Since more than 100 years APOLLO in Goessnitz has been developing and producing pumps for different applications with the most different operating principles. In continuation of this history Apollo has developed a manufacturer of high-quality heavy-duty Process Pumps – especially according to API 610 Standard.

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.

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 optimised process chains and of high flexibility of our company, we provide our customers with best support in solving their problems and tasks worldwide.

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Range of Applications

Based on the excellent hydraulic characteristics, the perfectly optimized performance field and modern structural design according to API 610 latest edition, the pumps are suitable for applications such as:

- boiler feed water applications
- booster application in all industrial branches
- water injection schemes and offshore

Design

- Horizontal, multistage ring-section high-pressure pump, between bearings design
- Pump in-line version HP or as a “back-to-back” version GP
- Centerline casing support for max. reliability at high temperatures and high nozzle loads
- Bearing types: antifriction bearings with ring oil lubrication, mixed bearings: radial slide bearings, axial antifriction bearings with ring oil lubrication, radial and axial slide bearings with pressure oil lubrication
- For HP series axial thrust compensation by balancing piston or double piston
- For GP series axial thrust compensation by "back-to-back" arrangement

Designation

- In-line: HP – 80 / 10 – 308 / CN
- "back-to-back" arrangement: GP – 80 / 10 – 308 / CN

Shaft Seal

- Separate seal chamber available for a variety of mechanical seals – from single and double mechanical seals up to cartridge mechanical seals and gland packing – all variants are available. Pumps of this version have a standard design with cartridge mechanical seals. Assembly space according to API 610/682.
- Centerline casing support for max. reliability at high temperatures and high nozzle loads
- Bearing types: antifriction bearings with ring oil lubrication, mixed bearings: radial slide bearings, axial antifriction bearings with ring oil lubrication, radial and axial slide bearings with pressure oil lubrication
- For HP series axial thrust compensation by balancing piston or double piston
- For GP series axial thrust compensation by "back-to-back" arrangement

Operating Data

- Nozzle size (mm) from 50 to 350
- Capacity up to 1800 m³/h
- Head up to 2800 m
- Nozzle size (mm) from 50 to 350
- Operating temperature up to 200 °C
- Pressure design up to 300 bar
- Head up to 2800 m
- Capacity up to 1800 m³/h
**Design**
- **Horizontal, multistage ring-section high-pressure pumps:** between bearings design
- **Pump in-line version HP** or as a “back-to-back” version **GP**
- **Centerline casing support** for max. reliability at high temperatures and high nozzle loads
- **Bearing types:** antifriction bearings with ring oil lubrication, mixed bearings: radial slide bearings, axial antifriction bearings with ring oil lubrication, radial and axial slide bearings with pressure oil lubrication
- For HP series axial thrust compensation by balancing piston or double piston
- For GP Series axial thrust compensation by “back-to-back” arrangement

**Shaft Seal**
- Separate seal chamber available for a variety of mechanical seals – from single and double mechanical seals up to cartridge mechanical seals and gland packing – all variants are available. Pumps of this version have a standard design with cartridge mechanical seal. Assembly space according to API 610/682.
- **1**st stage with NPSH impeller as standard
- **Flanges** according to ASME or DIN EN in different pressure ratings
- **Single impeller support and shrink fit impellers** in reference to the application

**Operating Data**
- **Nozzle size (mm)** from 50 to 350
- **Capacity** up to 1800 m³/h
- **Head** up to 2800 m
- **Pressure design** up to 360 bar
- **Operating temperature** up to 200 °C

**Materials**
- **Suction impeller** 12% chromium steel
- **Impeller** Cast iron 12% chromium steel
- **Shaft** Carbon steel 12% chromium steel
- **Backward-curved impeller** Carbon steel 316AUS Duplex Super duplex
- **Bearing housing** 316AUS Duplex Super duplex

**Hydraulics**
- **Suction stage**
  - 1st stage as standard design with NPSH impeller
  - Optimized intake geometry for lowest NPSH values
  - version with double-flow suction impeller available
- **Seal chamber**
  - separate seal chamber according to API 610 / 882
  - all the usual variations of sealing and API piping schemes are possible
  - equipped as standard with a cartridge mechanical seal
- **Type**
  - rotor-dynamically optimized solid shafts
  - cylindrical or conical shaft-end

**Type Series**
- **GP** “back-to-back” version
- **BB4** pump unit

**Bearings**
- antifriction bearings, radial, axial
- mixed bearings
- sliding bearings
- ring oil lubrication or forced lubrication
- bearing selection, in dependence on customer specification, speed and API requirements

**Shaft seal**
- **shaft fit impellers and single-impeller support**
- **shaft with stepped diameter**
- **rotor with impeller seat via slip fit available**

**Operating temperature** up to 200 °C
- **Pressure design** up to 300 bar
- **Head** up to 2800 m
- **Capacity** up to 1800 m³/h

**Performance range**

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**Range of Applications**

Based on the excellent hydraulic characteristics, the perfectly optimized performance field and modern structural design according to API 610 latest edition, the pumps are suitable for applications such as:

- boiler feed water applications
- booster application in all industrial branches
- water injection schemes and offshore

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

**Shaft Seal**
- **Seal chamber**
  - separate seal chamber according to API 610 / 882
  - all the usual variations of sealing and API piping schemes are possible
  - equipped as standard with a cartridge mechanical seal

**Bearing Types**
- antifriction bearings with ring oil lubrication
- mixed bearings
- sliding bearings
- ring oil lubrication or forced lubrication
- bearing selection, in dependence on customer specification, speed and API requirements

**Seal Chamber**
- separate seal chamber according to API 610 / 882
- all the usual variations of sealing and API piping schemes are possible
- equipped as standard with a cartridge mechanical seal

**Spool bearings radial slide bearings, axial antifriction bearings with ring oil lubrication**

**Plain bearings axial, radial with forced oil lubrication**
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Single stage pumps: OH1, OH2, OH3

- KSB - KSB4 - KSB4L / KSBQ - KSBP / KSB4P - KSB / KSB4L

Single and two-stage between bearings pumps: BB2

- ZPR - ZPR4 - KG4 / KG4D

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

Modern type series with best hydraulic values and well-balanced performance field

- Very good NPSH values

- High reliability in operation and low operating cost

- Modular design allows best adaptation to customer requirements