

► Our technology. Your success.

Pumps • Valves • Service

IRAN  **Seal**



www.iranseal.com

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 KSB API pumps can be equipped with high quality KSB mechanical seals according 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

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

Engineering services / retrofit

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





Outstanding performance, built to last: the RPH pump family

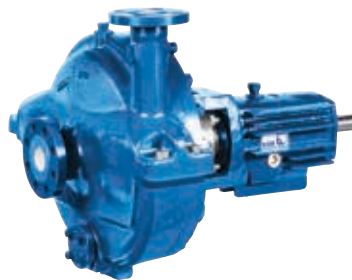
Pumps of the RPH family fulfil the stringent requirements of the API standards API 610, API 682 or API 685. The broad selection of hydraulic systems, materials, sealing options and installation variants always allows you to find the right pump within the RPH family, suitable for the extreme conditions 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, RPHd, RPH-V and RPHmdp 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 [m ³ /h]	max. 4,150	max. 5,000
Q [US.gpm]	max. 18,200	max. 22,000
H [m]	max. 270	max. 270
H [ft]	max. 885	max. 885
p [bar]	max. 110	max. 110
p [psi]	max. 1,595	max. 1,595
T [°C]	-70 to +450	-70 to +450
T [°F]	-94 to +842	-94 to +842

OH2 – RPHmdp

Horizontal, radially split, volute casing 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



	50 Hz	60 Hz
DN [mm]	25 – 100	25 – 100
DN [inch]	1 – 4	1 – 4
Q [m³/h]	max. 300	max. 362
Q [US.gpm]	max. 1,320	max. 1,595
H [m]	max. 270	max. 270
H [ft]	max. 885	max. 885
p [bar]	max. 51	max. 51
p [psi]	max. 740	max. 740
T [°C]	-40 to +300	-40 to +300
T [°F]	-40 to +572	-40 to +572

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]	max. 1,500	max. 1,800
Q [US.gpm]	max. 6,600	max. 7,900
H [m]	max. 450	max. 650
H [ft]	max. 1,475	max. 2,130
p [bar]	max. 100	max. 100
p [psi]	max. 1,450	max. 1,450
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]	max. 80	max. 100
Q [US.gpm]	max. 350	max. 440
H [m]	max. 160	max. 240
H [ft]	max. 520	max. 785
p [bar]	max. 35	max. 35
p [psi]	max. 510	max. 510
T [°C]	-30 to +230	-30 to +230
T [°F]	-22 to +445	-22 to +445

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 product. 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



Horizontal, axially split, double volute, opposed impeller, multistage pump

- Oil and Gas Industry
 - In onshore and offshore production as an injection/re-injection pump
 - In crude/ Refined products pipelines as a transfer pump
 - In Refineries, Petrochemical, Chemical, Gas and Coal to Chemical/ Gas plants as a feed, a process charge, a process transfer, main wash pump and as a hydraulic power recovery turbine
- Water / Wastewater Industry, Mining Industry, Energy Industry, Metal Production Industry

The pump is widely used in other intensive applications that demand uncompromising reliability and efficient equipment.

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

BB5 – CHTR

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

- Oil and Gas Industry
 - High pressure applications of upstream, downstream
- Energy engineering

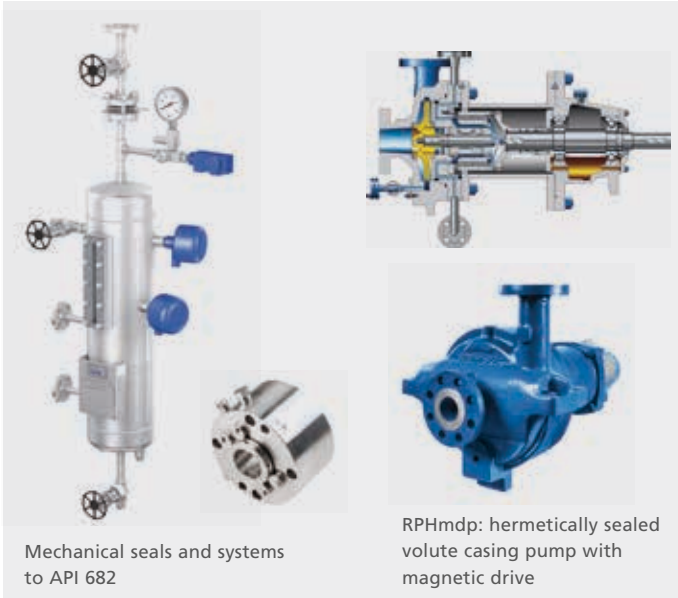
The pump enables the handling of low flow rates from 15 m³/h, allowing high-speed geared pumps to be replaced in most cases all requirements with its modular design.



