality, KSB actively promotes safety and progress by developing new products and improving existing ones, especially in the chemical industry.



FluidFuture®: 25 % reduction in energy costs in chemical applications

Jointly with KSB, the international chemical company Solvay Fluor GmbH has modernised its recooling plant for producing hydrogen fluoride. Using the FluidFuture® energy efficiency concept, old, oversized pumps were identified and replaced with efficient and optimally matched pump sets. The result: an approximately 25 % decrease in energy costs representing about € 20,700 in savings per year.

Learn more about energy savings
with FluidFuture® at
www.ksb.com/fluidfuture



MegaCPK – the best standardised chemical pump in its class

A milestone in standardised chemical pumps: MegaCPK is our unique all-in package that offers energy efficiency, a wide choice of variants and operating reliability – thereby setting the basis for numerous standards.

The proven standardised chemical pump to EN 22858, ISO 2858, ISO 5199 and Directive 94/9/EC (ATEX) finds its application especially in handling aggressive liquids in the chemical and petrochemical industries.

Energy efficiency

Perfectly matched to the pump's output – maximum energy savings:

- Extended range of sizes: identical operating data and conditions are achieved with smaller pump sizes
- Impeller trimming for energy savings of up to 10 %

Wide range of variants

Thanks to its versatility, MegaCPK can be optimally adapted to the customers' needs and various fluids:

- Comprehensive modular design system with a variety of pump sizes, materials and components
- Standard dimensions for subsequent replacement of components made of other materials
- Gland packing, standardised mechanical seal or cartridge seal
- „Medium duty“ bearing bracket design with a cylindrical roller bearing as a radial bearing and an angular contact ball bearing as a fixed bearing
- Oil or grease lubrication
- Cylindrical or conical casing cover for fluids with high solids content

Operating reliability

Right from the start, MegaCPK has been designed for maximum operating reliability:

- Back pull-out design for quick and easy maintenance
- Compliance with European ATEX Directives
- Version with coolable bearing bracket for fluid temperatures in excess of 200 °C
- Heatable variant for stagnant or cold fluids
- Replaceable casing wear ring / impeller wear ring
- Optional shaft sleeve for less wear
- Increased rigidity
- Minimal axial thrust
- Low NPSH value

www.ksb.com/megacpk





Magnochem – the mag-drive pump with endless possibilities

Able to take on every challenge: with new operating modes for critical fluids and the magnetic coupling's comprehensive modular design system, seal-less Magnochem incorporates the latest unique developments.

The versatile mag-drive pump to ISO 2858/ISO 5199 is particularly suitable for handling toxic, explosive or valuable liquids in the chemical, petrochemical or general industries. With its ATEX approval, it ensures maximum operating reliability along with maximum efficiency and zero leakage.

Energy efficiency

The magnetic coupling's comprehensive modular design system allows Magnochem to be tailored to the optimum operating point:

- Different magnetic coupling diameters and lengths for each hydraulic system size
- Eddy current-free ceramic containment shroud

Wide range of variants

With its two new operating modes, Magnochem can safely circulate even the most critical of fluids as a coolant or lubricant. The new auxiliary impeller prevents pressure drops in the rotor space so that the fluid handled does not evaporate.

Innovative technology

Using cutting-edge manufacturing methods, KSB continually develops new designs:

- Auxiliary impeller for new operating modes
- Modular design principle for magnetic coupling
- Anti-swirl baffle to reduce potential vortices
- Back-to-back plain bearing arrangement for minimum bearing load and improved fatigue strength
- Optional leakage barrier
- Silicon carbide plain bearings with DLC coating
- Ceramic containment shroud

www.ksb.com/magnochem

Ecochem Non-Seal – the canned motor pump for exceptional performance

Special challenges call for special pumps. That is why Ecochem Non-Seal is equipped to meet the highest of demands: with Nikkiso's canned motor and MegaCPK's proven hydraulic system.

