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

Reliability that stands out: solutions for the petrochemical industry

Pumps, valves and service: We are your perfect 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, API 609 for valves and API 682 for mechanical seals. 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 complex BB3 pump CHTRa is also proof of KSB's expertise in petrochemical applications. All of KSB's API pumps can be equipped with high-quality KSB mechanicals seals according to API 682. 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.

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

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 centres, we are there for you, twenty four hours a day, seven days a week, capable of meeting the most stringent requirements – for example SCC[P].

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.

TPM® Total Pump Management
KSB's modular service concept provides the ideal basis for tailored service and spare parts packages.

Maintenance inspection management
Precise planning and preparation to ensure successful maintenance inspections of all products with minimal downtimes. Fixed price on request.

Spare parts kits
All the main wear parts that are replaced with every repair job are included.

Engineering services / retrofit
We combine cutting-edge technology with professional service for you.

Outstanding performance, built to last: the RPH pump family

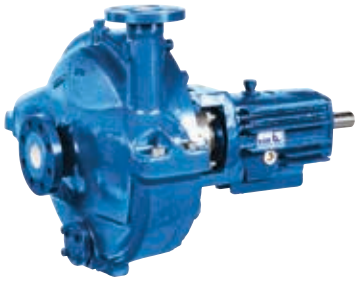
Pumps of the RPH family fulfil the stringent requirements of the API standards API 610 and API 682. The broad selection of hydraulic systems, materials, sealing options and installation variants always allows you to find the right pump within the RPH family, suitable for the extreme conditions encountered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

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

OH2 – RPH®

Horizontal, radially split volute casing 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.



	50 Hz	60 Hz
DN [mm]	25 – 400	25 – 400
DN [inch]	1 – 16	1 – 16
Q [m³/h]	4,150 max.	5,000 max.
Q [US.gpm]	18,200 max.	22,000 max.
H [m]	270 max.	270 max.
H [ft]	885 max.	885 max.
p [bar]	110 max.	110 max.
p [psi]	1,595 max.	1,595 max.
T [°C]	-70 to +450	-70 to +450
T [°F]	-94 to +842	-94 to +842

BB2 – RPHb / RPHd

Horizontal, radially split one-stage and two-stage volute casing 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.

	50 Hz	60 Hz
DN [mm]	80 – 250	80 – 250
DN [inch]	3 – 10	3 – 10
Q [m³/h]	1,500 max.	1,800 max.
Q [US.gpm]	6,600 max.	7,900 max.
H [m]	450 max.	650 max.
H [ft]	1,475 max.	2,130 max.
p [bar]	100 max.	100 max.
p [psi]	1,450 max.	1,450 max.
T [°C]	-80 to +450	-80 to +450
T [°F]	-112 to +842	-112 to +842

VS4 – RPH-V

Vertically suspended volute casing sump 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.

	50 Hz	60 Hz
DN [mm]	25 – 80	25 – 80
DN [inch]	1 – 3	1 – 3
Q [m³/h]	80 max.	100 max.
Q [US.gpm]	350 max.	440 max.
H [m]	160 max.	240 max.
H [ft]	520 max.	785 max.
p [bar]	35 max.	35 max.
p [psi]	510 max.	510 max.
T [°C]	-30 to +230	-30 to +230
T [°F]	-22 to +445	-22 to +445

OH2 – RPH-LF

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

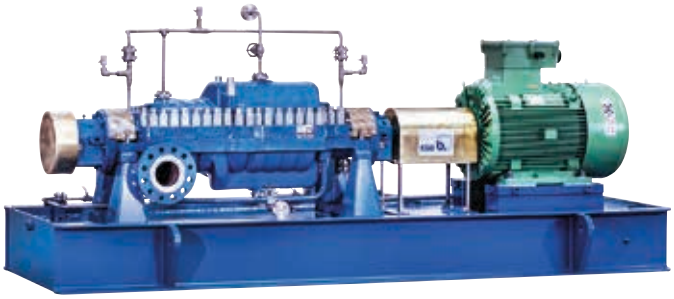
Special design for low flow rates and high pressures. Refinery and petrochemical applications.

