› **Our technology. Your success.**
Pumps ▪ Valves ▪ Service

Reliability that stands out: solutions for the petrochemical industry

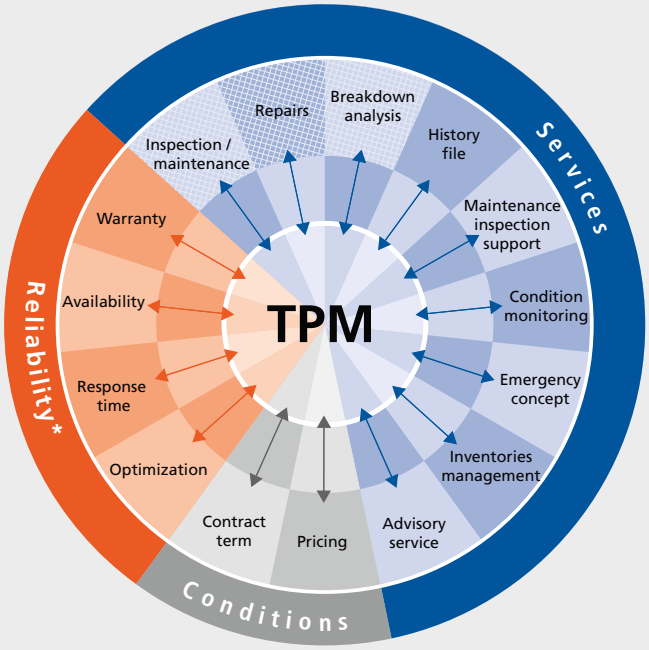
Tough tasks, top performance

With decades of experience as suppliers to the petrochemical industry as well as in the field of raw materials extraction and processing, KSB delivers all that is needed in tough conditions.

KSB offers technically advanced, reliable and highly durable pumps, valves and all associated services.

KSB products for the oil and gas industry meet the highest global standards of the American Petroleum Institute (API) for the technical design and performance of process pumps – including API 610 and API 685. Robust, safe, efficient and reliable: whenever tough tasks need to be fulfilled, KSB products are in their element.

The prime example for the outstanding performance and reliability of our pumps is KSB's family of RPH process pumps: the heavy-weight pumps meet the requirements of API 610 and are suitable for use wherever reliability and robust design as well as low operating and maintenance costs are a priority.



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

Performance rounded off: KSB Service

No other competitor offers a comparable wide range of services – with innovative solutions, short response times and superior consulting expertise. We provide comprehensive customer care, all from a single source. For example:

- KSB retrofit as an alternative to buying a new product, comprising measures for hydraulic and mechanical modifications or changes to the materials
- WHG- and SCCP-certified maintenance of your pumps and valves
- KSB TPM® Total Pump Management: our modular service concept for pumps, valves, motors and rotating equipment

For information about KSB Service, visit **www.ksb.com/service**

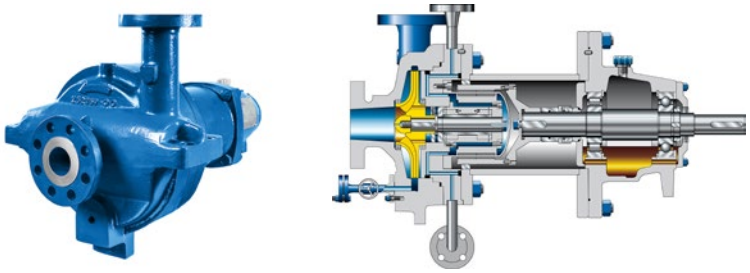
Tailored sealing for every setting

High operating pressures, extreme temperatures and aggressive fluids place the highest and most diverse demands on a seal, thereby influencing the operating reliability of the pump and system. As your one-stop contact, KSB offers a complete package of individual sealing solutions for every application – ensuring maximum safety and reliability.

