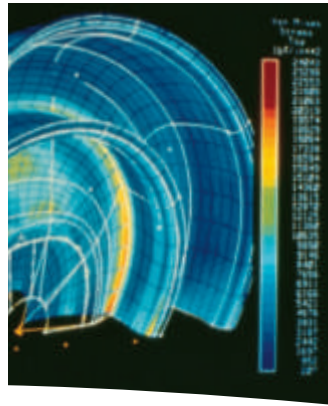




VPC
Vertical Turbine, Double Casing Pump



Experience In Motion



Pump Supplier To The World

Flowserve is the driving force in the global industrial pump marketplace. No other pump company in the world has the depth or breadth of expertise in the successful application of pre-engineered, engineered and special purpose pumps and systems.

Pumping Solutions

Flowserve is providing pumping solutions which permit customers to continuously improve productivity, profitability and pumping system reliability.

Market Focused Customer Support

Product and industry specialists develop effective proposals and solutions directed toward market and customer preferences. They offer technical advice and assistance throughout each stage of the product life cycle, beginning with the inquiry.



Dynamic Technologies

Flowserve is without peer in the development and application of pump technology, including:

- Hydraulic engineering
- Mechanical design
- Materials science
- Intelligent pumping
- Manufacturing technology

Broad Product Lines

Flowserve offers a wide range of complementary pump types, from pre-engineered process pumps, to highly engineered and special purpose pumps and systems. Pumps are built to recognized global standards and customer specifications.

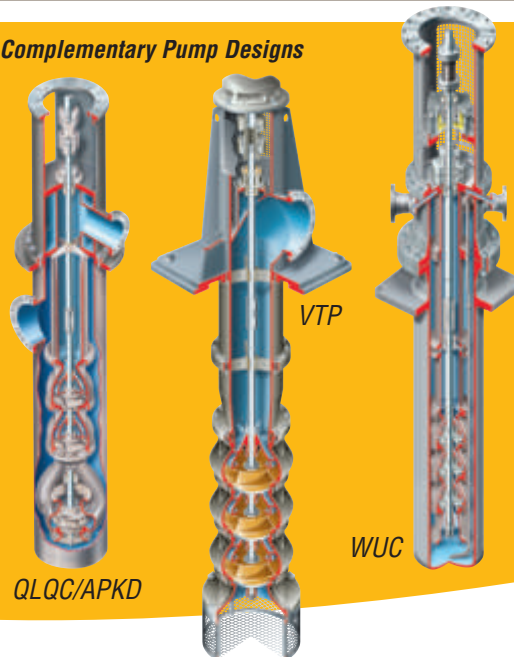
Pump designs include:

- Single stage process
- Between bearing single stage
- Between bearing multistage
- Vertical
- Submersible motor
- Rotary
- Reciprocating
- Nuclear
- Specialty

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Pump



Complementary Pump Designs



Unequaled Hydraulic Coverage
and Design Flexibility

The Flowserve VPC is a double casing, diffuser type vertical turbine pump. Available in single or multistage construction, as well as standard and API 610 compliant designs, the VPC incorporates the proven hydraulics of the Flowserve VTP vertical turbine pump into a double casing configuration. It is designed for continuous duty applications and is particularly well suited for services with limited NPSH.

Engineered Flexibility

VPC pumps are available in a wide variety of configurations, constructions and materials to suit application requirements. Among the options are:

- Standard and API 610 (VS6), latest edition configurations
- Enclosed or semi-open impellers, keyed or collet mounted
- Bowl and enclosed impeller wear rings
- Fabricated steel discharge head and suction can
- Sealing configurations
 - Packed box with flexible graphite packing
 - Single or dual mechanical seal
- Above or below ground suction flanges
- Multiple drivers
 - Electric motors, solid or hollow shaft
 - Engines with right angle gears
 - Steam turbines
- Internal and external suction can drains
- Separate axial thrust bearing assembly

Applications

- Hydrocarbon booster
- Hydrocarbon transfer
- Pipeline booster
- Petrochemical transfer
- Condensate
- Water supply
- Water transfer
- Snowmaking
- Brine injection
- Heater drain