	50 Hz	60 Hz
DN [mm]	50	50
DN [Zoll]	2	2
Q [m³/h]	1 – 25	1 – 25
Q [US.gpm]	4.4 – 110	4.4 – 110
H [m]	300 max.	300 max.
H [ft]	985	985
p [bar]	40	40
p [psi]	580	580
T [°C]	-30 to +200	-30 to +200
T [°F]	-22 to +392	-22 to +392

Engineered to meet exacting requirements: the CHTR product 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. 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 product 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, state-of-the-art calculation methods and tools are used to develop the ideal solutions upon which customers can fully rely.

BB3 – CHTRa



API 610 (BB3) heavy-duty, between-bearings, axially split multistage pump

- Oil and gas industry
  · In onshore and offshore production as an injection/reinjection pump
  · In crude/refined products pipelines as a transfer pump
  · In refineries, petrochemical, chemical, gas and coal-to-gas/coal-to-chemical plants as a feed, process charge, process transfer, main wash pump and as a hydraulic power recovery turbine
- Water/waste water applications, mining industry, energy industry, metal production industry

The pump is widely used in other demanding applications that require uncompromising reliability and efficient equipment.

	50 Hz	60 Hz
DN [mm]	80 – 300	80 – 300
DN [inch]	3 – 12	3 – 12
Q [m³/h]	1,200 max.	1,400 max.
Q [US.gpm]	5,283 max.	6,164 max.
H [m]	1,550 max.	1,550 max.
H [ft]	5,100 max.	5,100 max.
p [bar]	155 max.	155 max.
p [psi]	2,200 max.	2,200 max.
T [°C]	-40 to +205	-40 to +205
T [°F]	-50 to +400	-50 to +400

BB5 – CHTR

Multistage, between-bearings, horizontal high-pressure barrel pump to API 610

- Oil and gas industry
  · High-pressure pump for upstream and downstream applications
- Energy engineering

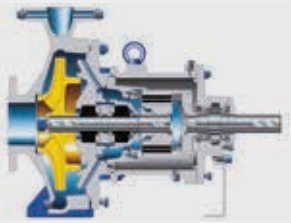
The pump can handle low flow rates from 15 m³/h, its modular design allowing it to replace high-speed geared pumps in most cases.

	50 Hz	60 Hz
DN [mm]	50 – 300	50 – 300
DN [inch]	2 – 12	2 – 12
Q [m³/h]	1,450 max.	1,450 max.
Q [US.gpm]	6,385 max.	6,385 max.
H [m]	4,000 max.	4,000 max.
H [ft]	13,123 max.	13,123 max.
p [bar]	400 max.	400 max.
p [psi]	5801.5 max.	5801.5 max.
T [°C]	-60 to +450	-60 to +450
T [°F]	-76 to +842	-76 to +842
n [rpm]	Up to 7,000	Up to 7,000

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



Magnochem: 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 Magnochem, 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. This 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 non-API pumps)

Technical description	
Type	A
Arrangement	1, 2 and 3
Design	Cartridge

Technical data	
Shaft diameter	Up to 120 mm
Pressure	Up to 22 bar
Temperature	-40 to 176 °C

Materials	
Standard	AQ2VMG or AQ2KMG Q2Q2VMG or Q2Q2KMG
	All material combinations acc. to API 682 available

Category II (for API pumps)

Technical description	
Type	A, C
Arrangement	1, 2 and 3
Design	Cartridge

Technical data	
Shaft diameter	Up to 120 mm
Pressure	Up to 42 bar
Temperature	-40 to 400 °C

Materials	
Standard	AQ2VMG or AQ2KMG, Q2Q2VMG or Q2Q2KMG AQ2GM6T4 or Q2Q2GM6T4
	All material combinations acc. to API 682 available

Category III (for API pumps)

Technical description	
Type	A, C
Arrangement	1, 2 and 3
Design	Cartridge

Technical data	
Shaft diameter	Up to 120 mm
Pressure	Up to 42 bar
Temperature	-40 to 400 °C

Materials	
Standard	AQ2VMG or AQ2KMG, Q2Q2VMG or Q2Q2KMG AQ2GM6T4 or Q2Q2GM6T4
	All material combinations acc. to API 682 available

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

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.