Handling even the most dangerous, very hot or very cold fluids in the chemical and petrochemical industries is no challenge for the innovative, ISO 2858-compliant canned motor pump.

Operating reliability

Ecochem Non-Seal stands for maximum reliability and availability:

- Innovative E-Monitor* system: monitors the direction of rotation and the position of the rotors in order to avoid expensive damage to pumps and unscheduled plant downtime
- Explosion protection in compliance with ATEX and TR approval enable worldwide use, even in very hot or very cold environments

Energy efficiency

Ecochem Non-Seal combines the best and most efficient components:

- Replaceable hydraulic system of MegaCPK in 37 sizes
- Energy-optimised electric Nikkiso motor design
- Optimised hydraulic system
- Extended operating range for low-flow conditions

Tried and tested know-how

The combination of the future: KSB combines MegaCPK's proven hydraulic system as well as its casing and impeller materials with canned motors by Nikkiso and Magnochem's low-maintenance bearings.

In addition, the variants HN, HP, HT and HS enable perfect adaptation to different fluids, temperatures and environments:

- Basic variant HN: for very critical fluids
- Cooled variant HT: high temperatures, max. fluid temperature 400 °C, auxiliary impeller, heat exchanger
- Variant HS for contaminated fluids: polluted fluids, high temperatures, max. fluid temperature 400 °C, auxiliary impeller, flush connection and throttle for motor space protection
- **New horizontal liquefied gas variant HP:** with auxiliary impeller and internal piping at no extra charge

www.ksb.com/ecochem-non-seal

*On request



Full chemical range – pumps and valves in perfect combination

Every plant places specific demands on its components and their characteristics. That is why, for every application, KSB offers the perfect solution that meets the highest safety standards: with our full product range consisting of different pump series and various types of butterfly and globe valves that reliably shut-off even the most critical fluids.

MegaCPK*

Standardised chemical pump with two bearing bracket variants

DN 25–250
Q [m³/h] 1160 max.
H [m] 162 max.
p [bar] 25 max.
T [°C] +400 max.



Magnochem*

Standardised chemical mag-drive pump

DN 25–160
Q [m³/h] 1160 max.
H [m] 162 max.
p [bar] 40 max.
T [°C] –90 to +300



Ecochem Non-Seal

Standardised chemical pump, seal-less with canned motor

Q [m³/h] 570
H [m] 162
p [bar] 40 max.
T [°C] –90 to +400



Multitec*

High-pressure ring-section pump

DN 32–150
Q [m³/h] 850 max.
H [m] 630 (1000) max.
p [bar] 63 (100) max.
T [°C] –10 to +200



RPH/RPHmdp

OH2 process pump to API 610/
standardised chemical mag-drive pump to API 685

DN 25–400
Q [m³/h] 4150 max.
H [m] 270 max.
p [bar] 51 max.
T [°C] +450 max.



DN 25–100
Q [m³/h] 300 max.
H [m] 270 max.
p [bar] 51 max.
T [°C] +300 max.



KWP

Centrifugal pump with channel impeller

DN 40–900
Q [m³/h] 15000 max.
H* [m] 100 max.
p* [bar] 10 max.
T* [°C] –40 to +120
(+280 max.)