Complementary Pump Designs

Flowserve also can provide the following complementary pumps:

- VTP vertical turbine, wet pit pump
- APKD, QLC and QLQC double casing, double suction, twin volute pumps
- WUC API 610 (VS6) vertical, multistage double casing process pump
- VCT vertical mixed flow pump
- LNN between bearing, axially split, single stage, double suction pump

VPC
Vertical Turbine,
Double Casing
Pump

The VPC is designed for a variety of applications where a wet well is not available or there is limited NPSH available. Its broad hydraulic coverage is well complemented by its versatility in applications. The VPC meets the design requirements of international standards, including ANSI, AWWA, ASME and Hydraulic Institute.

Operating Parameters

- Flows to 13 600 m³/h (60 000 gpm)
- Heads to 1070 m (3500 ft)
- Pressures to 100 bar (1450 psi)
- Temperatures from -45°C (-50°F) to 230°C (450°F)

Solid Shaft Motor includes thrust bearing to withstand the total hydraulic thrust as well as the rotor weight. Shaft extension allows motor to be coupled to the pump

Fabricated Steel Discharge Head with ASME Class 150 or 300 slip-on flanges. Functions as a mounting base for the motor or other driver combination

Rigid, Adjustable Flanged Coupling provides the proper impeller clearance adjustment

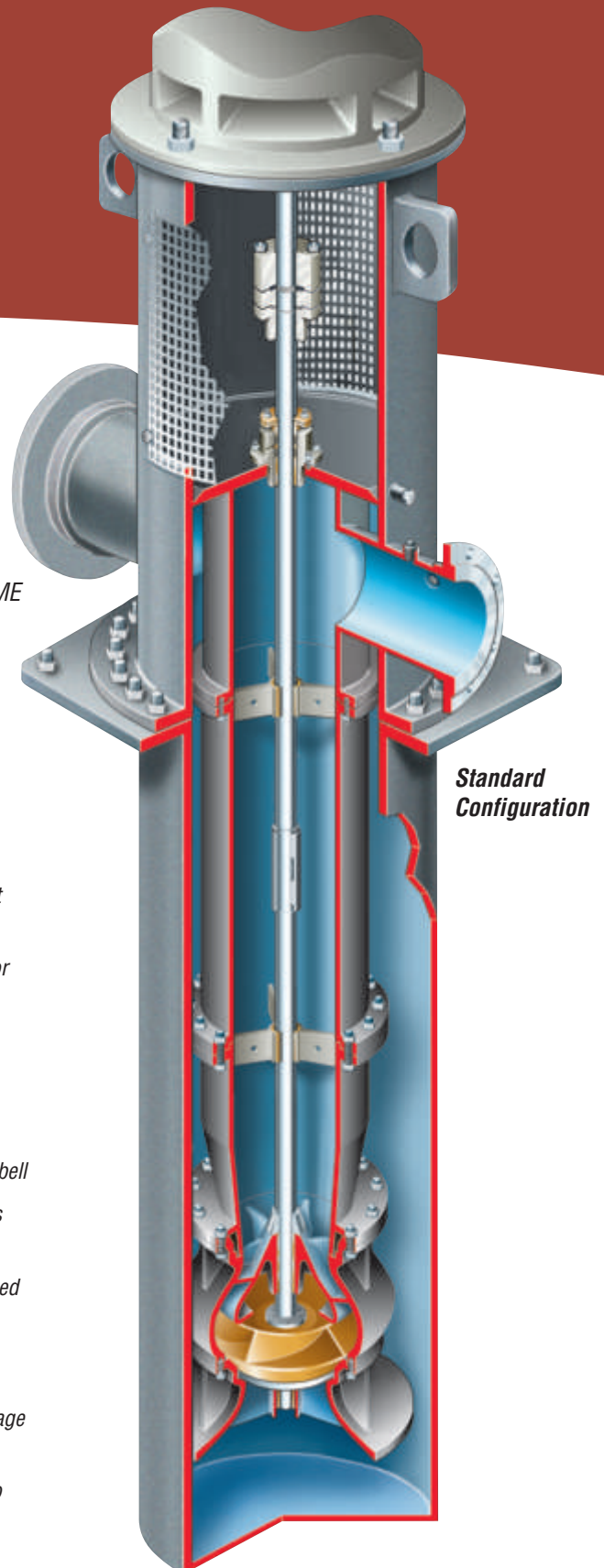
Fabricated Steel Suction Can creates optimum hydraulic conditions through the suction flange inlet into the suction bell

