More space for solutions.
Performance. Refined.
Our solutions for the petrochemical industry.
The optimal basis for meeting your requirements: safety and reliability from KSB.

The processes in the petroleum industry require technical components that guarantee exceptional resistance to tough conditions. When dealing with extreme temperatures, highly viscous hydrocarbons and aggressive fluids containing gas, solid particles or abrasive substances, every single component must prove its worth. Process pumps employed in refineries have to demonstrate absolute reliability – every day and around the clock. KSB has tackled this task with uncompromising, all-round quality management for decades.

An in-depth, comprehensive quality assurance programme accompanies every KSB pump and valve from materials development right through to on-site installation, ensuring that the exacting requirements of industry standard DIN ISO 9001 certification are not only met, but exceeded.

KSB’s products are therefore based on a combination of optimally functioning technology, absolute reliability and a responsible attitude to protecting people and the environment. In addition, this technology exceeds international standards, including the API 610. Created by the American Petroleum Institute, API specifications set the highest global standard for the technical design and performance of process pumps.
Global solutions using high-quality materials – down to the smallest detail.

Experienced KSB engineers are on hand in over a hundred countries. We work closely with engineering contractors, contractors and end users with one goal in mind: to find the optimum solution for your project. As a worldwide market leader in many fields we are aware of our important contribution to your success.

For us, quality does not stop with the delivery of perfect technical products. It is where our concept of all-inclusive service begins.

KSB pumps, valves and systems are today employed in all essential transport systems and cycles in the oil processing industry, as well as in refineries’ auxiliary circuits and petrochemical systems: our partners can count on years of experience with a wide range of alloys, materials know-how and use of state-of-the-art equipment in our research laboratories. All of this enables KSB to offer a broad spectrum of services from materials development, analysis and consultancy to damage assessment while our in-house foundry delivers optimum results, no matter how complex a special material may be.
The right pumps for demanding processes.

Our API range’s high-performance pumps have proven their worth across the petrochemical industry. From oil platforms to refineries and beyond. Whether it’s abrasive sandy residues in cracking units, or seawater and acids, KSB process pumps go right across the fluid transport spectrum.

Heavy duty pumps – quality and reliability above and beyond standard requirements.

OH2 heavy-duty process pump to API 610, DIN ISO 13709 and API 682. Horizontal installation, radially split casing, single-entry, single-stage.

**RPH**

- High efficiency and low NPSH
- Low Nss hydraulic systems always enable optimum selection to API
- Maximum shaft diameter to API 610 for very long service life of mechanical seal
- Steel bearing bracket with integrated cooling fins eliminates the need for a cooling water circuit at high temperatures
- Fan impeller and heat barrier (options)
- Vibrations considerably below the limits indicated in API 610

**Technical data:**
- DN: 25 to 400
- Q [m³/h]: Up to 4150
- H [m]: Up to 270
- T [°C]: -110 to +450
- p [bar]: Up to 110

BB2 heavy-duty process pump to API 610, DIN ISO 13709 and API 682. Horizontal installation, radially split casing, single-entry.

**RPHb**

- Two-stage design with radial impellers arranged back-to-back to minimise axial forces
- Flange design to ASME B 16.5, Class 300, 600 and 900, enables pump operation at extreme pressures
- Maximum shaft diameter to API 610 for minimum shaft deflection and long bearing life
- Model with diffuser to reduce radial forces

**Technical data:**
- DN: 50 to 150
- Q [m³/h]: Up to 450
- H [m]: Up to 400
- T [°C]: -70 to +450
- p [bar]: Up to 100
BB2 heavy-duty process pump to ISO 13709 and API 610. Horizontal installation, radially split casing, double-entry.

**YNKR**

- High availability and long service life
  - Double volute casing minimises the radial forces
  - Axial thrust balanced by double-entry impeller
- Several bearing types possible
  - Plain bearings or rolling element bearings
- Easy to maintain
  - Rotor can be removed without the need to disconnect from piping
- Reduced investment cost
  - Cost savings thanks to double-entry impeller with low NPSH
- Suitable for universal use

**Technical data***:

<table>
<thead>
<tr>
<th>DN</th>
<th>Up to 500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q [m³/h]</td>
<td>Up to 3800</td>
</tr>
<tr>
<td>H [m]</td>
<td>Up to 390</td>
</tr>
<tr>
<td>T [°C]</td>
<td>Up to +400</td>
</tr>
<tr>
<td>p [bar]</td>
<td>Up to 60</td>
</tr>
</tbody>
</table>

*Higher ratings on request

BB5 heavy duty process pump to API 610, DIN ISO 13709 and API 682. Horizontal, radially split, multistage high-pressure barrel casing pump.

