APOLLO
Pumps | Pumping Systems

GSTV / GDTV / GLKV / HPTV

API 610, TYPE VS6

vertical, multistage centrifugal pumps in a can-type design (double casing)



THE RIGHT PUMP SOLUTION
FOR ANY REQUIREMENT

Applications

Apollo Pumps and System Technology is an integral part of numerous industries. These include the oil and gas industry, the chemical industry, the water and fertilizer industries, power generation, and the renewable energy sector.

This pump series has a wide range of applications, including:

- power plant applications
- applications in renewable energy, such as geothermal energy
- applications in the oil and gas industry
- condensate transfer in industrial plants
- applications in refineries as booster and transfer pumps
- liquefied gas applications
- crude oil applications
- water injection

Design

- Vertical, multistage centrifugal pumps with a can-type design, in accordance with API 610 Type VS6 and DIN EN ISO standards.
- Thanks to their modular design, they can be flexible adapted to project-specific processes and operating parameters.
- The double casing provides high pressure resistance and ensures maximum operational reliability under critical operating conditions.
- Excellent NPSH characteristics ensure reliable operation even under low-head conditions.
- The can-type design is maintenance-friendly and allows for quick access to the hydraulic components.

Materials

- Cast Iron / Cast Steel
- Stainless Steel / Austenitic Steel
- Duplex and Super Duplex
- Titanium and Inconel
- API 610 material codes: S-1, S-5, S-6, C-6, A-8, D-1, D-2
- Other special alloys according to NORSOK or NACE are available on request

Standards

Designed in accordance with API 610 and the relevant ISO standards for centrifugal pumps, the pumps are suitable for demanding process applications.

Process pumps can be operated with suitable Ex motors in Zone 1 or Zone 2 in accordance with ATEX/IECEx for use in potentially explosive atmospheres.







GSTV



1 Lantern

- stable lantern design for maximum run smoothness
- very low vibration values

2 Bearings

- oil-lubricated anti-friction bearings or combined axial-radial plain bearings
- forced oil lubrication and bearing cooling possible

3 Seal chamber

- separate sealing chamber
- installation of various mechanical seals possible
- all API piping plans are possible
- version with gland packing available

4 Flanges

- ASME or DIN EN

5 Hydraulics

- various hydraulics per type size
- best adaptation to customer's requirements ensured

6 Wear rings

- replaceable wear rings
- different material options and coatings possible

7 Intermediate pipe and can

- variable installation depth
- intermediate pipe, intermediate shaft and can are adapted to process requirements
- high flexibility

8 Shaft

- one-piece shafts up to 3.5 m in length
- on higher suspension depths shafts consisting of several parts with intermediate coupling

9 Bearing / Guide bearing

- liquid-lubricated plain bearing / guide bearing
- plain bearing materials adapted to process requirements

10 Suction stage

- flow-optimized suction casing
- suction impeller as single-suction or double-suction impeller or as special "super" suction impeller available
- suction stage suspended
- installation depth according to process requirements



Pump type GSTV

Features

- vertical ring section pumps in can-type version
- suspended NSPH impellers of single and double-flow design
- special “super“ suction impeller available
- installation depth adapted to customer requirements
- bearing versions: liquid-lubricated radial guide bearings within the pump
- upper bearing: combined radial-axial plain bearings with oil bath lubrication or antifriction bearings for radial and axial load
- compensation of axial thrust through balancing by single-impeller or by piston
- nozzle position: horizontally at the outlet casings, suction nozzle can also be positioned at the can
- complete pump design for MAWP possible as well as dual pressure rating
- flanges according to ASME or DIN EN



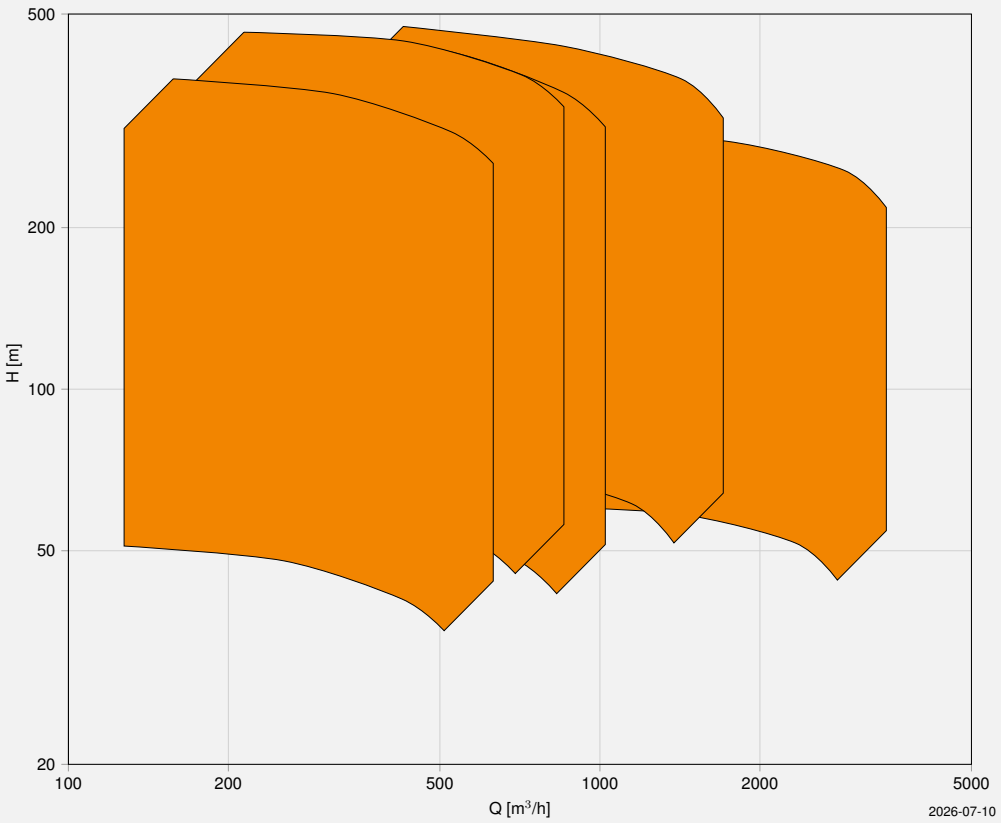
Operating data

Nozzle size (mm)	200 to 500
Capacity (m^3/h)	3 000
Head (m)	360
Pressure (bar)	40 / 63
Speed (rpm)	1 800
Temperature (°C)	+ 160