Open Lineshaft Construction allows the lineshaft bearings to be lubricated by the pumped fluid

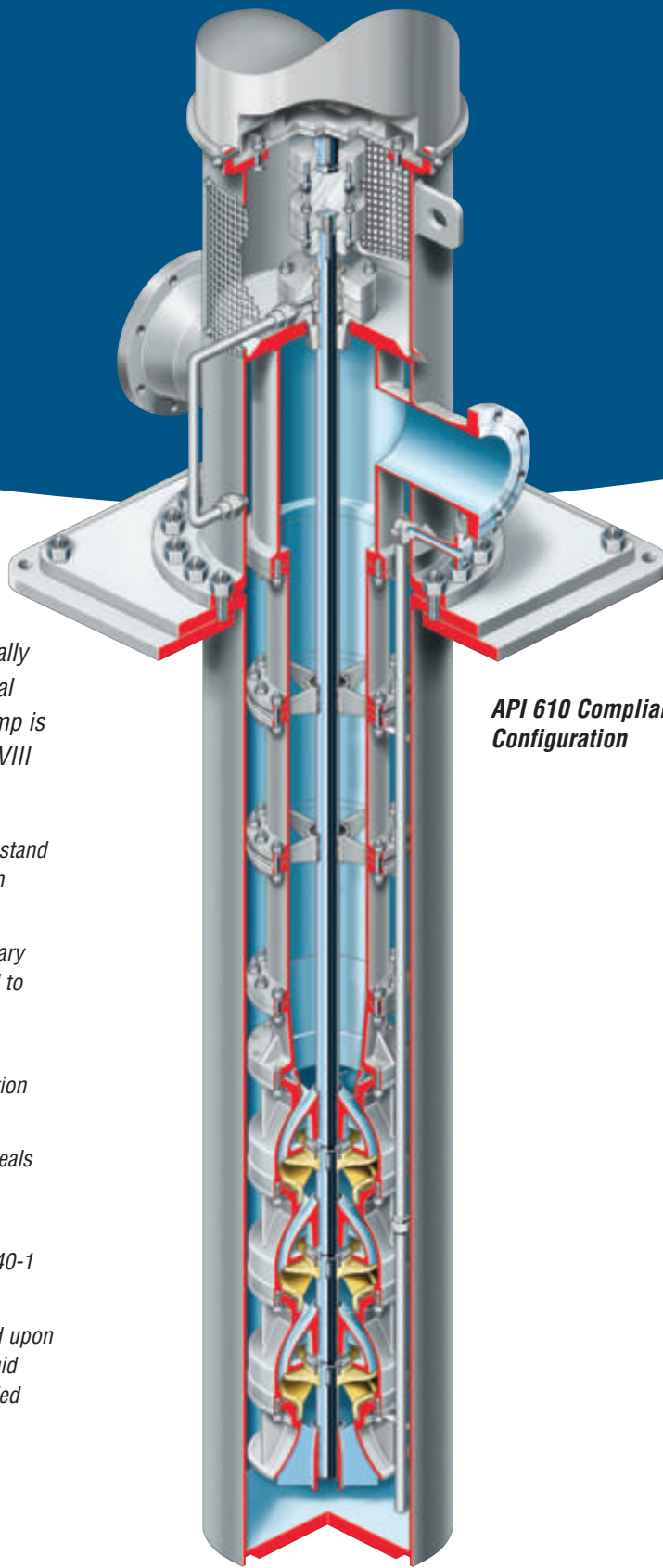
Bowls are designed with multiple diffuser vanes and flanged construction. Bowl bearings on either side of the impeller provide rigid support to the shaft

Enclosed or Semi-Open Impellers are cast to provide smooth passageways for more efficient fluid flow. First stage impeller available with low NPSH design

Suction Bell is designed to provide efficient fluid flow into the eye of the first stage impeller



**VPC
API 610 (VS6)
Vertical Turbine,
Double Casing
Pump**



Design flexibility makes the VPC ideal for process applications. For the aggressive applications typically found in the oil and gas, hydrocarbon and chemical industries, a heavy-duty VPC is available. This pump is compliant with API 610 (VS6) and ASME Section VIII and IX design requirements.

