VOGEL PUMPEN

SVT

Vertical Multi-Stage Pump
(API VS6)

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Introduction

VOGEL PUMPEN is a leading company serves the oil refinery, petrochemical, chemical, fertilizer, pharmaceutical, pulp & paper, power plants, mining with qualified magnetic pumps, self-priming pumps, inline pumps, slurry pumps, centrifugal pumps, chemical process pumps, valves, pipe fittings. Our unmatched combination of products, engineering, and aftermarket services helps our customers achieve tangible business results: lower operating costs, optimized performance, prolonged equipment life, mitigated risks, and higher productivity.

Draw on our industry expertise to help address your most pressing challenges while reducing expenses, minimizing risk, and maximizing performance. Our customers benefit from our commitment to innovation, performance, and quality.

Why Choose us ?

First class production equipment
Good quality control
Competitive price
Fast delivery time
Excellent service
Strong engineer team with R&D ability
Full range part molds developed by ourselves
Stable supply chain

Who we are ?

Your reliable pumping solution consultant and partner

Instruction

SVT is vertical, multistage, single suction, centrifugal pump. It is used to pump the medium flammable, explosive, volatile, poisonous, high temperature, such as methane, ethane propane, ethylene, propylene, as well as other liquefied gas and light hydrocarbon. Designed according to API610 standard .

Performance

Capacity:	up to 800m³/h
Head:	up to 1100m
Pressure:	up to 10.0MPa
Temperature:	-180——+180℃

Applications

- Petrochemical industry
- Refinery
- Power plant
- Low-temperature engineering
- Pipeline Pressured
- Off-shore oil extraction platform

Features

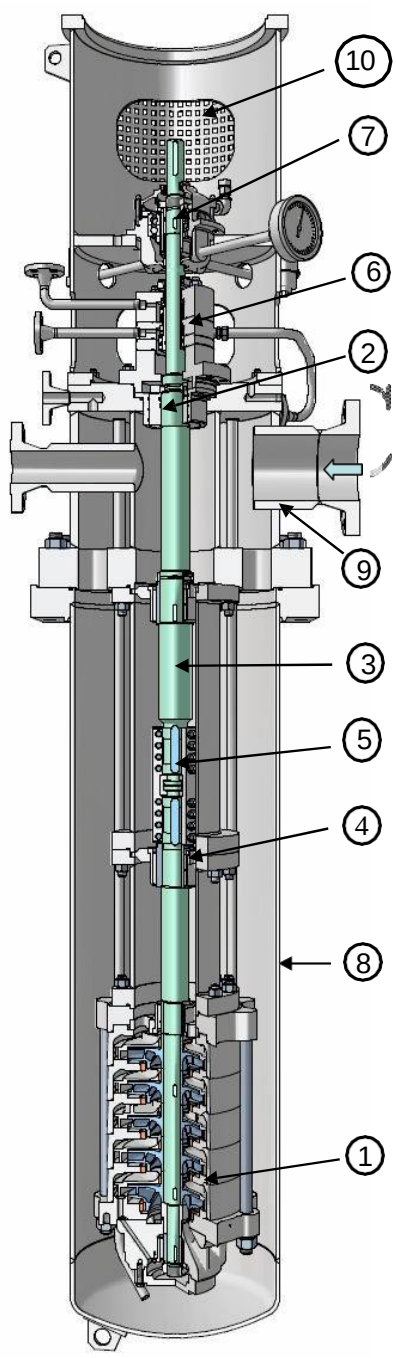
SVT is vertical cartridge multistage centrifugal pump, the integrated structure is designed according to API610. It is highly reliable and well interchanged. The first- stage impeller which is suction impeller locates at the lowest end of pump. Which can satisfy the critical requirements of NPSH by equipment. The balance device is installed in the middle of pump, 95% of the axial force is balanced by balance device which also effects as center support. A diagonal contacting ball bearing can balance the residual axial force. The bearing is lubricated by oil and equipped with independent internal circulation, self-lubrication system and oil level control system.