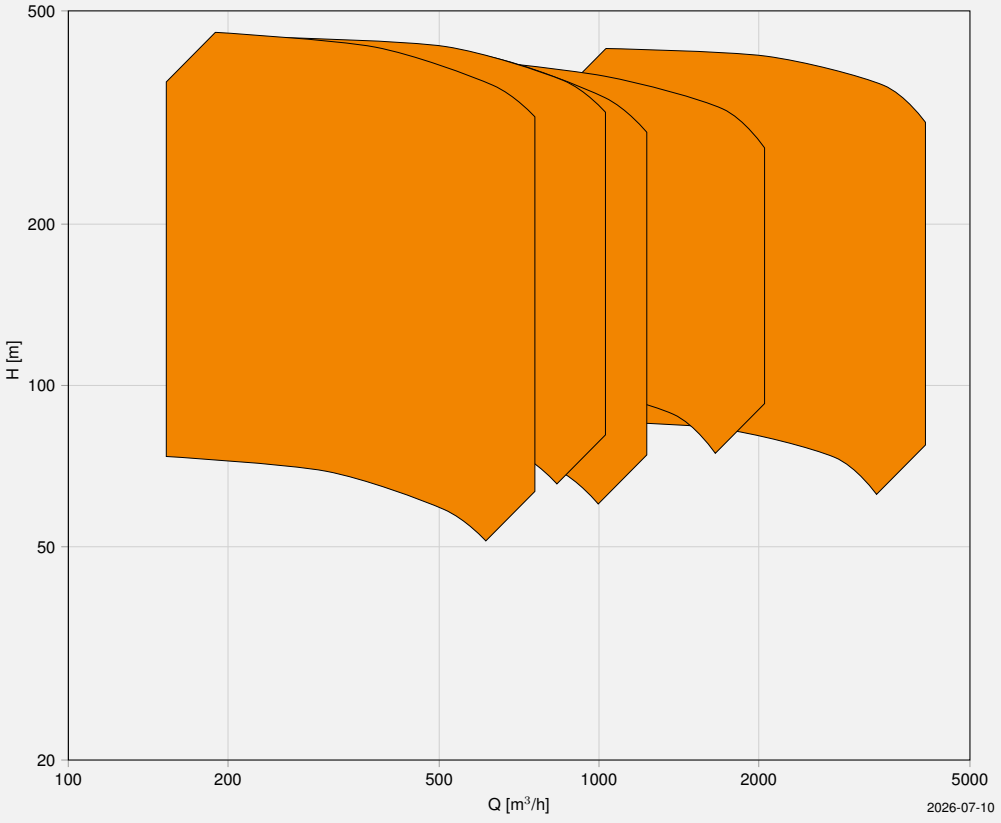




Performance range



1485 rpm | 50 Hz | other pump sizes on request



1785 rpm | 60 Hz | other pump sizes on request



Pump type GLKV / GLVK

Features

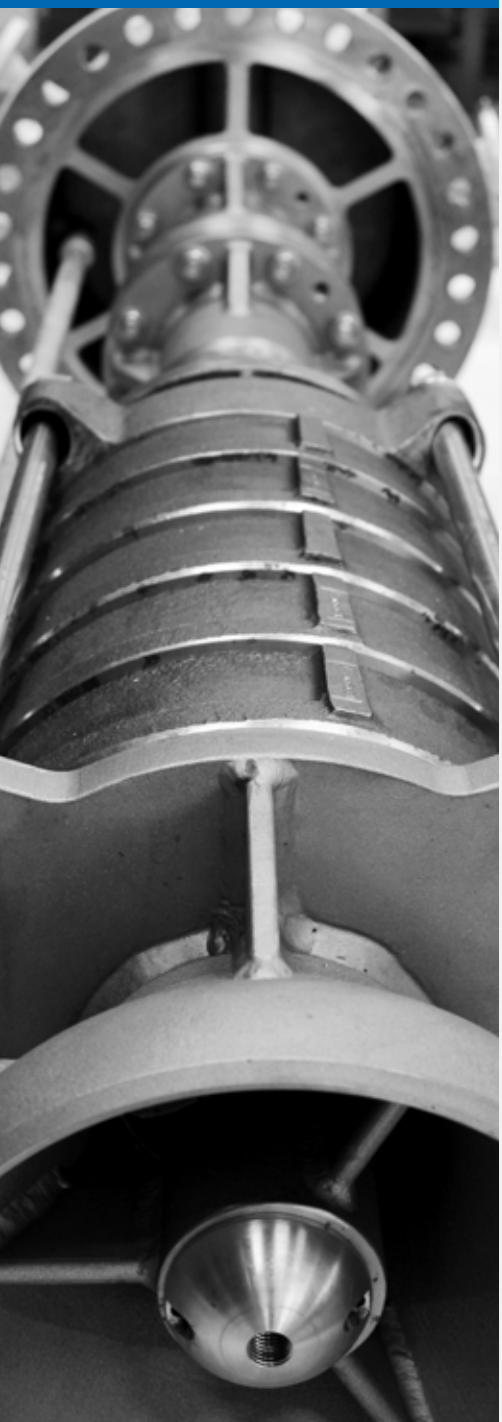
- vertical ring section pumps in can-type version
- GLKV discharge and suction nozzle „inline“
- GLVK discharge nozzle at outlet casing and suction nozzle at barrel
- first impeller is designed as a suction impeller to optimize inlet conditions
- special “super“ suction impeller available
- double-suction suction impeller is available for particularly low NPSH requirements
- optional inducer for extremely low NPSH values and improved cavitation characteristics
- generously dimensioned bearings for high operational reliability and long service life
- oil- and grease-lubricated rolling bearings designed for radial and axial loads
- complete pump design for MAWP possible as well as dual pressure rating
- flanges according to ASME or DIN EN