**CHTR**

- Numerous hydraulics configurations make for optimum efficiencies in all applications
- Modular design provides every application with reliable top-class solutions for energy consumption, number of stages and NPSH requirement
- Special suction impellers for minimising pump NPSH
- Service-friendly: easy removal of the complete rotating assembly without dismantling the barrel casing and pipeline
- Optimised balancing drum reduces axial forces and increases bearing life

**Technical data**:  

<table>
<thead>
<tr>
<th>DN</th>
<th>50 to 250</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q [m³/h]</td>
<td>Up to 1450</td>
</tr>
<tr>
<td>H [m]</td>
<td>Up to 4000</td>
</tr>
<tr>
<td>T [°C]</td>
<td>-60 to +450</td>
</tr>
<tr>
<td>p [bar]</td>
<td>Up to 400</td>
</tr>
</tbody>
</table>
VS4 heavy-duty process pump to API 610, DIN ISO 13709 and API 682.
Vertical, radially split volute casing pump, with radial impeller, single-entry, single-stage.

### RPH-V

- Grease or oil lubrication
- Bearings dimensioned for longer service life than specified by API 610, reducing maintenance expenditure and work
- Rigid coupling with spacer facilitates maintenance of mechanical seal
- Seal chamber to API 610 accommodates all mechanical seals to API 682
- Spacing between shaft guide bushing to API 610
- Flange design to ASME B 16.5, class 300

### Technical data:
- **DN**: 40 to 150
- **Q [m³/h]**: Up to 80
- **H [m]**: Up to 240
- **T [°C]**: -30 to +230
- **p [bar]**: Up to 35

VS6 heavy-duty process pump to API 610, DIN ISO 13709 and API 682. Vertical, radially split, multistage high-pressure can pull-out ring-section pump. Barrel casing to ASME sec. VIII Div. 1

### WKTR

- A range of can lengths and special suction impellers ideally suited to critical system NPSH conditions
- Oil lubricated thrust bearings reduce the forces acting on the pump.
- Various shaft seal options
- Low space requirements, no complex foundation work required
- Rigid motor stool
- Different combinations of riser pipes allow precise adaptation to plant requirements

### Technical data:
- **DN**: 40 to 150
- **Q [m³/h]**: Up to 400
- **H [m]**: Up to 500
- **T [°C]**: -45°C to +200
- **p [bar]**: Up to 60

API 685 series from Nikkiso-KSB. The canned motor pump has been specifically designed to meet the API 685 standard.

### API 685 series*

* Only available in Europe, Russia, the Middle East and Africa

### Technical data:
- **DN**: 40 to 150
- **Q [m³/h]**: Up to 360
- **H [m]**: Up to 220
- **T [°C]**: Up to +450
- **p [bar]**: Up to 40

API 685 series The API pump from Nikkiso-KSB GmbH

- Extremely robust: the pump nozzles can handle forces and moments four times higher than required in the API 685 standard
- Saves space, while compact design and vertical installation option mean that an extensive foundation structure is not required
- Canned motor design makes the pump easy to install, pump and motor alignment are not required
- Does away with complicated mechanical seal and thermosyphon systems ensuring straightforward operation
- E-Monitor c.m. system allows scheduled maintenance
- Maximum safety and value: true secondary containment design for volatile, hazardous or valuable fluids.
Utility pumps – optimum solutions for highest quality.

Standardised chemical pump to EN 22858 / ISO 2858 / ISO 5199 and Directive 94/9/EC (ATEX)

**MegaCPK**

- High reliability and lower operating costs
  - Reduced energy consumption, optimised spare parts concept and hard-wearing, service-friendly design
- Energy efficiency
  - Hydraulic characteristics optimised for excellent efficiency and NPSH, ensuring energy-efficient and environmentally friendly use of resources
- The right size for each application
  - With at least 8 additional pump sizes and 11 more than required as per DIN ISO 2858

**Technical data:**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>DN</th>
<th>Q [m³/h]</th>
<th>H [m]</th>
<th>T [°C]</th>
<th>p [bar]</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN</td>
<td>25 to 250</td>
<td>Up to 1160 (50 Hz)</td>
<td>Up to 162 (50 Hz)</td>
<td>-40 to +400</td>
<td>Up to 25</td>
</tr>
<tr>
<td>Q [m³/h]</td>
<td></td>
<td>Up to 1400 (60 Hz)</td>
<td>Up to 233 (60 Hz)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H [m]</td>
<td></td>
<td></td>
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<tr>
<td>T [°C]</td>
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<tr>
<td>p [bar]</td>
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</table>

Standardised chemical pump to EN 22858 / ISO 2858 and ISO 5199. Large multinational companies specify CPKNs in their works standards.

