VPC
Vertical Turbine, Double Casing Pump
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.

Life Cycle Cost Solutions
Flowserve is providing pumping solutions which permit customers to reduce total life cycle costs and 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.

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

Product Brands of Distinction
ACEC™ Centrifugal Pumps
Aldrich® Pumps
Byron Jackson® Pumps
Cameron® Pumps
Durco® Pumps
Flowserve® Pumps
IDP® Pumps
Jeumont-Schneider™ Pumps
Niigata Worthington Pumps
Pacific® Pumps
Pleuger® Pumps
Scienco® Pumps
Sier-Bath® Rotary Pumps
TKL™ Pumps
United® Centrifugal Pumps
Western Land Roller® Irrigation Pumps
Wilson-Snyder® Pumps
Worthington® Pumps
Worthington Simpson® Pumps
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
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.
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.
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

VPC Range Chart

Suction Configurations

VPC pumps are available with above or below ground suction flanges to suit site conditions.
Typically, 90% of the total life cycle cost (LCC) of a pumping system is accumulated after the equipment is purchased and installed. Flowserve has developed a comprehensive suite of solutions aimed at providing customers with unprecedented value and cost savings throughout the life span of the pumping system. These solutions account for every facet of life cycle cost, including:

**Capital Expenses**
- Initial purchase
- Installation

**Operating Expenses**
- Energy consumption
- Maintenance
- Production losses
- Environmental
- Inventory
- Operating
- Removal

**Innovative Life Cycle Cost Solutions**
- New Pump Selection
- Turnkey Engineering and Field Service
- Energy Management
- Pump Availability
- Proactive Maintenance
- Inventory Management

While exact values may differ, these percentages are consistent with those published by leading pump manufacturers and end users, as well as industry associations and government agencies worldwide.
To find your local Flowserve representative:

For more information about Flowserve Corporation, visit www.flowserve.com or call USA 1 800 728 PUMP (7867)