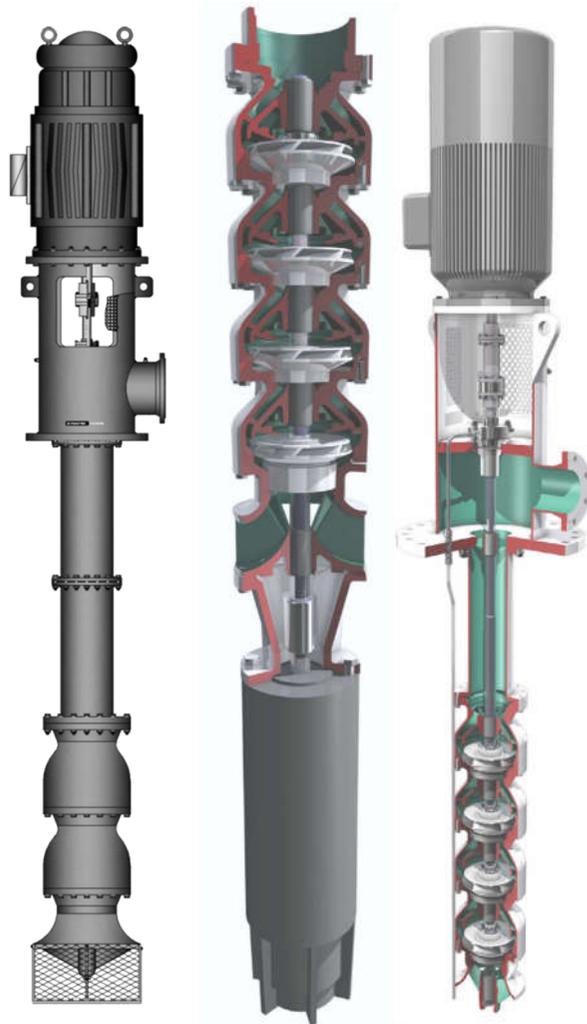


VTP Series



- Vertical Turbine.
- Axial Flow Pumps
API 610 VS1, VS3, VS6.
- Submersible VS0.



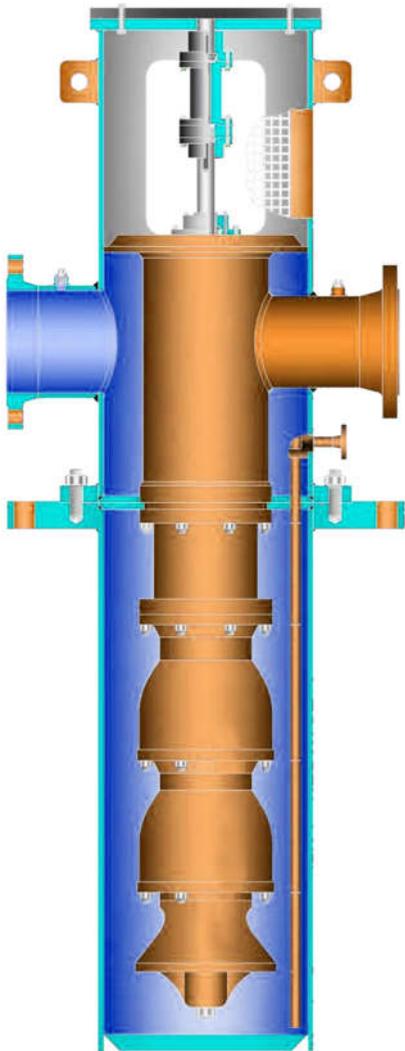
The Frontier Safety LTD UK is specialized in design and manufacturing of all types of pumps with high quality product and services and compliance to latest industry standards.

API 610 VS1, VS3, VS6 - Vertical Turbine Pump

VS series pumps are excellent where there is very low NPSHa as they create their own. Normally designed to operate in wells or sumps.

Applications:

- Condensate transfer
- Chemical transfer
- LNG transfer
- Shipping of LPG
- Crude Oil pipeline booster
- Depropanizer service in cryogenic gas plants



Pump Description

Frontier Pumps VTP Series are normally designed to operate in wells or sumps or tanks. The bowl assembly consists primarily of a suction case or bell, one or more pump bowls, and a discharge case. The number of stages is determined by the head requirements of the installation. The pump bowl assembly is positioned in the sump or well at a depth to provide the proper submergence. A pump shaft, common to all moving parts in the bowl assembly, provides mechanical linkage to the pump driver unit.

Two basic configurations of the bowl assembly are the open type and the enclosed type. Functional differences between the two types are in the methods employed to lubricate the line shaft. In the enclosed type, a tube is placed over the line shaft and lubricants are supplied to the bearings through the shaft tube. In the open type, no lubricants are used other than the fluid being pumped.

A. Bowl Assembly Design–

1. Flange-type bowl with set screws connection.
2. Sleeve bearings operate in conjunction with the pump shaft to provide long life and low friction.
3. Impeller(s) are enclosed type for long life and high efficiency with precision machined and balanced for minimizing vibration.
4. Impeller(s) are with tapered collet as standard. Keyed impeller connections are available.
5. Optional construction features include bowl and impeller wear ring, and impeller keyed to shaft for longer life and less maintenance.
6. Suction bell is cast iron with integral straightening vanes to prevent turbulence. Other materials are available for special applications. Some pump models are supplied with entrance cases.
7. Strainer (optional) may be offered to prevent the entry of foreign objects into pump suction. The strainer can be a slip-on basket type or conic type according to applications.