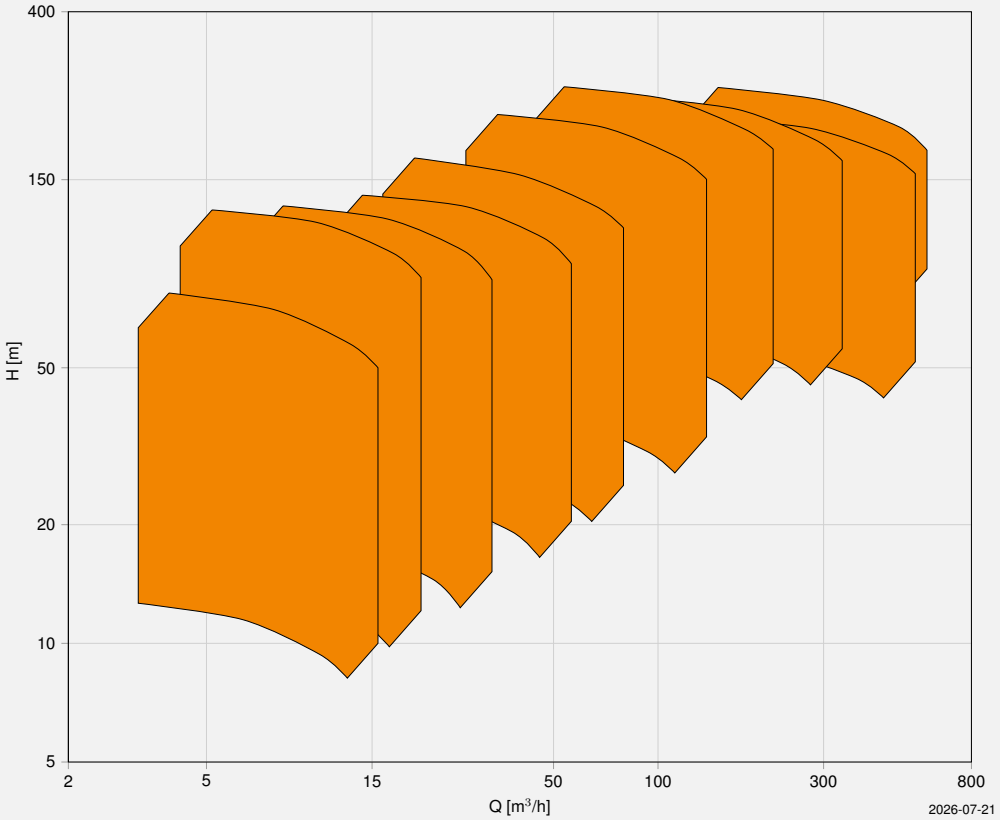
Operating data

Nozzle size (mm)	32 to 200
Capacity (m^3/h)	600
Head (m)	250
Pressure (bar)	25
Speed (rpm)	1 800
Temperature (°C)	+ 160

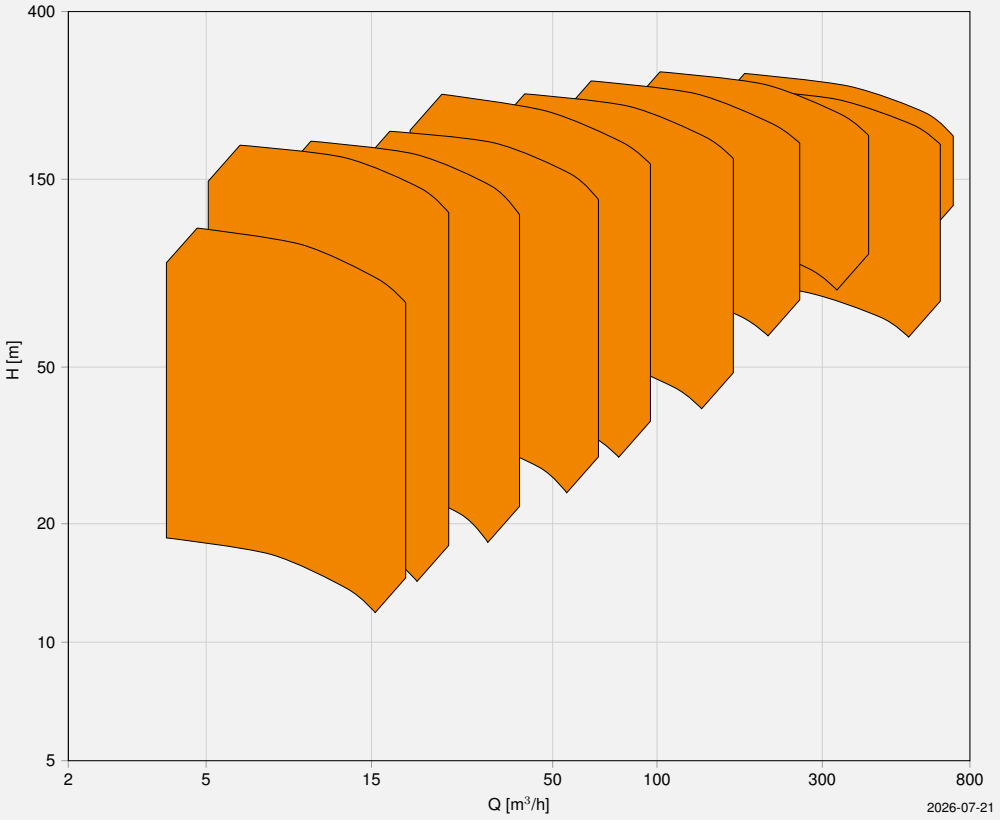




Performance range



1485 rpm | 50 Hz | other pump sizes on request



1785 rpm | 60 Hz | other pump sizes on request



Pump type GDTV

Features

- vertical high-pressure pump of can-type design
- suspended NPSH impeller of single-suction and double suction design, inducer version available
- installation depth adapted to customer requirements
- axial thrust compensation by means of single impeller balancing
- product lubricated bearing bushes on all bowls in different material grades
- with impeller- and casing wear rings acc. to API 610
- complete pump design for MAWP possible as well as dual pressure rating
- all types of mechanical seal from single to doubleaccording to API 682 available



