

› Our technology. Your success.

Pumps • Valves • Service



## Reliability that stands out: solutions for the petrochemical industry



# Pumps, valves and service: we are your partner for the entire product life cycle

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 and spare parts. 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 and valves – including API 610 and API 685 for pumps and API 609 for valves. 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.

## Service and spare parts solutions to ensure everything runs like clockwork

In addition to offering a comprehensive range of services and spare parts, KSB supports you throughout the entire life cycle of your system. With more than 3,000 experts in over 170 service centers, we are there for you, twenty four hours a day, seven days a week, capable of meeting the most stringent requirements for API.

### Our expertise is your advantage

We offer excellent service and high-quality spare parts solutions for pumps and valves, non-KSB products and all rotating equipment.

### SES System Efficiency Service

System analysis by KSB experts based on measurements using a data logger.

### Spare parts kits

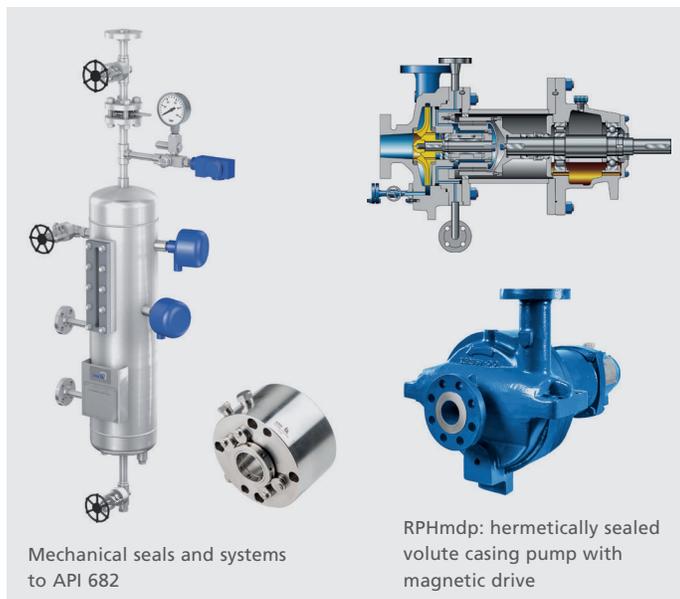
The main parts included that are replaced with every repair job.

### Engineering services / retrofit

We combine cutting-edge technology with professional service for you.

## 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.



Mechanical seals and systems to API 682

RPHmdp: hermetically sealed volute casing pump with magnetic drive

KSB offers a full spectrum extending from API mechanical seals and systems that meet the requirements of API 682 and form a perfectly matched system together with the pump all the way to mag-drive pumps such as RPHmdp, a hermetically sealed API pump with magnetic drive. Mechanical seal supply systems to API 682 (Plan 23, Plan 52, Plan 53A and Plan 53B) are available as standard. All further systems can be provided on request. 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.

### KSB standard mechanical seals to API 682, 3rd edition & 4th edition

#### Category I (for not-API-pumps)

##### Technical description

Type	A, B, C
Arrangement	1, 2 and 3
Design	Cartridge

##### Technical data

Shaft diameter	Up to 4.75 in.
Pressure	Up to 319 psi
Temperature	-40 to 500 °F

##### Materials

Standard	AQ2VMG or AQ2KMG Q2Q2VMG or Q2Q2KMG
	Other material combinations on request All material combinations acc. to API 682

#### Category II (for API-pumps)

##### Technical description

Type	A, B, C
Arrangement	1, 2 and 3
Design	Cartridge

##### Technical data

Shaft diameter	Up to 4.75 in.
Pressure	Up to 609 psi
Temperature	-40 to 500 °F

##### Materials

Standard	AQ2VMG-AQ2V or AQ2KMG-AQ2V Q2Q2VMG-AQ2V or Q2Q2KMG-AQ2V
	Other material combinations on request All material combinations acc. to API 682

#### Category III (for API-pumps)

##### Technical description

Type	A, B, C
Arrangement	1, 2 and 3
Design	Cartridge

##### Technical data

Shaft diameter	Up to 4.75 in.
Pressure	Up to 609 psi
Temperature	-40 to 500 °F

##### Materials

Standard	AQ2VMG-AQ2V or AQ2KMG-AQ2V Q2Q2VMG-AQ2V or Q2Q2KMG-AQ2V
	Other material combinations on request All material combinations acc. to API 682

Other conditions than specified above can be approved on request. The complete range to API 682 can be supplied for projects as required.



## 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.

Size 1–16 in.  
Q [gpm] 21,134 max.  
H [ft.] 935 max.  
p [psi] 740 max.  
T [°F] -94 to +842



### 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.

Size 3–8 in.  
Q [gpm] 3,855 max.  
H [ft.] 2,130 max.  
p [psi] 1,450 max.  
T [°F] -112 to +842



### 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.

Size 1–4 in.  
Q [gpm] 1,320 max.  
H [ft.] 885 max.  
p [psi] 739 max.  
T [°F] -40 to +572



### 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.

Size 1–3 in.  
Q [gpm] 484 max.  
H [ft.] 557 max.  
p [psi] 363 max.  
T [°F] -22 to +446



## 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 multi-stage barrel-type pump to API 610 to be adapted to meet all requirements.