**CPKN**

- A wide variety of hydraulic systems makes for excellent efficiencies and NPSH values, which saves you energy costs.
- The large number of variants available (shaft seal, cooling/heating, materials, etc.) provides optimum solutions for almost any application
- Model with reinforced shaft and bearings (CPKN) for added safety, with heatable or coolable casing (CPKN-CH)
- The pump’s uniform concept from DN 150 to DN 400 reduces the spare parts stocks and substantially facilitates maintenance work

**Technical data:**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>DN</th>
<th>Q [m³/h]</th>
<th>H [m]</th>
<th>T [°C]</th>
<th>p [bar]</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN</td>
<td>150 to 400</td>
<td>Up to 4150</td>
<td>Up to 185</td>
<td>Up to +400</td>
<td>Up to 25</td>
</tr>
<tr>
<td>Q [m³/h]</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>H [m]</td>
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<td>T [°C]</td>
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<tr>
<td>p [bar]</td>
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Single-stage, axially split volute casing pump with double-entry (radial) impeller: connecting flanges to ISO, DIN or ASME. Materials to DIN or ASTM in various combinations.

**RDLO**

- Minimum lifecycle costs thanks to excellent efficiencies and long-lasting components
- Maximum flexibility enables adaptation to any plant system: low NPSH values, horizontal or vertical installation, drive can be positioned at both ends
- Easy to service without adjustment thanks to self-centring casing cover and without having to disconnect the pipelines
- High operating reliability and long bearing life thanks to double volute and double-entry impeller minimising axial load
- Durable bearing assembly with rolling element bearings, oil lubrication on request

**Technical data:**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>DN</th>
<th>Q [m³/h]</th>
<th>H [m]</th>
<th>T [°C]</th>
<th>p [bar]</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN</td>
<td>350 to 700</td>
<td>Up to 10000 ³</td>
<td>Up to 240 ³</td>
<td>Up to +80 ³</td>
<td>Up to 25</td>
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<tr>
<td>Q [m³/h]</td>
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<td>H [m]</td>
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<td>T [°C]</td>
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<tr>
<td>p [bar]</td>
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</table>

³ Higher flow rate/head on request
³ Up to 140 °C on request
Exceptional performance to meet exceptional requirements: valves from KSB.

The quality of the valves in our petrochemical range matches that of our pumps. Specially developed materials, special welding methods and robust control technology ensure reliable functioning. Hour after hour, day after day, year after year.

Metal valves

Extreme temperatures, high pressures, aggressive, corrosive and solids-laden liquids and gases – KSB valves meet the highest safety requirements, working economically and reliably even under extreme operating conditions. Our staff will help you find the optimum solution for your application.

PSA ball valve KHG  Ball valve for gas and liquid fuel

- With flanges, socket or butt weld ends
- Block and bleed system from size 2" double block and bleed system
- Floating ball from size 2" trunnion-mounted ball
- Anti-static design
- Fully welded body, optional split body to API 6D
- Metal-to-metal primary and soft secondary seal system
- Fire-safe
- Anti-blow out system

<table>
<thead>
<tr>
<th>Technical data:</th>
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</thead>
<tbody>
<tr>
<td>Size</td>
</tr>
<tr>
<td>Class</td>
</tr>
<tr>
<td>T [°C]</td>
</tr>
</tbody>
</table>

Ball valve for gas and liquid fuel

DANAïS 150 / MTII / TBT II

High performance butterfly valves by KSB. Our AMRI valve types DANAïS 150 and MTII satisfy the most exacting demands in terms of safety, service life and tight shut-off in both flow directions. This space-saving butterfly valve delivers excellent performance in everyday continuous operation. Extremely reliable for all requirements of modern industrial plants. Very low weight, simple installation, extremely service-friendly. Long service life. Fire-safe!

Material: Carbon steel and stainless steel. Flanges, LUG, wafer as standard and butt weld ends on request.

<table>
<thead>
<tr>
<th>Technical data:</th>
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</thead>
<tbody>
<tr>
<td>DN</td>
</tr>
<tr>
<td>p [bar]</td>
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<tr>
<td>T [°C]</td>
</tr>
</tbody>
</table>
TRIODIS MT / TBT

TRIODIS is a bidirectional high-performance maintenance free butterfly valve with triple-offset technology for high-pressure (up to 100 bar) and cryogenic applications. Extremely reliable with high shut-off performance, TRIODIS is suitable for highly demanding applications. Wide range of body types. Large number of body and disc materials. Fire-safe!