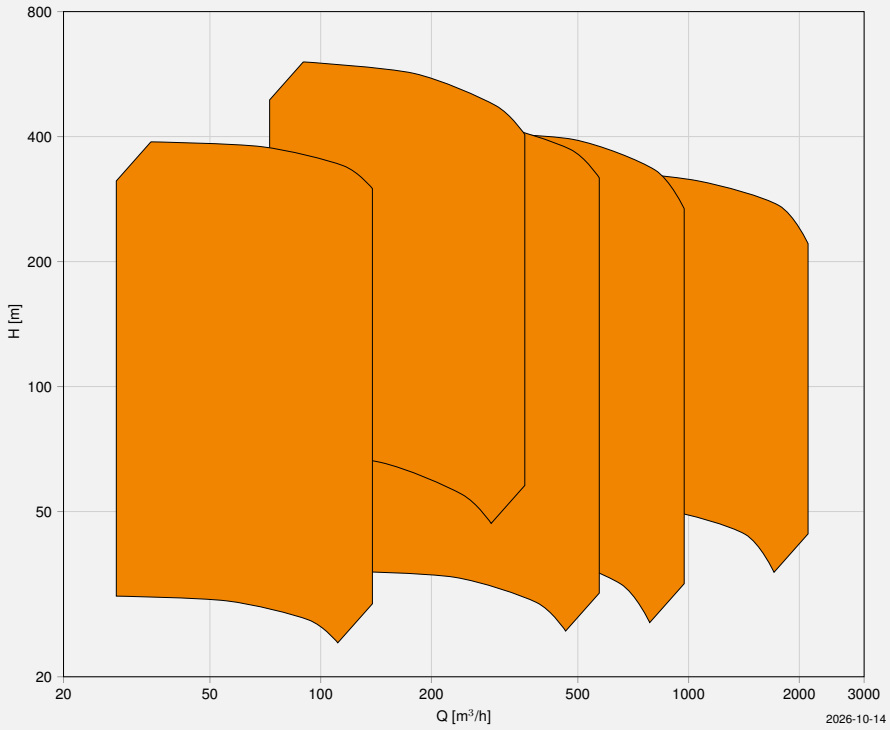
Operating data

Nozzle size (mm)	40 to 450
Capacity (m^3/h)	3 200
Head (m)	460
Pressure (bar)	63
Speed (rpm)	1 800
Temperature (°C)	+ 160





Performance range



1485 rpm | 50 Hz | other pump sizes on request

1 Wear rings

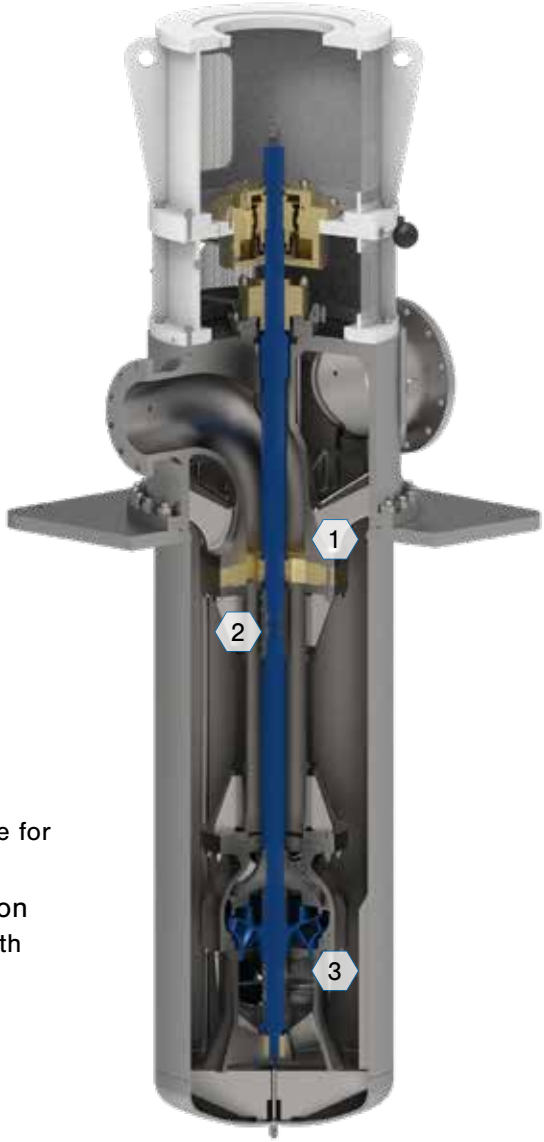
- different material optionsand coatings possible
- PEEK version with reduced clearances