*Higher ratings on request

* Also available with PumpDrive speed control system and KSB SuPremE® IE4 motor

All data for 50 Hz operation

NORI 40 ZXLB/ZXSB NORI 40 ZXLBV/ZXSBV

Maintenance-free bellows-type globe valve

p [bar] 40 max.
DN 10–200
T [°C] –10 to +450



NORI 500 ZXSV

Globe valve with gland packing

p [bar] 500 max.
DN 10–65
T [°C] –10 to +650



STAAL 40 AKD/AKDS

Flanged or butt weld end gate valve with bolted bonnet

p [bar] 40 max.
DN 50–600
T [°C] –10 to +400



STAAL 100 AKD/AKDS

Flanged or butt weld end gate valve with bolted bonnet

p [bar] 100 max.
DN 50–500
T [°C] –10 to +550



KE

Centred-disc butterfly valve

p [bar] 10 max.
DN 40–600
T [°C] –20 to +200



AKR/ACRIS

Butterfly valve with PFA

p [bar] 10 max.
DN 25–600
T [°C] –30 to +160



ISORIA 10

Centred-disc butterfly valve with elastomer liner

p [bar] 10 max.
DN 40–1000
T [°C] –10 to +200



DANAIS 150

Double-offset butterfly valve

p [bar] 25 max.
DN 1000
T [°C] –50 to +260





AMTRONIC and SMARTRONIC – safety and precision for valves

Valve automation plays a major role in the performance, reliability and overall efficiency of a plant – in a particularly space-saving way. With perfectly matched open and closed-loop control units from the specialist for innovative valve solutions.

In line with its reliable valves, KSB offers a comprehensive range of smart automation technologies. The AMTRONIC on/off control unit and the SMARTRONIC positioner handle your process data with care and precision, controlling valves and enhancing performance. With their space-saving design, they simplify the installation as well as the maintenance of the entire range of valves in a plant.



AMTRONIC on/off control unit



Intelligent SMARTRONIC positioner

Knowing our stuff: KSB's expertise in materials

Particularly chemical applications place high demands on the safety of pumps and their components: extreme operating pressures and temperatures are not uncommon and the requirements for abrasion and corrosion resistance are especially high. In collaboration with universities and research institutes, KSB therefore conducts extensive research into new technologies and develops innovative materials, such as metals for casings, or ceramic, diamond and carbon materials for bearings.

For the extensive testing of materials, including those partly developed in house, KSB has modern resources of chemical analysis at its disposal and makes use of metallographic and mechanical examination methods. This unique know-how and expertise in different types of materials is applied in our own foundries and allows the materials to be individually tailored for use even in the most stringent of chemical applications.



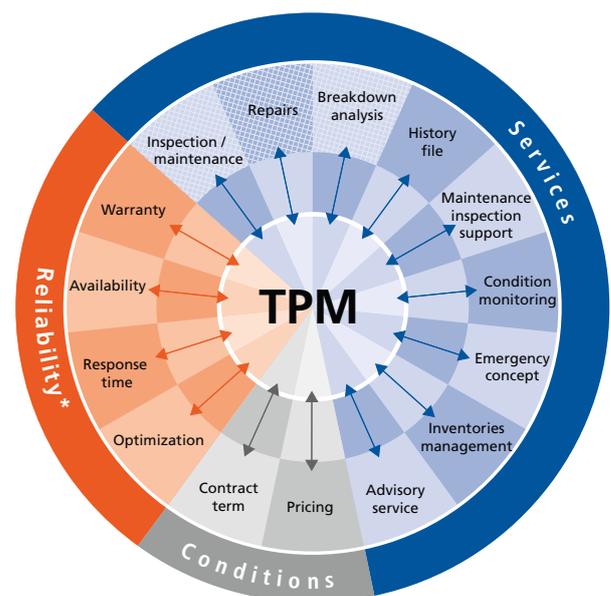
| Material | Material designation | Material number | Brief description | Application |
|----------------------------------|---|-----------------|--|--|
| Norinox® | GX3CrNiMo19-11-2 | (1.4409) | Cast austenitic stainless steel | Wide range of applications in industry and process engineering |
| Noridur® | GX3CrNiMoCuN24-6-2-3 | 1.4593 | Duplex stainless steel | All kinds of chloride-containing fluids, reducing acids and acidic process water |
| Noridur® DAS | GX3CrNiMoCuN24-6-2-3 special heat treatment | – | Wear-resistant duplex stainless steel | For pump components exposed to hydraulic loads in the handling of solids-laden acids and lyes |
| Noriclor® | GX3CrNiMoCuN24-6-5 | 1.4573 | Super duplex stainless steel | For aggressive fluids in chemical process engineering |
| Noricid® | GX3CrNiSiN20-13-5 | 9.4306 | Special high-alloy austenitic cast steel | For highly oxidising acids such as concentrated nitric, chromic or sulphuric acids |
| Noricrom® | GX150CrNiMoCuN41-6-2 | 1.4475 | Cast corrosion- and wear-resistant triplex steel | For strongly acidic, chloride-containing fluids with very high solids content |
| Titan | G-Ti2, G-Ti2Pd | 3.7031, 3.7032 | Highly corrosion-resistant special material | For oxidising fluids with high chloride content (e.g. chlorinated lyes in chlorine electrolysis) |
| Nickel chromium molybdenum alloy | G-NiMo17Cr | – | Highly corrosion-resistant, NiCrMo-base castings | For hot, concentrated acids |
| Nickel | G-Ni95 | 2.4170 | Nickel-base cast material | For highly concentrated alkaline solutions / lyes |