Heavy-Duty ASME Pressure Casing is designed to withstand the maximum allowable working pressure (MAWP) even under API's specified corrosion conditions

Weld-Neck Flanges on all suction, discharge and auxiliary connections provide increased MAWP and are designed to withstand API nozzle loadings

One-Piece Pump Shaft eliminates threaded lineshaft couplings and the increased shaft run-out, higher vibration and weaker joints associated with them

Seal Chamber with jackscrews accepts single or dual seals and enables mating parts to be separated easily during disassembly. Plan 13 provides continuous venting

Dynamically Balanced Enclosed Impellers per ISO 1940-1 grade G2.5

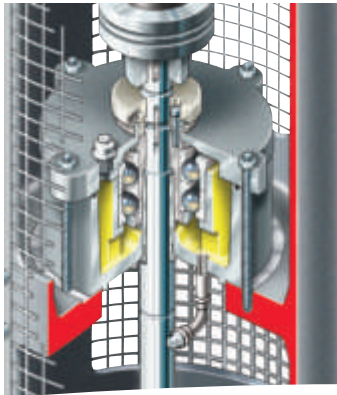
Flanged Vent Connection allows the pump to be vented upon initial operation. It can also be pressurized to purge liquid from the suction can when a suction can drain is supplied

Studs and Nuts prevent thread damage common with capscrew removal

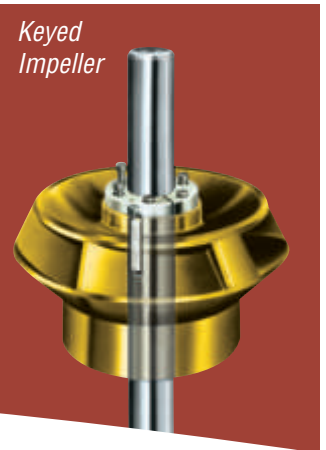
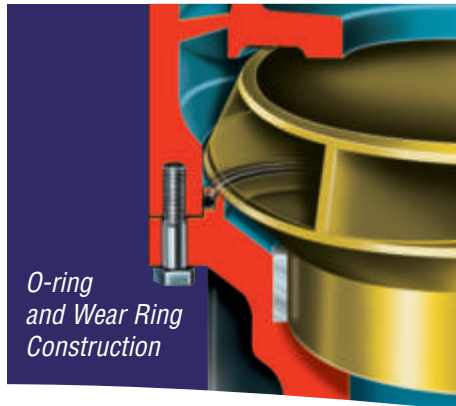
Precision Rigid, Adjustable Flanged Spacer Coupling provides easy impeller lift adjustment and allows seal removal without disturbing the motor

**API 610 Compliant
Configuration**

Options and Technical Data



O-ring and Wear Ring Construction



Keyed Impeller

Integral Axial Thrust Bearing Assembly

The axial thrust bearing assembly withstands the total hydraulic thrust as well as the rotor weight. Self-lubricating anti-friction bearings are utilized for standard applications. The integral axial thrust bearing assembly is available on VPC pumps with IEC motors.

Mechanical Seal

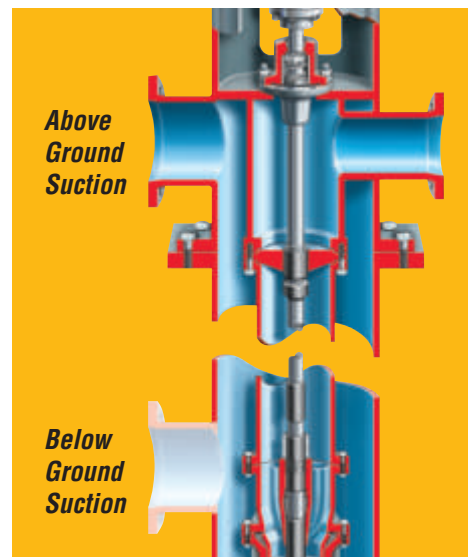
- Pressures to 105 bar (1500 psi)
- No leakage
- Easy access for maintenance and parts replacement
- Single and dual arrangements available
- Multiple seal piping plans available