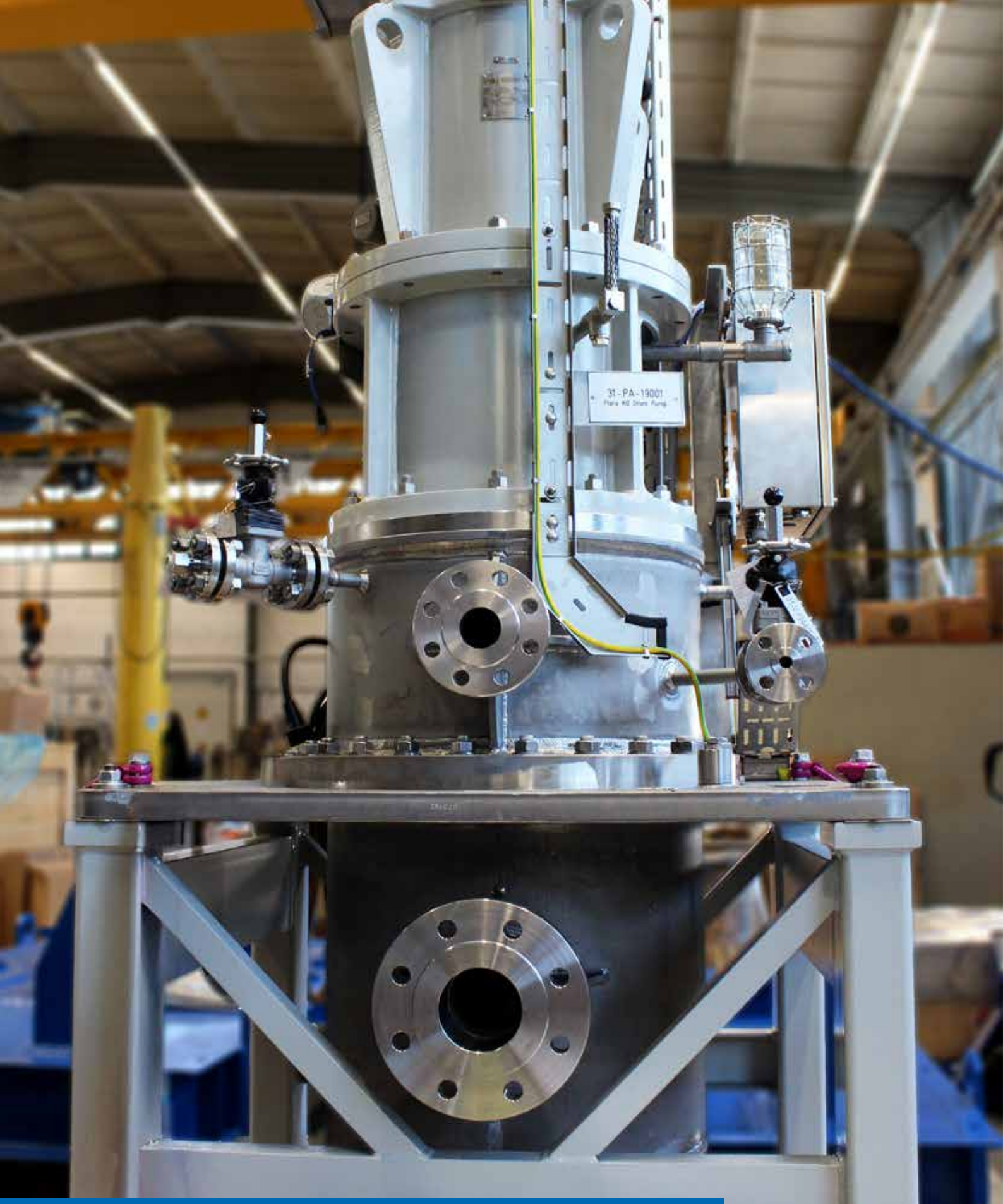
2 Hydraulics

- semi-axial hydraulic pump with impeller-guide vane combination
- various hydraulics per type size
- best adaptation to customers requirements ensured

3 Suction stage

- first stage designed as NPSH stage for lowest NPSH values
- suction impeller as single-suction or double-suction impeller or with inducer

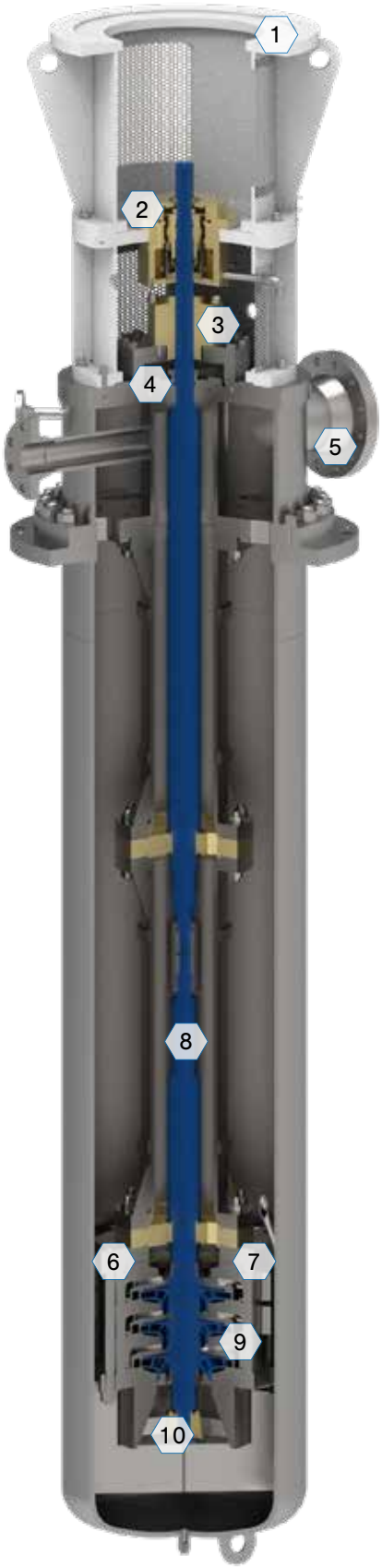




FLARE KO DRUM PUMPE acc. to API 610 | VS6 at offshore platform

- APOLLO Pump type: **HPVT-50A1/5-608/CN-655 with a suction nozzle on the can**
- with a sealing system, support frame, noise protection enclosure mounted on the mounting plate, and integrated heating element