VS6 – WKTR

Double-casing, vertically suspended multistage ring-section pump to API 610. ATEX-compliant version available.

Designed for critical NPSH applications from oil and gas industry, other industrial plants, condensate handling applications etc.

	50 Hz	60 Hz
DN [mm]	40 – 150	40 – 150
DN [inch]	1.5 – 6	1.5 – 6
Q [m³/h]	400 max.	400 max.
Q [US.gpm]	1,760 max.	1,760 max.
H [m]	500 max.	500 max.
H [ft]	1,640 max.	1,640 max.
p [bar]	51 max.	51 max.
p [psi]	740 max.	740 max.
T [°C]	-45 to +200	-45 to +200
T [°F]	-49 to +392	-49 to +392

Magnochem

Horizontal glandless volute casing pump in back pull-out design with magnetic coupling. Design to DIN EN ISO 2858 / ISO 5199 with feet on baseplate or, alternatively, to ISO 15783 / API 685, centreline mounting, ASME flanges with twice the permissible nozzle forces of API 685 table 4.

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

	50 Hz	60 Hz
DN [mm]	25 – 250	25 – 250
DN [Zoll]	1 – 10	1 – 10
Q [m³/h]	1,160 max.	1,400 max.
Q [US.gpm]	5,110 max.	6,160 max
H [m]	162 max.	233 max.
H [ft]	530 max.	530 max.
p [bar]	40 max.	40 max.
p [psi]	580 max.	580 max.
T [°C]	+300 max.	+300 max.
T [°F]	+572 max.	+572 max.

MegaCPK

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

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

	50 HZ	60 Hz
DN [mm]	25 – 250	25 – 250
DN [inch]	1 – 10	1 – 10
Q [m³/h]	1,160 max.	1,400 max.
Q [US.gpm]	5,110 max.	6,165 max.
H [m]	162 max.	233 max.
H [ft]	530 max.	765 max.
p [bar]	25 max.	25 max.
p [psi]	363 max.	363 max.
T [°C]	+400 max.	+400 max.
T [°F]	+752 max.	+752 max.

RDLO

Axially split volute casing pump for horizontal or vertical installation with double-entry radial impeller, mating flanges to DIN, EN, ISO, BS or ASME

Pump for handling and transporting water / process water with low solids content, e.g. in cooling and fire-fighting systems or processes of industrial waste heat utilization in all industrial and energy applications.

	50 Hz	60 Hz
DN [mm]	350 – 700	350 – 700
DN [inch]	14 – 28	14 – 28
Q [m³/h]	10,000 max.	10,000 max.
Q [US.gpm]	44,030 max.	44,030 max.
H [m]	290 max.	290 max.
H [ft]	951 max.	951 max.
p [bar]	30 max.	30 max.
p [psi]	435 max.	435 max.
T [°C]	0 to +140	0 to +140
T [°F]	+32 to +284	+32 to +284

UPA

Single-stage or multistage centrifugal pump in ring-section design

Pump for irrigation and drainage, industrial water supply, fire-fighting systems, as well as drinking, raw and service water supply and pressure boosting; product or leakage water pump in caverns, seawater and brackish water pump in offshore applications.

	50 Hz	60 Hz
DN [mm]	100 – 1,250	100 – 1,250
DN [inch]	4 – 50	4 – 50
Q [m³/h]	5,000 max.	5,000 max.
Q [US.gpm]	22,000 max.	22,000 max.
H [m]	1,500 max.	1,500 max.
H [ft]	4,900 max.	4,900 max.
p [bar]	160 max.	160 max.
p [psi]	2,320 max.	2,320 max.
T [°C]	+50 max.	+50 max.
T [°F]	+323 max.	+323 max.