Your one-stop partner for pumps, valves and **services**

No other competitor offers a comparable wide range of products and services – with innovative solutions, short response times and superior consulting expertise. We provide comprehensive customer care from a single source over the entire life cycle of the product: from planning and selecting the systems over their commissioning and operation, right through to maintenance and decommissioning.

TPM® Total Pump Management: bespoke service for maximum efficiency

To simplify development processes for framework agreements, KSB has developed TPM®, which stands for Total Pump Management. This is a modular service concept for pumps, valves, motors and other rotating equipment. Individual modules that can be combined to create a KSB service contract offer maximum planning reliability, optimum availability of the pump systems, and lower maintenance and life cycle costs.



* only in combination with the inspection / maintenance, repairs and breakdown analysis services

Precise planning, short downtime: maintenance inspection management by KSB

High demands are placed in checking the correct function of pump sets and their repair which must take place during ever shorter downtimes. The success of a project largely rests on precise planning and preparation. With the KSB maintenance and inspection management, coordination is provided from a single source – at a fixed price on request.

Your benefits:

- Just one contact, saving time and money in coordinating
- Specialists with many years of experience and manufacturer know-how ensure maximum safety and reliability
- Increased flexibility when additional staff is needed at short notice
- Warehousing of spare parts no longer necessary
- Predictable costs thanks to fixed prices

Energy: we spend all ours to save lots of yours

To operate a system efficiently and sustainably, you have to know it inside out. Drawing on our years of experience, we help you to save energy and money with our FluidFuture® energy efficiency concept.

Our SES System Efficiency Service offers you the additional option for more energy-efficient operation of pump systems and prolonged service lives. Within the scope of comprehensive system analyses, the actual load profile of the pump is determined and compared with the design conditions. Both potential savings and the possible causes of damage can thus be identified.





For more information, please visit www.ksb.com/service

Retrofits: good can be made even better

New framework conditions do not always require new pumps: KSB retrofit is the alternative to buying a new product and comprises measures for hydraulic and mechanical modifications or changes to the materials of your pumps and systems.

Your benefits:

- Reduced energy and maintenance costs
- Longer service life
- Increased availability
- Compliance with legal requirements
- Saves large investments in new equipment that may possibly require adaptations to the existing plant

No compromises: KSB original spare parts

With KSB original spare parts you're on the safe side as regards the usual operating reliability of your pumps and valves.

Your benefits:

- No compromises on quality
- Operating reliability
- Available at short notice
- For your KSB pump to stay a KSB pump
- Reverse engineering, also for non-KSB products



Technology that **makes its mark**

The KSB Newsletter –
don't miss out, sign up now:
[www.ksb.com/ksb-en/
newsletter](http://www.ksb.com/ksb-en/newsletter)

Your local KSB representative:

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