HPTV



1 Lantern

- solid lantern design for maximum run smoothness and very low vibration values

2 Bearings

- oil-lubricated anti-friction bearings or combined axial-radial plain bearings
- forced oil lubrication and bearing cooling possible

3 Seal chamber

- separate sealing chamber acc. to API 610
- installation of various mechanical seals possible
- all API piping plans are possible
- version with gland packing available

4 Axial thrust compensation

- axial thrust compensation by balancing piston or double piston

5 Flange

- ASME or DIN EN

6 Hydraulics

- various hydraulics per type size
- best adaptation to customers requirements ensured

7 Wear and split rings

- replaceable wear rings
- clearances according to API 610
- different material options and coatings possible
- PEEK version with reduced clearances

8 Shaft

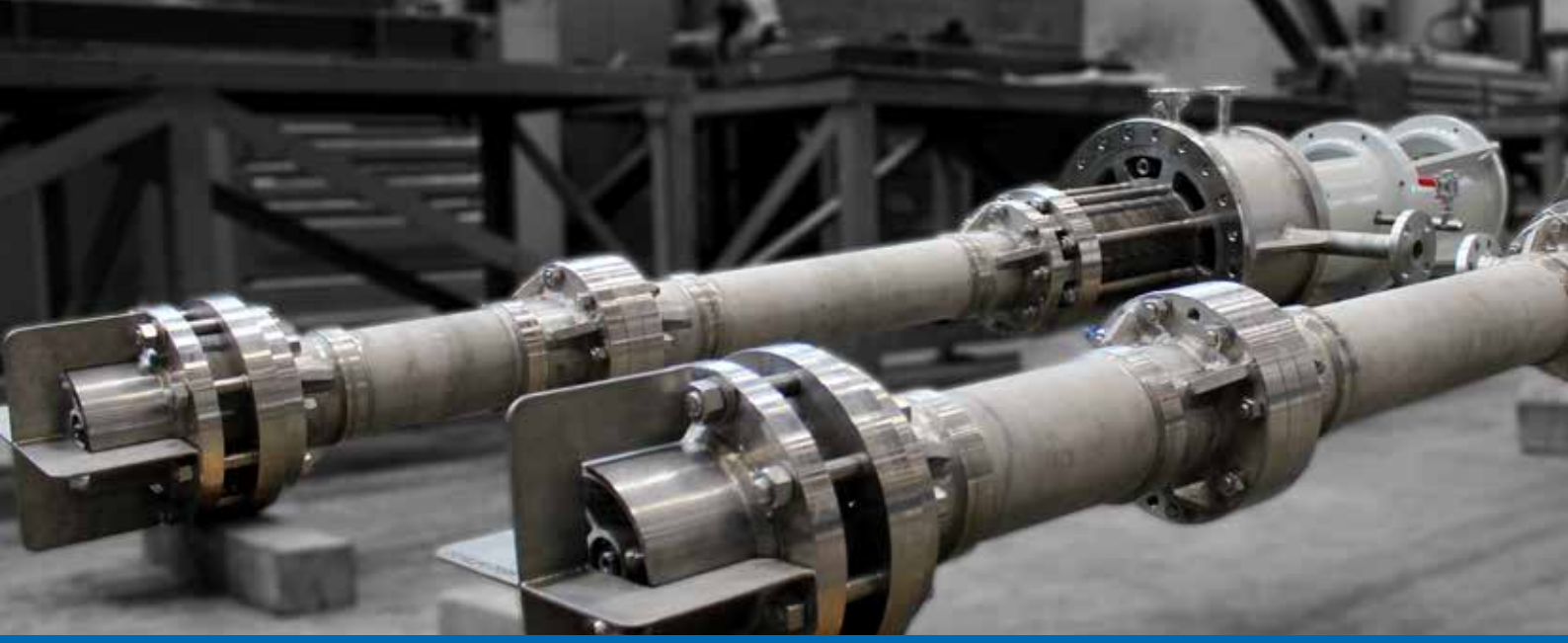
- one-piece shafts up to 3.5 m in length
- on higher suspension depths shafts consisting of several parts with intermediate coupling

9 Suction stage

- first stage designed as NPSH stage for lowest NPSH values
- suction impeller as single-suction or double-suction impeller or with inducer

10 Bearing

- liquid-lubricated guide bearing
- plain bearing materials adapted to process requirements



Pump type HPTV

Features

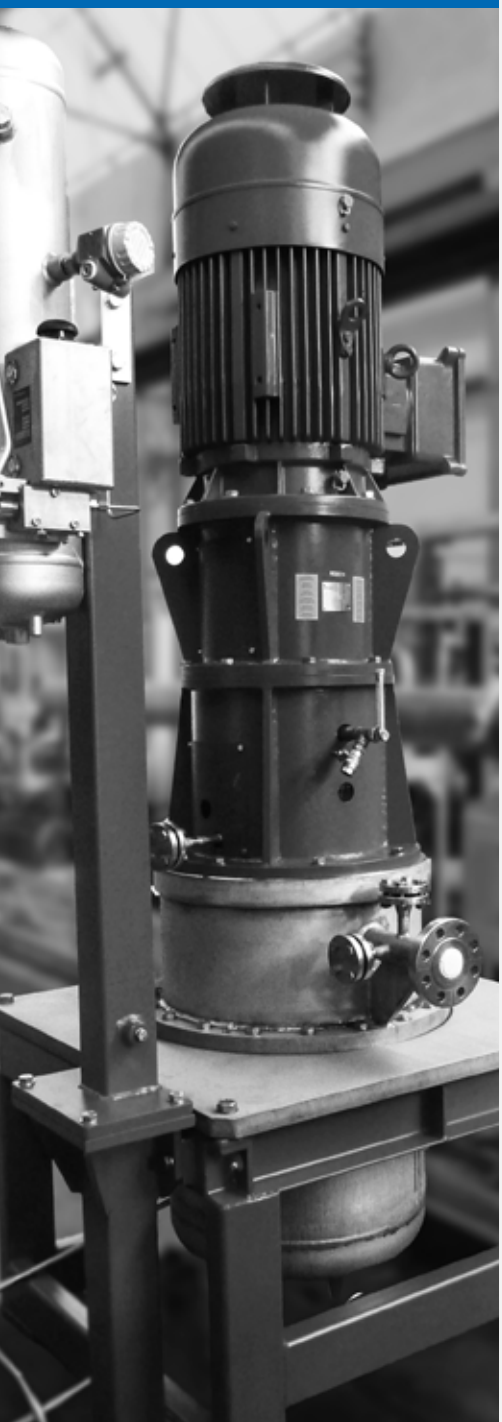
- high-pressure pump in a vertical can-type design for critical applications
- pump meets all requirements of API 610
- NPSH impeller of single-flow or double-flow version, version with inducer available
- bearing types: upper bearing as combined radialaxial plain bearing with oil bath lubrication or antifriction bearings for radial and axial load. Pumped liquidlubricated radial bearings within the pump
- Axial thrust compensation by piston or double piston
- Nozzle position: horizontally according to the customer‘s requirements at the outlet casings
- Flanges according to ASME or DIN EN