The pump rotates CCW viewing from the driving end.

Material

More than 10 kinds of material available, including 16Mn, 304 , 304L , 316 , 316L, 904, 904 , CD4MCu etc. The seal type is available for single and double-end and tandem mechanical seal. It cal also be equipped with cooling, flushing , heating and seal liquid circulation system .

- **Construct**



(1) Hydraulics

For each pump size two or more impeller / diffuser sets are available, thus reaching an optimal matching to the required operating conditions. Renewable casing and impeller wear rings are standard.

(2) Axial thrust balance

The axial thrust is almost completely compensated by the balance drum and balance bushing near the shaft sealing. In case of a small differential pressure or high inlet pressure no balance device is required.

(3) Shaft with (4) intermediate bearings

The shaft diameters and the bearing distances have been selected to create 20% higher critical speed than the max. admissible operating speed of the pump. Bearing spacing and shaft diameter is in accordance with API 610 (ISO 13709).

For longer can length the shaft is split into pump shaft and drive shaft. In this case an **intermediate coupling (5)** connects the pump and drive shaft in an excellent aligned way. Depend on pump size and no. of stages, additional center bearing within the pump stages are installed.

(6) Shaft sealing

Seal housing dimensions are in accordance with API 682. Easy maintenance of mechanical seals is possible by removing the spacer coupling and bearing housing. Shaft sleeve is fitted with shrink-fit element for accurate position. Cartridge sealing arrangement acc. Plan 52 and 53 are standard.

Flanges, driver, auxiliary connections

The flanges correspond to ANSI. Flanged, vertical motor (type IM ,V1) coupled via flexible, all-steel coupling with spacer. External auxiliary, vent or drain connections are flanged.

(7) Trust Bearing and lubrication

The thrust bearing is a paired angular ball bearing and fitted inside the bearing housing at the top of the pump. The lubrication by an internal oil circulation is independent of the direction of rotation. The steel bearing housing is sealed by exchangeable labyrinths.

(8) Can design

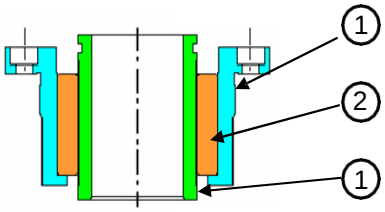
The minimum pressure of the standard can is 40 bar, calculated according AD or ASME. The purchaser will specify if the can is to be designed for the maximum working pressure or not. If not, the installation of relief valves on the suction side has to be considered

(9) In and outlet casing

The welded in and outlet casing is provided with flanges ANSI #300, #600 and #900 depend on the MAWP, material classes and temperature.

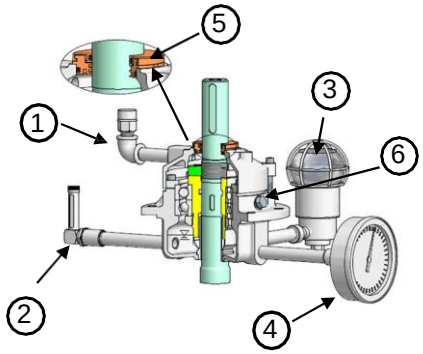
Radial bearings

The radial bearings are Product Lubricated Bearings (PLB). The radial bearings are located before the first and the last impeller. Depending on pump size, number of stages and can length, additional intermediate bearings are installed.



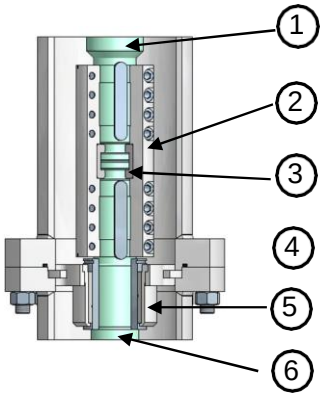
The bearing unit consists of bushing retainer (1), bearing bushing (2) and bearing sleeve (3). Materials used for line shaft bearing(s):

- For clean fluids (particles < 50 um) bushing material will be Carbon (Graphalloy) with chrome steel sleeve(s).
- For pump fluid with solid particles up to 100ppm and size < 0.3 mm, bushing(s) will be SiC.