	50 Hz	60 Hz
DN [mm]	50 – 300	50 – 300
DN [inch]	2 – 12	2 – 12
Q [m ³ /h]	max. 1,450	max. 1,450
Q [US.gpm]	max. 6,385	max. 6,385
H [m]	max. 4,000	max. 4,000
H [ft]	max. 13,123	max. 13,123
p [bar]	max. 400	max. 400
p [psi]	max. 5801.5	max. 5801.5
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.



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
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.

Other KSB API pumps

VS6 – WKTR

Double casing, vertically suspended, ring-section multistage 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]	max. 400	max. 400
Q [US.gpm]	max. 1,760	max. 1,760
H [m]	max. 500	max. 500
H [ft]	max. 1,640	max. 1,640
p [bar]	max. 51	max. 51
p [psi]	max. 740	max. 740
T [°C]	-45 to +200	-45 to +200
T [°F]	-49 to +392	-49 to +392

KSB auxiliary pumps

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]	max. 1,160	max. 1,160
Q [US.gpm]	max. 5,110	max. 5,110
H [m]	max. 162	max. 162
H [ft]	max. 530	max. 530
p [bar]	max. 25	max. 25
p [psi]	max. 363	max. 363
T [°C]	max. +400	max. +400
T [°F]	max. +752	max. +752

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 [m ³ /h]	max. 10,000	max. 10,000
Q [US.gpm]	max. 44,030	max. 44,030
H [m]	max. 290	max. 290
H [ft]	max. 951	max. 951
p [bar]	max. 30	max. 30
p [psi]	max. 435	max. 435
T [°C]	0 to +140	0 to +140
T [°F]	+32 to +284	+32 to +284

UPA

Single- 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, leakage water or product pump in caverns, sea- and backish water for offshore applications.



	50 Hz	60 Hz
DN [mm]	100 – 1,250	100 – 1,250
DN [inch]	4 – 50	4 – 50
Q [m ³ /h]	max. 5,000	max. 5,000
Q [US.gpm]	max. 22,000	max. 22,000
H [m]	max. 1,500	max. 1,500
H [ft]	max. 4,900	max. 4,900
p [bar]	max. 160	max. 160
p [psi]	max. 2,320	max. 2,320
T [°C]	max. +50	max. +50
T [°F]	max +323	max +323

Magnochem

Horizontal glandless volute casing pump in back pull-out design with magnetic coupling to DIN EN ISO 2858 / ISO 5199 and ISO 15783 / API 685 with centerline feet

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



	50 Hz	60 Hz
DN [mm]	25 – 250	25 – 250
DN [inch]	1 – 10	1 – 10
Q [m ³ /h]	max. 1,160	max. 1,160
Q [US.gpm]	max. 5,110	max. 5,110
H [m]	max. 162	max. 162
H [ft]	max. 530	max. 530
p [bar]	max. 40	max. 40
p [psi]	max. 580	max. 580
T [°C]	max. +300	max. +300
T [°F]	max. +572	max. +572

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 [m ³ /h]	max. 2,880	max. 2,880
Q [US.gpm]	max. 12,680	max. 12,680
H [m]	max. 210	max. 210
H [ft]	max. 689	max. 689
p [bar]	max. 25	max. 25
p [psi]	max. 363	max. 363
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 10/16

Centred-disc AMRI butterfly valve with elastomer liner

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

DN [mm]	32 – 1,000
p [bar]	max. 25
T [°C]	-10 to +200



Danais 150

DANÄIS 150 / MTII / TBTII
Double-offset butterfly valve

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

DN [mm]	50 – 1,200
p [bar]	max. 50
T [°C]	-196 to +260



Triodis 150

TRIODIS MT/ TBT
Triple-offset butterfly valve

For use in high-pressure and cryogenic applications.

DN [mm]	150 – 1,500
p [bar]	max. 150
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 [mm]	1.050 – 4.000
p [bar]	up to 25
T [°C]	0 to +80



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
p [bar]	max. 25
T [°C]	-20 to +160



SICCA 150-600 GLC

SICCA
 ANSI high-pressure valve.

DN [mm]	½" – 24"
Class	800 – 2,500
T [°C]	0 to +593



ECOLINE BLC 1000

ECOLINE
 ANSI low-pressure valve.

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



Technology that **makes its mark**

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