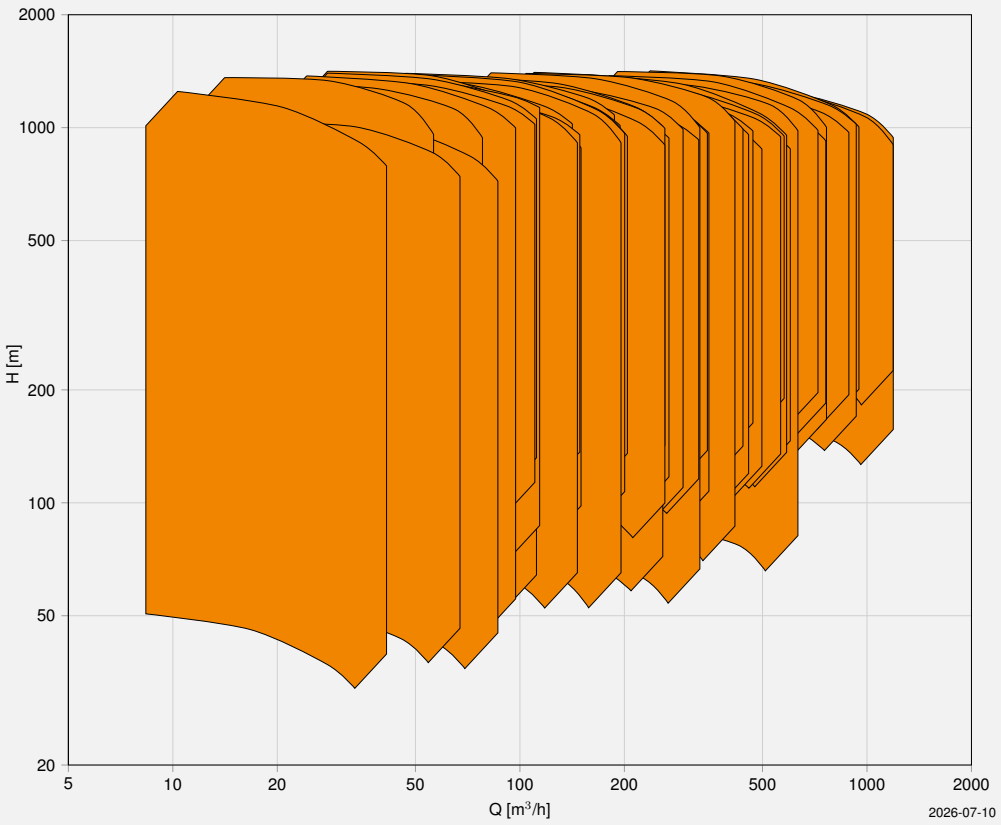
Operating data

Nozzle size (mm)	40 to 200
Capacity (m^3/h)	550
Head (m)	1 400
Pressure (bar)	40 / 140
Speed (rpm)	3 000
Temperature (°C)	-140 / + 260