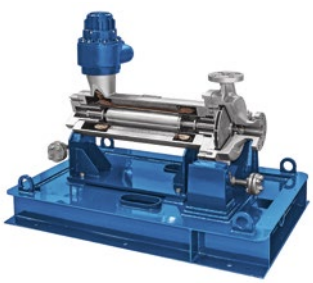
KSB offers the full spectrum: from API mechanical seals and systems that meet the requirements of API 682 and form a perfectly matched system together with the pump, to mag-drive pumps such as RPHmdp, a hermetically sealed API pump with magnetic drive, and canned motor pumps. It allows KSB to provide tailored solutions for the zero-leakage handling of fluids, even at maximum loads, for perfect and reliable tightness. Our products withstand extreme application requirements and ensure long service life.

Mechanical seals and systems to API 682

RPHmdp: hermetically sealed volute casing pump with magnetic drive



Volute casing pump to API 685



Your benefits:
From KSB's own API mechanical seals and systems to mag-drive pumps and canned motor pumps – all from a single source, from the full-range supplier KSB.

Outstanding performance, built to last: the RPH pump family

Pumps of the RPH family fulfil the stringent requirements of the API standards API 610, API 682 or API 685. The broad selection of hydraulic systems, materials, sealing options and installation variants always allows you to find the right pump within the RPH family, suitable for the extreme conditions encountered in oil and gas applications.

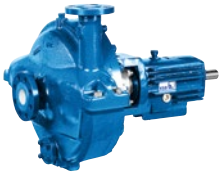
No matter whether it's large quantities, high operating pressures, a sump or hermetically sealed pump – the RPH family offers a solution. Thanks to their robust design RPH, RPHb, RPH-V and RPHmdp pumps can also be used on offshore platforms.

RPH®

Horizontal, radially split volute casing OH2 pump in back pull-out design to API 610

Pump for handling the large variety of petroleum products, mainly in refineries as well as in the chemical and petrochemical industries.

DN	25–400
Q [m³/h]	4150 max.
H [m]	270 max.
p [bar]	110 max.
T [°C]	– 70 to +450



RPHb

Horizontal, radially split, double-stage volute casing BB2 pump to API 610

Pump for handling the large variety of petroleum products, mainly in refineries as well as in the chemical and petrochemical industries.

DN	80–200
Q [m³/h]	790 max.
H [m]	430 max.
p [bar]	100 max.
T [°C]	– 80 to +450

RPHmdp

Horizontal, radially split volute casing OH2 pump in back pull-out design, with magnetic drive to API 685

Pump for handling aggressive, toxic, explosive, valuable, flammable or harmful liquids in the chemical, petrochemical and general industries.

DN	25–100
Q [m³/h]	300 max.
H [m]	270 max.
p [bar]	51 max.
T [°C]	– 40 to +300

RPH-V

Vertical submersible VS4 pump to API 610

Pump for handling the large variety of petroleum products, can be used as a sump and tank pump mainly in refineries as well as in the chemical and petrochemical industries.

DN	25–80
Q [m³/h]	110 max.
H [m]	170 max.
p [bar]	35 max.
T [°C]	– 30 to +230

All data for 50 Hz operation

Engineered to meet exacting requirements: the CHTR type series

Depending on the respective customer, the requirements of the petroleum-processing industry can differ strongly and be very complex. Our answer to this is the CHTR type series.

