HEAVY-DUTY, RADIALLY SPLIT, DOUBLE-STAGE PROCESS PUMP

BETWEEN BEARINGS VERSION
API 610 / TYPE BB2

KGR
KGRD

- Heavy-duty process design according to API 610
- Double-flow suction impeller for best NPSH values
- Optimum rotor dynamics for safe operation
- Suitable for high pressure and temperature values

APOLLO
Pumps | Pumping Systems

Range of Application

Due to heavy-duty between bearings design, lowest NPSH values and highest energy efficiency the pumps of this range are suitable for a variety of applications:

- power plant applications
- offshore applications
- refinery applications
- applications in oil and gas industry

Design

- Double-stage heavy-duty Process pump with bearings on both sides
- Balanced axial thrust with „back to back“ version
- Double-flow suction impeller for low NPSH values
- Double – volute design of discharge casing
- Replaceable wear and split rings ensure maximum maintainability
- Flanges acc. to ASME or DIN EN
- Compensation of high nozzle loads by means of centerline support
- Bearing types: antifriction bearings; combined bearings of radial slide bearing and axial antifriction bearing with ring oil lubrication or complete slide bearings with forced lubrication

Shaft seal

A usage of single and double mechanical seal and stuffing box is possible. Pumps of this design are generally equipped with cartridge mechanical seals. Seal chamber according to API 610 /ISO13709/API 682.

Designation

KGRD – 200/600 – 508/CN

- Type series
- Size discharge nozzle
- Impeller dia.
- Material version
- Shaft sea

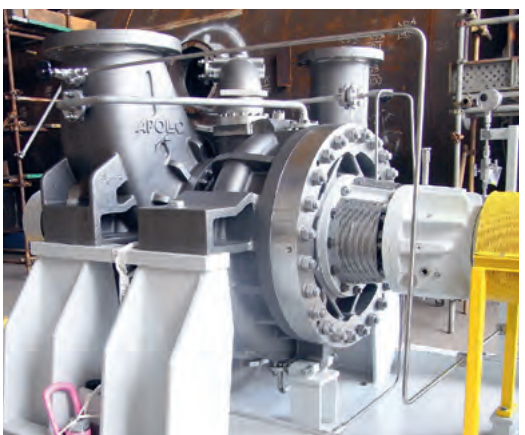
Operating data

Rated width	DN 80 up to DN 250
Capacity	up to 950 m^3/h
Head	up to 640 m
Design pressure	up to 100 bar
Temperature limit range	up to 400 °C

Materials

	S-5	S-6	C-6	A-8	D-1	D-2
Casing	Carbon steel	Carbon steel	12 % Chromium steel	316 AUS	Duplex	Super duplex
Casing cover	Carbon steel	12 % Chromium steel	12 % Chromium steel	316 AUS	Duplex	Super duplex
Impeller	12 % Chromium steel	12 % Chromium steel	12 % Chromium steel	316 AUS	Duplex	Super duplex
Shaft	12 % Chromium steel	12 % Chromium steel	12 % Chromium steel	Duplex	Duplex	Super duplex
Bearing housing	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel

Materials according to API, NORSOK, NACE and special alloys are available.