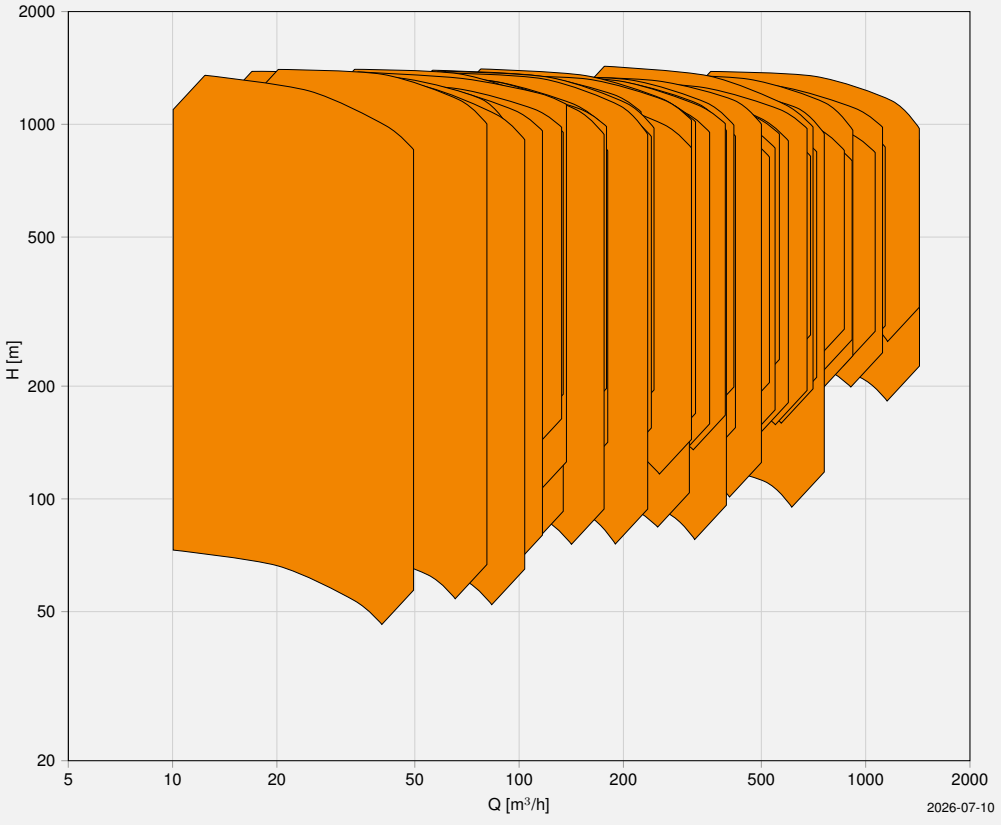




Performance range



2980 rpm | 50 Hz | other pump sizes on request



3580 rpm | 60 Hz | other pump sizes on request

Kerosene Fuel Pump Assembly



ACCESSORIES

- electric motor (e.g. ATEX/IECEx, Ex d/Ex e, EC, db, eb, Zone 1/2 compliant), diesel engine or turbine drive
- gear unit for speed adjustment
- frequency converter for variating operating conditions
- hydraulic coupling
- vibration monitoring (API compliant)
- pressure and temperature gauges for process fluid
- speed and power monitoring
- heating systems and cooling units
- sound insulation design

TECHNICAL SYSTEM SOLUTIONS
INTEGRATION & PUMP ACCESSORIES

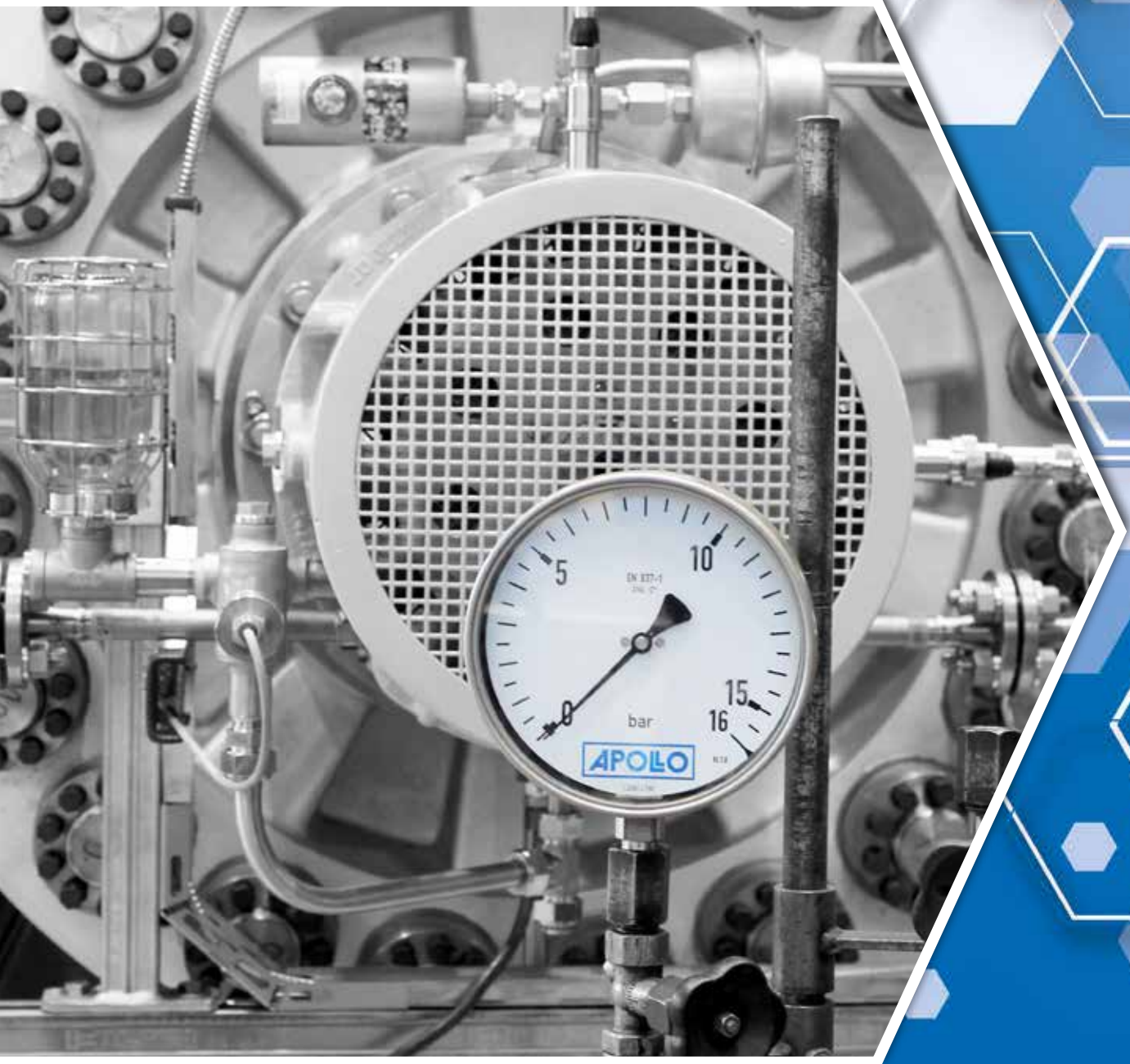
PUMP INTEGRATION INTO PROCESS PLANTS

- skid- and module-based design with piping using standardized pipe classes
- compact, transport-ready modules
- integration of process pumps into a wide variety of systems
- system design in accordance with project specifications

SUPPLY SYSTEMS

- lubricating oil systems available in accordance with ISO or API standards
- supply systems for mechanical seals in accordance with API
- cooling systems according to API





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