Axial thrust bearing with instrumentation

1) Vent of bearing housing
2) Oil level indicator
3) Adjustable constant level oiler
4) Thermometer oil bath
5) Exchangeable sealings
6) Connection for vibration measurements



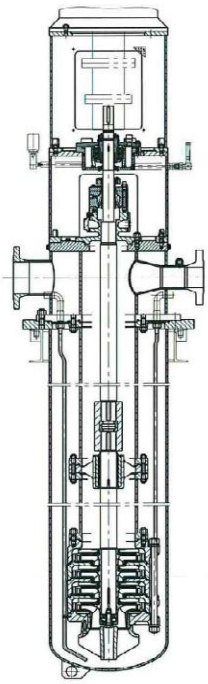
Intermediate coupling (only if shaft length exceeds 2.6m)

1) Driveshaft
2) Half Scale Coupling
3) Split ring
4) Column pipe
5) Intermediate bearing
6) Pump shaft

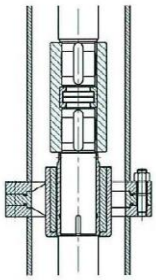
- **Installation and Design Variants**

SVT Compact (without column pipes) is used were sufficient NPSH is available. The pump might be installed over floor on a pump stool or within a pit in ground.

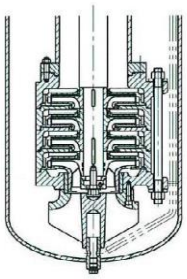
SVT Compact with column pipe for additional NPSH