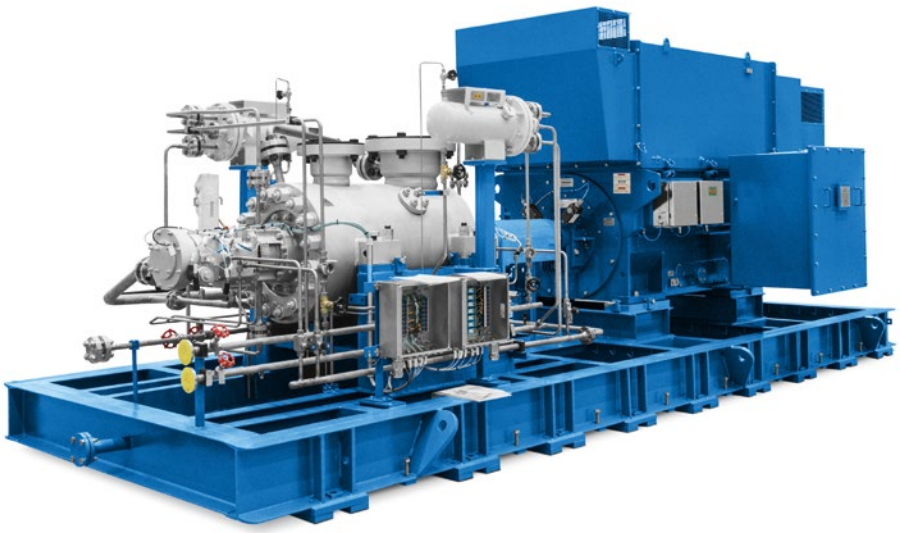
Its modular design allows the latest version of the multi-stage barrel-type pump to API 610 to be adapted to meet all requirements. No matter whether it's low volume flow rates under high pressure, large quantities at medium or maximum pressure, continuous or intermittent operation, the CHTR type series stands for top quality and reliability in any situation. Fully compatible with all systems, it impresses with its operating reliability, its absolute ease of service and its extremely robust and modular design – even at maximum loads. Applications at either low or very high temperatures can be covered, as well as those with aggressive or volatile fluids. To meet these high demands, CHTR is available in a variety of materials to API 610. In addition, CHTR comes with a wide range of rotor balancing devices, and several bearing executions, which can, from case to case, be precisely adapted to the needs of the plant or application in order to provide an economic and effective solution. State-of-the-art calculation methods and tools are used to develop the ideal solutions upon which customers can fully rely.

CHTR

Horizontal high-pressure barrel BB5 pump to API 610

Designed for extreme loads in the oil and gas industry as well as in energy engineering.

DN	50–300
Q [m³/h]	1450 max.
H [m]	4000 max.
p [bar]	400 max.
T [°C]	– 60 to +450



Overview of other KSB pumps for the petrochemical industry

Pumps from KSB have become an institution on the market. This does not only apply to our process pumps but also to our auxiliary pumps designed to support processes.

Other KSB API pumps

WKTR

Canned, vertical ring-section pump to API 610, type VS6

Pump for handling condensate and other NPSH critical products in industrial plants, particularly in refineries and petrochemical plants.

DN	40–150
Q [m³/h]	400 max.
H [m]	350 max.
p [bar]	50 max.
T [°C]	–45 to +200

YNKR

BB2 process pump to API 610, DIN ISO 13709 and API 682

Pump for handling the large variety of petroleum products, mainly in refineries as well as in the chemical and petrochemical industries. Can also be used as thermal oil pump in solar thermal power plants and for pumping feed water in power stations and industrial plants.

DN	250 and 300
Q [m³/h]	3800 max.
H [m]	390 max.
p [bar]	60 max.
T [°C]	+400 max.

Other values on request

API 685series*

Canned motor pump to API 685 from Nikkiso-KSB GmbH

Pump for handling aggressive, flammable and explosive liquids in the chemical and petrochemical industries.

DN	40–150
Q [m³/h]	360
H [m]	220
p [bar]	40
T [°C]	+450

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

All data for 50 Hz operation

KSB auxiliary pumps

MegaCPK

Horizontal, radially split volute casing pump in back pull-out design to EN 22 858 / ISO 2858 / ISO 5199

Pump for handling aggressive liquids in the petrochemical industry and in refineries.

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

RDLO

Volute casing pump for horizontal or vertical installation with double-entry radial impeller, mating flanges to DIN, ISO, BS or ANSI

Pump for handling and transporting water/process water with low solids content, e.g. in cooling and fire-fighting systems and intake pumping stations.

DN	350–700
Q [m³/h]	10000 max.
H [m]	240 max.
p [bar]	25 max.
T [°C]	+140 max.

Other values on request

UPA

Single- or multistage centrifugal pump in ring-section design

Pumping clean or slightly contaminated water in irrigation and drainage, industrial water supply, fire-fighting systems, as well as drinking, raw and service water supply and pressure boosting.

DN	4–26
Q [m³/h]	2200 max.
H [m]	1500 max.
T [°C]	+50 max.