Performance Ratings

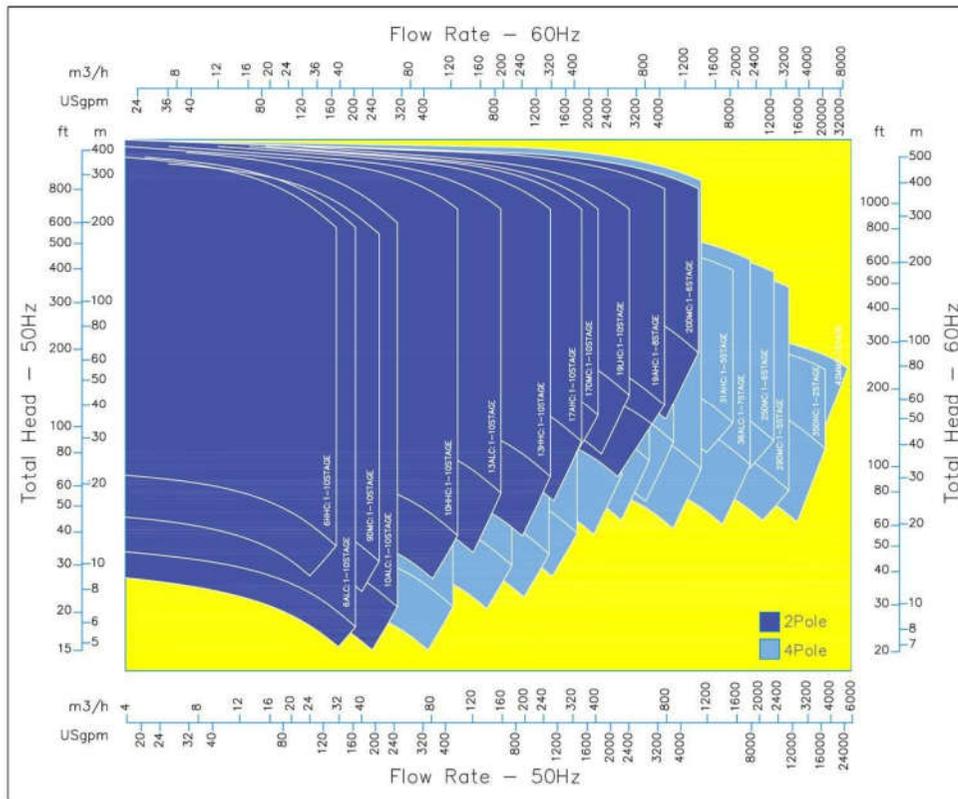
Capacity	Q	40000 m ³ /h	(176000 USgpm)
Head	H	300 m	(980 ft)
Speed	n	3600 rpm	
Temperature		175 °C	(347 °F)
Pressure		40 barg	(580 psig)

B. Column Assembly Design–

1. Registered fit system for accurate fit and available with flange and threaded type.
2. Line shaft is open or enclosed construction.
3. Line shaft(s) are threaded or key type.
4. Line shaft turned, ground, and polished carbon steel with ends faced and threaded. Other materials are available for special applications.
5. Applications.
6. Shaft couplings bored and threaded from steel stock.

C. Discharge Head Design–

1. Discharge head provide support for the entire column assembly and bowl assembly.
2. Stuffing box is available for gland packing and mechanical seal type.



Products details:

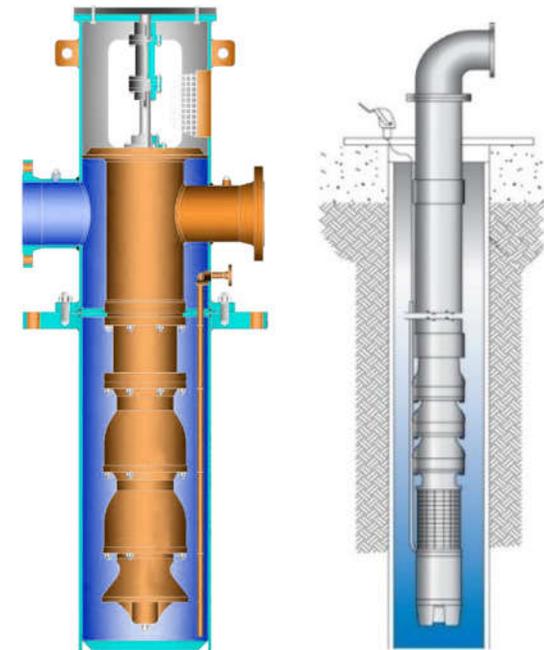
- a. **FRNVTP-API 610 VS1**
Wet pit, vertically suspended, standard turbine pumps with discharge through the column.
- b. **FRNVAF-API 610 VS3**
Wet pit, vertically suspended, mixed flow and axial flow pumps with discharge through the column.
- c. **FRNVTC-API 610 VS6**
Can type or double casing diffuser, vertically suspended pumps with discharge through the column.
- d. **FRNVTS-Submersible**
Wet pit, vertically without line shaft submersible pump with discharge through the column.



FRNVTP-API 610 VS 1



FRNVAF-API 610 VS 3



FRNVTC-API 610 VS 6 FRNVTS-SUBMERSIBLE





**WE DELIVER ON OUR
PROMISES**

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