A specially designed hydraulic system enables the handling of low flow rates from 66 gpm, allowing high-speed geared pumps to be replaced in most cases. 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.

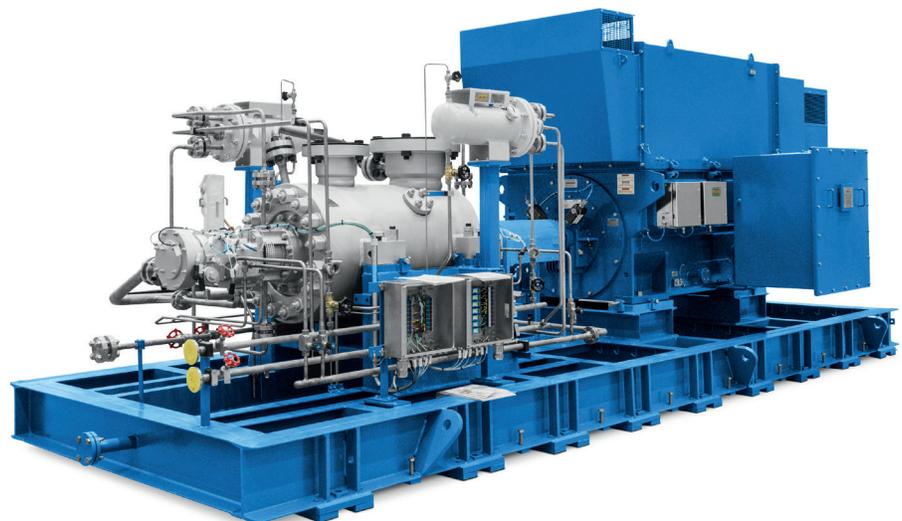
In addition, CHTR comes with a wide range of rotor balancing devices, and several bearing executions, which can, from case to case, be precisely adapted to the needs of the plant or application in order to provide an economic and effective solution. State-of-the-art calculation methods and tools are 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.

Size	3-10 in.
Q [gpm]	3,750 max.
H [ft.]	5,100 max.
p [psi]	2,220 max.
T [°F]	-76 to +400



# 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.

Size	3-6 in.
Q [gpm]	1,760 max.
H [ft.]	1,148 max.
p [psi]	725 max.
T [°F]	-49 to +392



### 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 petro-chemical 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.

Size	10-12 in.
Q [gpm]	16,700 max.
H [ft.]	1,280 max.
p [psi]	870 max.
T [°F]	+752 max.

Other values on request



### CHTRa

#### BB3 axially split, multistage 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 petro-chemical 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.

Size	3-10 in.
Q [gpm]	3,750 max.
H [ft.]	5,100 max.
p [psi]	2,220 max.
T [°F]	+400 max.

Other values on request



## 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.

Size	1-10 in.
Q [gpm]	6,160 max.
H [ft.]	764 max.
p [psi]	362 max.
T [°F]	+752 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.

Size	14-28 in.
Q [gpm]	44,030 max.
H [ft.]	787 max.
p [psi]	363 max.
T [°F]	+176 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 [gpm]	22,000 max.
H [ft.]	4,920 max.
T [°F]	+122 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.

Size	1-8 in.
Q [gpm]	6,160 max.
H [ft.]	765 max.
p [psi]	580 max.
T [°F]	+572 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.

Size	3-14
Q [gpm]	12,680 max.
H [ft.]	689 max.
p [psi]	363 max.
T [°F]	+176 max.



# TRIODIS: totally reliable in the toughest conditions

High pressures of up to 150 bar, extreme temperatures from  $-320$  to  $+500$  °F, 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

## 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.

## 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.

## KSB valves

### DANÄIS 150/MTII/TBTII

#### Double-offset butterfly valve

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

Size 2-48 in.  
p [psi] 50 max.  
T [°F] -320 to +482



### TRIODIS MT/TBT

#### Triple-offset butterfly valve

For use in high-pressure and cryogenic applications.

Size 6-60 in.  
p [psi] 150 max.  
T [°F] -320 to +500



### SISTO-16/-20

#### Flanged end diaphragm valve

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

Size 3/4-4 in.  
p [psi] 362 max.  
T [°F] -22 to +320



### SICCA

#### ANSI high-pressure valve

Size 1/2" – 24"  
Class 800–2500  
T [°F] 32 to +1,099



### ECOLINE

#### ANSI low-pressure valve

Size 2" – 36"  
Class 150, 300, 600, 800  
T [°F] -20 to +1,099





Technology that **makes its mark**



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