Magnochem

Horizontal glandless volute casing pump in back pull-out design with magnetic coupling to ISO 2858 / ISO 5199

Pump for handling aggressive, toxic, explosive, valuable, flammable, malodorous or harmful liquids in the chemical, petrochemical and general industries.

DN	25–200
Q [m³/h]	1160 max.
H [m]	162 max.
p [bar]	40 max.
T [°C]	+300 max.

Ecochem Non-Seal

Horizontal glandless volute casing pump in back pull-out design with fully enclosed canned motor

Pump for handling aggressive, flammable and explosive liquids in the chemical and petrochemical industries.

DN	25–200
Q [m³/h]	570 max.
H [m]	162 max.
p [bar]	40 max.
T [°C]	+400 max.

Omega

Single-stage, axially split volute casing pump for horizontal or vertical installation with double-entry radial impeller, mating flanges to DIN, ISO, BS or ANSI

Pumping raw, clean, service and sea water in water treatment plants, irrigation and drainage pumping stations, power stations, fire-fighting systems, shipbuilding and the petrochemical industry.

DN	80–350
Q [m³/h]	2880 max.
H [m]	210 max.
p [bar]	25 max.
T [°C]	+140 max.

All data for 50 Hz operation

TRIODIS: totally reliable in the toughest conditions

High pressures of up to 100 bar, extreme temperatures from –250 to +200 °C, harsh conditions in aggressive environments: when things get really tough, the TRIODIS triple-offset butterfly valve will keep tight at all times. Maintenance-free, safe and reliable in case of fire and available in a large number of diameters, the TRIODIS high-performance butterfly valve stands for everything that defines valves from KSB: safety, reliability and technical innovation.

TRIODIS: butterfly valve in triple offset design for transporting liquefied natural gas

Perfect shut-off

TRIODIS ensures tight shut-off even in cryogenic applications and even at full rating. This is ensured, among other things, by the one-piece shaft design and extra long plain bearings. At the shaft passage, two independent seals ensure reliable tightness without the need to re-tighten the gland packing.

Easy maintenance

The seat and the graphite packing can be replaced without specific tools. The vent hole can be used as an additional barrier for tightness at the shaft passage. The plug (fire-safe) at the bottom is used for fluid draining.

Safety and reliability

TRIODIS fulfils the fire-safety requirements to ISO 10497, and is fitted with an anti-blow out system to protect operators. TRIODIS does not need a travel stop for the closed position, the metal seat stops it naturally.

Reliable KSB design

The sealing surfaces are perfectly matched so that TRIODIS is bubble-tight, even at high pressures. It can be fitted with the HELICOFLEX® gasket which is recognised worldwide for its excellent sealing performance.

KSB valves

ISORIA 10 / 16 / 20 / 25

Centred-disc AMRI butterfly valve with elastomer liner

Shut-off and control in all industrial and energy applications.

DN	20–100
p [bar]	25 max.
T [°C]	–10 to +200

DANÄIS 150 / MTII / TBTII

Double-offset butterfly valve

Liquefied natural gas process chain, all liquefied gases, petroleum, gas, chemical and petrochemical industries.

DN	50–1200
p [bar]	50 max.
T [°C]	–200 to +420

TRIODIS MT / TBT

Triple-offset butterfly valve

For use in high-pressure and cryogenic applications.

DN	150–1200
p [bar]	100 max.
T [°C]	–196 to +260

MAMMOUTH

Centred-disc butterfly valve with elastomer liner

Water supply, water treatment, desalination (reverse osmosis MSF), shut-off and control duties in all industrial applications.

DN	1050–4000
p [bar]	up to 25
T [°C]	0 to +110

SISTO-16 / -20

Flanged end diaphragm valve

In industrial plants and power stations, suitable for drinking water, service water, air, technical gases, as well as abrasive and aggressive fluids in industrial and chemical plants.

DN	20–100
p [bar]	25 max.
T [°C]	–30 to +160

SICCA

ANSI high-pressure valve

DN	½" – 24"
Class	800–2500
T [°C]	0 to +593

ECOLINE

ANSI low-pressure valve

DN	2" – 36"
Class	150, 300, 600, 800
T [°C]	–29 to +593

Technology that makes its mark

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