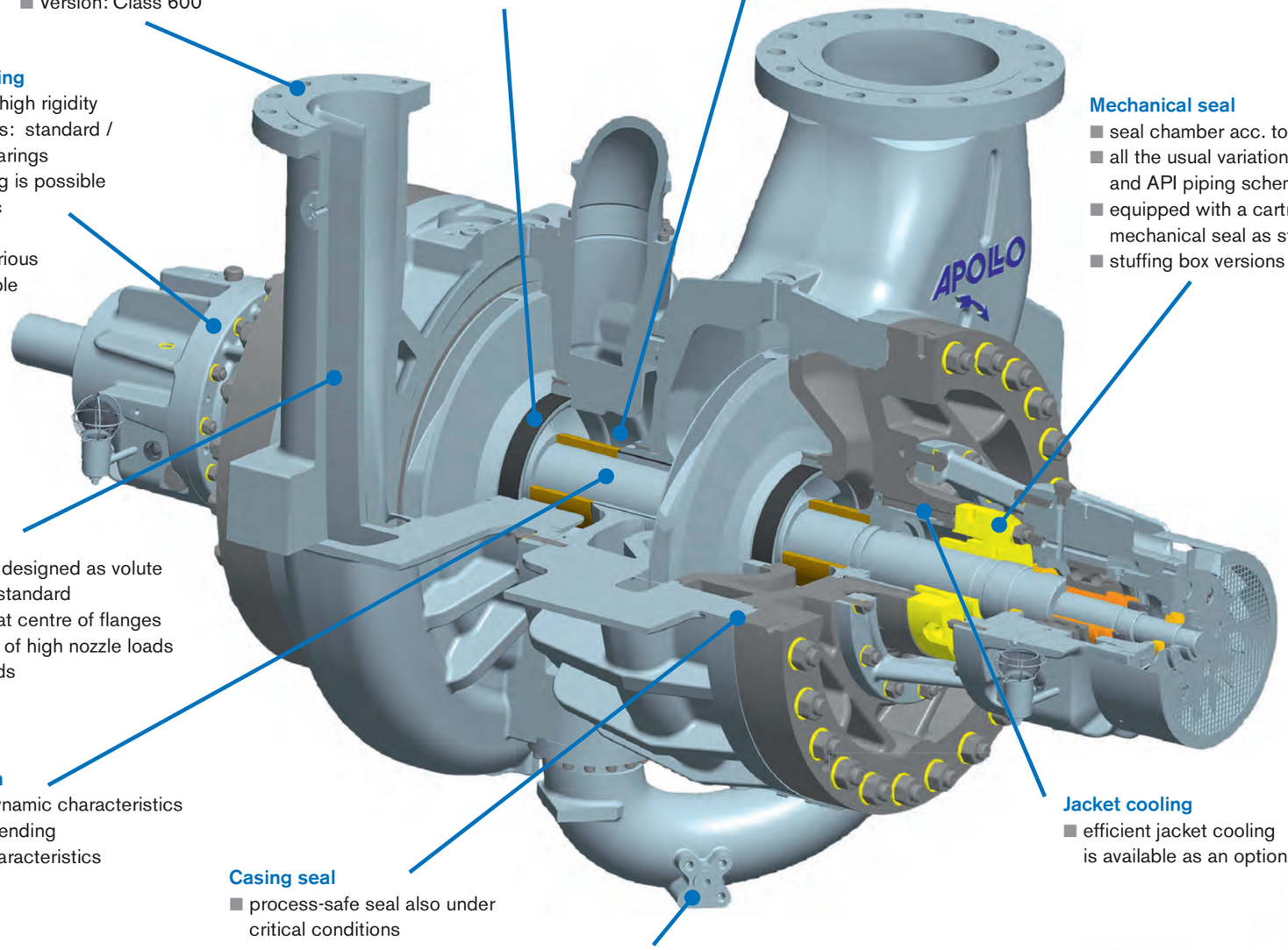
Flanges
- ASME or DIN EN
- Version: Class 600

Wear and split rings
- replaceable wear and split rings
- different material options and coatings available
- Peek version with reduced clearance

Hydraulics
- double suction impeller
- optimized suction chambers for low NPSH values
- a variety of hydraulic versions per casing for optimum adaptation to operating conditions

Solid Bearing Housing
- 360° mounting for high rigidity
- antifriction bearings: standard / optional sliding bearings
- sump or fan cooling is possible
- high-grade metallic bearing isolators
- connections for various instruments available

Mechanical seal
- seal chamber acc. to API 610 / API 682
- all the usual variations of sealings and API piping schemes are possible
- equipped with a cartridge mechanical seal as standard
- stuffing box versions are possible



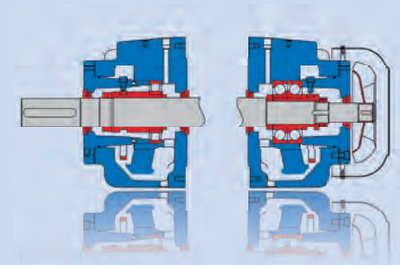
Volute casing
- discharge casing designed as volute
- double volute as standard
- solid casing feet at centre of flanges for compensation of high nozzle loads
- 2x API nozzle loads

Stable rotor design
- optimized rotor-dynamic characteristics
- controlled shaft bending
- good vibration characteristics

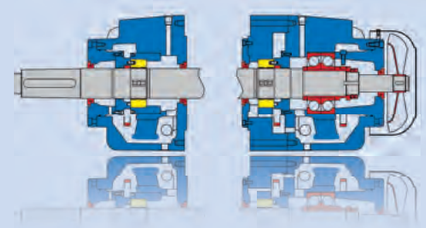
Casing seal
- process-safe seal also under critical conditions

Venting, Drainage
- via integral flanges
- welding on casing not necessary

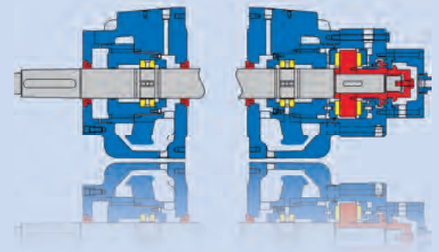
Jacket cooling
- efficient jacket cooling is available as an option