Available Options

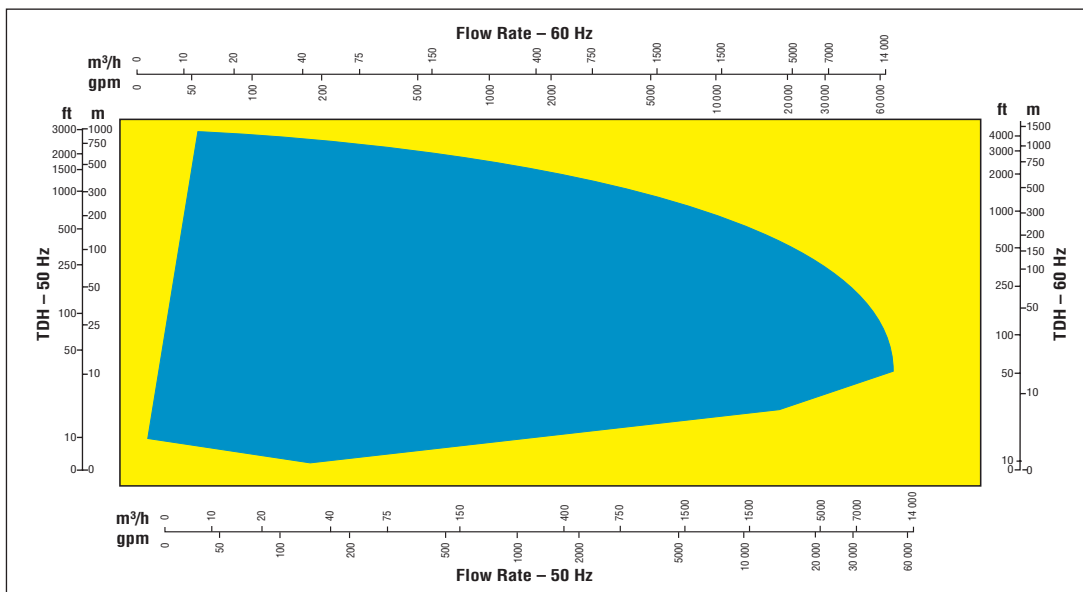
- O-ring construction
- Bowl and impeller wear rings
- Keyed impellers

Suction Configurations

VPC pumps are available with above or below ground suction flanges to suit site conditions.



VPC Range Chart



Global Service and Technical Support



Service Dedication

FlowsERVE Engineered Services focus on providing customers with uncompromising service and support, where and when needed. Dedicated to delivering the highest quality support, Engineered Services integrate pump and materials engineering knowledge with creative service solutions.

A worldwide network of service and repair centers staffed by highly skilled engineers and technicians is available around the clock, seven days a week to respond to customer queries, to evaluate and troubleshoot problems and to provide reliable solutions.

Strength of Experience, Commitment to Excellence

FlowsERVE has long served industries requiring superior equipment performance and service life.

- Oil and gas production
- Hydrocarbon processing
- Chemical processing
- Water resources
- Power generation
- Nuclear
- Mining and mineral processing
- Pulp and paper
- General industry

FlowsERVE is dedicated to maximizing equipment performance and providing reliability-centered maintenance programs for pumps and related equipment, regardless of manufacturer. Using the FlowStar.net™ asset management software, FlowsERVE engineers and technicians track performance and support improvement programs using a service life cycle cost business approach. The results are improved reliability and increased profitability.

Business Partner

FlowsERVE partners with customers to respond to the dynamic business conditions that affect them. FlowsERVE will work with customers to drive efficiency, maximize throughput and control process quality. Whether user needs involve on-site technical assistance or broader project planning with full turnkey responsibility, FlowsERVE Engineered Services will deliver professional, reliable results.





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