**Technical data:**
- DN: 150 to 1200
- p [bar]: max. 100
- T [°C]: -196 to +260

**Material:** carbon steel and stainless steel, flanges, wafer

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ISORIA 10/16/20/25

Tight shut-off for virtually every fluid. Our extensive range of materials for this butterfly valve reflects the multitude of fluids to be handled: a large number of disc materials and elastomer liners make for increased corrosion and wear resistance, resulting in optimum adaptation of the material combination to the fluid. The valve can be combined with manual, pneumatic, hydraulic and electric actuators – with safety function, too.

**Technical data:**
- DN: 20 to 1000
- p [bar]: Up to 25
- T [°C]: -10 to +200

**Material:** cast steel, nodular and grey cast iron, stainless steel, aluminium bronze, hard rubber coating, Halar® coating. Large elastomers variety

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MAMMOUTH

The giant among butterfly valves. Large pipe sizes from DN 1050 to DN 4000. That’s where our MAMMOUTH series comes in. For high working pressures. Even with the actuator removed, the valve is tight inside and out. Shaft perfectly dry, not in contact with the fluid handled. Disc locking and stabiliser devices (option) for even greater safety and severe applications.

**Technical data:**
- DN: 1050 to 4000
- p [bar]: Up to 25
- T [°C]: 0 to +110

**Material:** cast steel, grey cast iron
**SISTO-16/-20**

SISTO diaphragm valves – versatile and safe. Rubber liners, polyamide coatings and high-quality PTFE body liners make them suitable for widely varying process fluids. SISTO valves feature a unique spiral steel spring support. This helps the diaphragm withstand working pressure even better. So the valve covers a higher pressure range, and the diaphragm enjoys a much longer service life.

**Material:** grey cast iron, nodular cast iron, stainless steel

**Technical data:**
- DN: -20 to 200
- T [°C]: -30 to +160
- DIN PN16 ISO PN20

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**SICCA® ANSI high-pressure valves**

SICCA gate, globe and non-return valves are made of cast or forged steel to API 602, ASME B16.34 and BS 5352. With socket weld or threaded ends, external thread rotating stem. Bolted cover (Class 800) or welded cover (Class 1500 and 2500).

**Material:** Various steels

**Technical data:**
- DN: 1/2" to 24"
- Class: 800 to 2500
- T [°C]: 0 to +593

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**ECOLINE ANSI low-pressure valves**

Gate and globe valves, strainers and non-return valves to API 600, ASME B16.34 and BS. High wear allowance on the sealing surfaces for high wear and corrosion resistance. The stainless steel/graphite gasket is fully confined to provide maximum sealing to atmosphere. The valve is available in a wide range of materials and variants.

**Material:** Various steels and stainless steels

**Technical data:**
- Size: 2" to 36"
- Class: 150, 300, 600, 800
- T [°C]: -29 to +593
Competent assistance, delivered fast. Our customer service is there for you.

When it comes to ensuring the optimal functioning and maximum safety of any technology, professional, intelligently controlled interaction between numerous components is a pre-requisite. Our range of service options is comprehensive: KSB Service GmbH – a wholly owned subsidiary of KSB AG – has a global network of service centres. This translates to constant support with equipment and systems, stretching from installation and commissioning right through the product’s lifecycle to its eventual replacement. Whether you require repairs, inspection, a complete overhaul or technical consultancy and tailor-made service plans, you are in safe hands. And this includes products of other manufacturers as well.

### Facts and figures at a glance:

- A complete service spectrum for valves, pumps, motors and other rotating equipment
- Over 2600 qualified and experienced service specialists in more than 160 service centres worldwide
- Safety and reliability through comprehensive certification such as SCC** and also through state accreditation of service personnel with regard to testing and repair of explosion-proof units
- Service throughout the lifecycle
- Use of special techniques on site, e.g. electric-discharge machining
- Total Pump Management for bespoke service solutions
- SES System Efficiency Services – increase the profitability of pumping systems through comprehensive systems analysis (comparison of actual performance with rated performance)
- Retrofitting
- Spare parts service for all brands
- More than 350 000 assignments worldwide every year

** Safety Certificate Contractors

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Total Pump Management – for your individual requirements.

Total Pump Management is our approach to offering you service solutions for pumps, valves and other rotating systems. The modular nature of the service concepts enables us to put together individual service packages – tailored to your needs and your system.

### Your benefits:

- System optimisation through improved system availability
- Reduction in energy input
- Maintenance cost reduction

* Only in conjunction with inspection/maintenance, commissioning and damage analysis