- Antifriction bearings with oil-ring lubrication

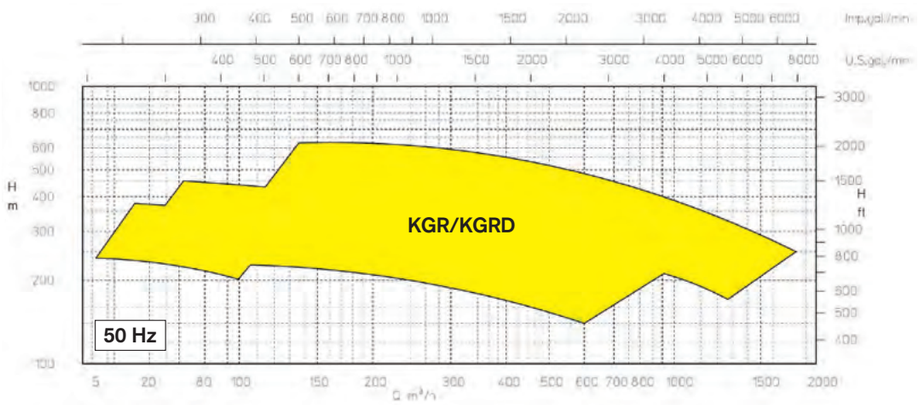


- Mixed bearings: radial sliding bearings, axial antifriction bearings with oil-ring lubrication



- Sliding bearings axial, radial with forced oil lubrication

Performance range



Since more than 100 years APOLLO in Goessnitz has been developing and producing pumps for different applications with most different operating principles.

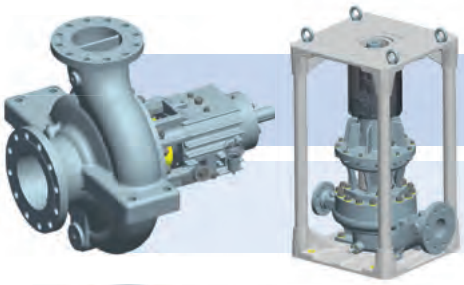
In continuation of this history Apollo has developed to a Manufacturer of high quality heavy-duty Process Pumps – especially according to API 610 Standard.

20 years ago, the business Division „System Engineering & System Technology“ was founded. With this division we can offer our Customers complete solutions from a single source. Apollo has high-skilled Personnel for Pumps and Pumping Systems up to Specialists for Electrical and Control Engineering. By taking advantage of these synergies, of short lines of communication, of optimized process chains and of high Flexibility of our company, we provide our Customers with best support in solving their problems and tasks worldwide.

Our production methods and systems meet the highest level of quality and allow the implementation of orders according to different standards and regulations.
The Quality Assurance in all areas of the company, including suppliers and cooperation partners, is the top priority and is consistently implemented. The most up-to-date test fields provide realistic test conditions.

Today we develop and manufacture with the most modern methods – from the hydraulic design over to 3D CAD design and engineering, FEM calculation to the casting patterns and parts manufacture via CAD-CAM Interfaces.

PROCESS PUMPS | API 610

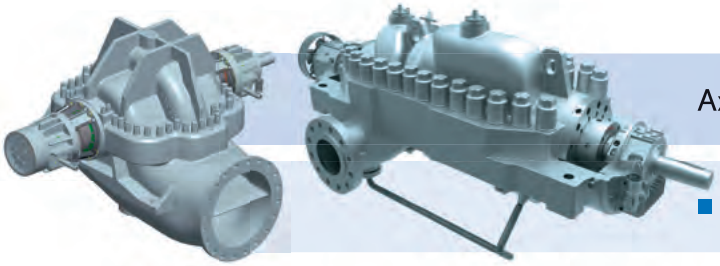


Single stage pumps: **OH1, OH2, OH3**

■ KRH ■ KRHA ■ KRHL / KRPO ■ KRP / KRPH ■ KRI / KRIL

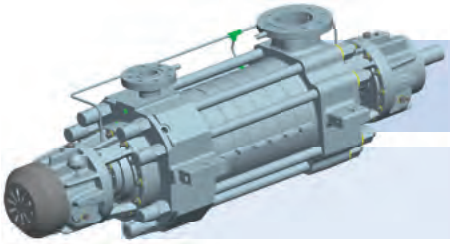
Single and two-stage between bearings pumps: **BB2**

■ ZPR ■ ZPRA ■ KGR / KGRD



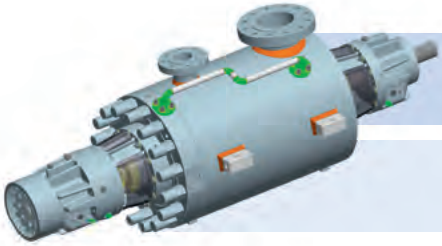
Axial split between bearings pumps: **BB1, BB3**

■ ZMK ■ ZMKV ■ AMG



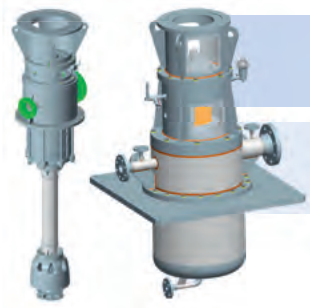
Multistage high-pressure pumps, ring sections type: **BB4**

■ HP ■ GP „back-to-back“ ■ GMHD



Multistage high-pressure barrel pumps: **BB5**

■ TL ■ TG „back-to-back“ ■ TGDX



Single and multistage, vertical pumps: **VS1, VS4, VS6**

■ HPTV ■ HPV ■ HPVX ■ GSTV ■ GDTV ■ GDV

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04/2017