Omega

Axially split volute casing pump for horizontal or vertical installation with double-entry radial impeller, mating flanges to DIN, EN, ISO, BS or ASME

Pump for handling and transporting water / process water with low solids content, e.g. in cooling and fire-fighting systems or processes of industrial waste heat utilization in all industrial and energy applications.

	50 Hz	60 Hz
DN [mm]	80 – 350	80 – 350
DN [inch]	3 – 14	3 – 14
Q [m³/h]	2,880 max.	2,880 max.
Q [US.gpm]	12,680 max.	12,680 max.
H [m]	210 max.	210 max.
H [ft]	689 max.	689 max.
p [bar]	25 max.	25 max.
p [psi]	363 max.	363 max.
T [°C]	0 to +140	0 to +140
T [°F]	+32 to +284	+32 to +284

TRIODIS: totally reliable in the toughest conditions

High pressures of up to 150 bar, extreme temperatures from –196 to +260 °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

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

ISORIA

ISORIA 10 / 16 / 20 / 25
Centred-disc AMRI butterfly valve with elastomer liner

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

DN [mm]	32 – 1,000
DN [inch]	1 ¼ – 40
p [bar]	25 max.
p [psi]	Up to 363
T [°C]	-10 to +200
T [°F]	+14 to +392

DANAÏS 150

DANAÏS 150
Double-offset butterfly valve

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

DN [mm]	50 – 1,200
DN [inch]	2 – 48
p [bar]	25 max.
p [psi]	Up to 363
T [°C]	-50 to +260
T [°F]	-58 to +500

TRIODIS

TRIODIS 150 / 300 / 600 / 900
Triple-offset butterfly valve

For use in high-pressure and cryogenic applications.

DN [mm]	80 – 1,500
DN [inch]	3 – 60
p [bar]	150 max.
p [psi]	2,175 max.
T [°C]	-196 to +260
T [°F]	-321 to +842

MAMMOUTH

MAMMOUTH 6 / 10 / 16 / 20 / 25
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 [mm]	1,050 – 4,000
DN [inch]	42 – 160
p [bar]	Up to 25
p [psi]	Up to 363
T [°C]	0 to +80
T [°F]	32 to +176

SISTO-16 /-20

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.

DN [mm]	15 – 200
DN [inch]	¼ – 8
p [bar]	25 max.
p [psi]	150
T [°C]	-20 to +160
T [°F]	+14 to +320

SICCA

Gate, Globe & Check valve to ANSI/ASME

With flanged or butt weld ends, bolted bonnet, outside screw and yoke. Rotating, rising stem, seat/disc interface made of 13 % chrome steel, Stellite hard-faced; with graphite gasket and gland packing, available in carbon steel, low-alloy steel and stainless steel.

DN [mm]	15 – 700
DN [inch]	½ – 28
p [bar]	776
p [psi]	11,250
T [°C]	650
T [°F]	1,200

ECOLINE EST 150 – 600

Ball valve designed as per API 6D

Trunnion mounted type or floating ball type, full bore or reduced bore, anti-static device, soft-seated, fire-safe design and certificated of API 607, DBB function, flanged or butt-weld ends, position indicator, handle or actuator operation.

DN [mm]	50 to 600
DN [inch]	2 to 24
p [bar]	Up to 100
p [psi]	Up to 1,450
T [°C]	-29 to +200
T [°F]	-20 to +392

ECOLINE GTC 150 – 600

Gate valve designed as per API 600

Wedge type gate valve made of steel, bolted bonnet, outside screw and yoke, back seating, metallic seating with hard facing, flanged or butt-weld ends, certificated of API 600, handwheel or actuator operation

DN [mm]	50 to 1,200
DN [inch]	2 to 48
p [bar]	Up to 100
p [psi]	Up to 1,450
T [°C]	-46 to +595
T [°F]	-51 to 1,103

All values indicated refer to 50 Hz operation.

Technology that **makes its mark**

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