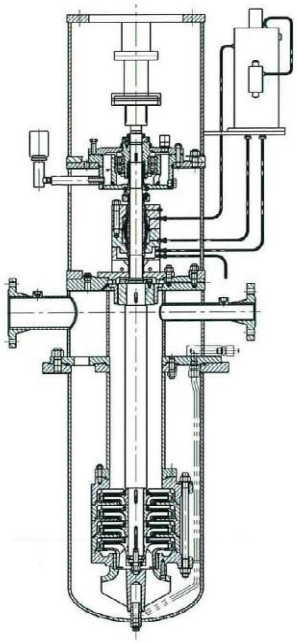
Without balance device



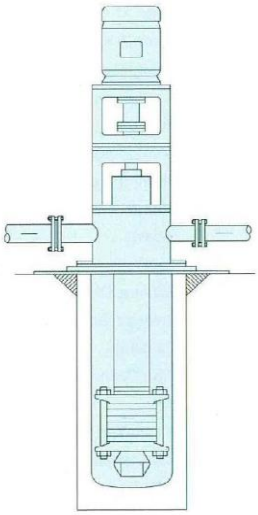
With medial support



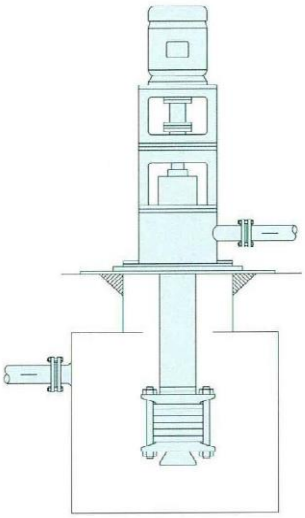
With inducer



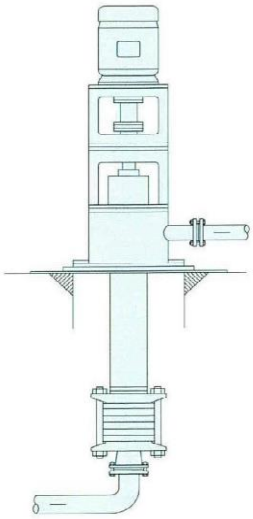
Sealing fluid circulation system



Standard installation

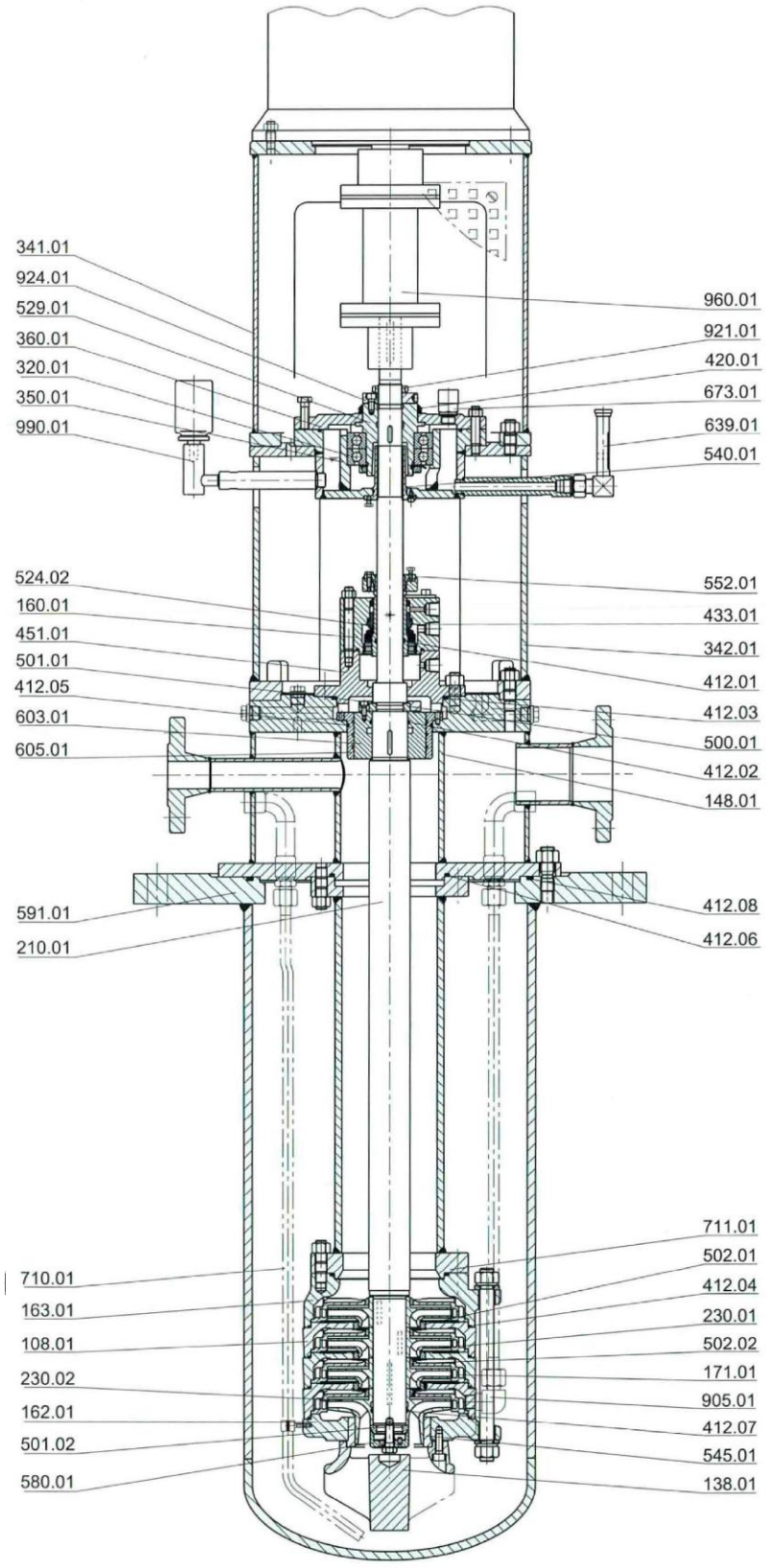


Installed on the container



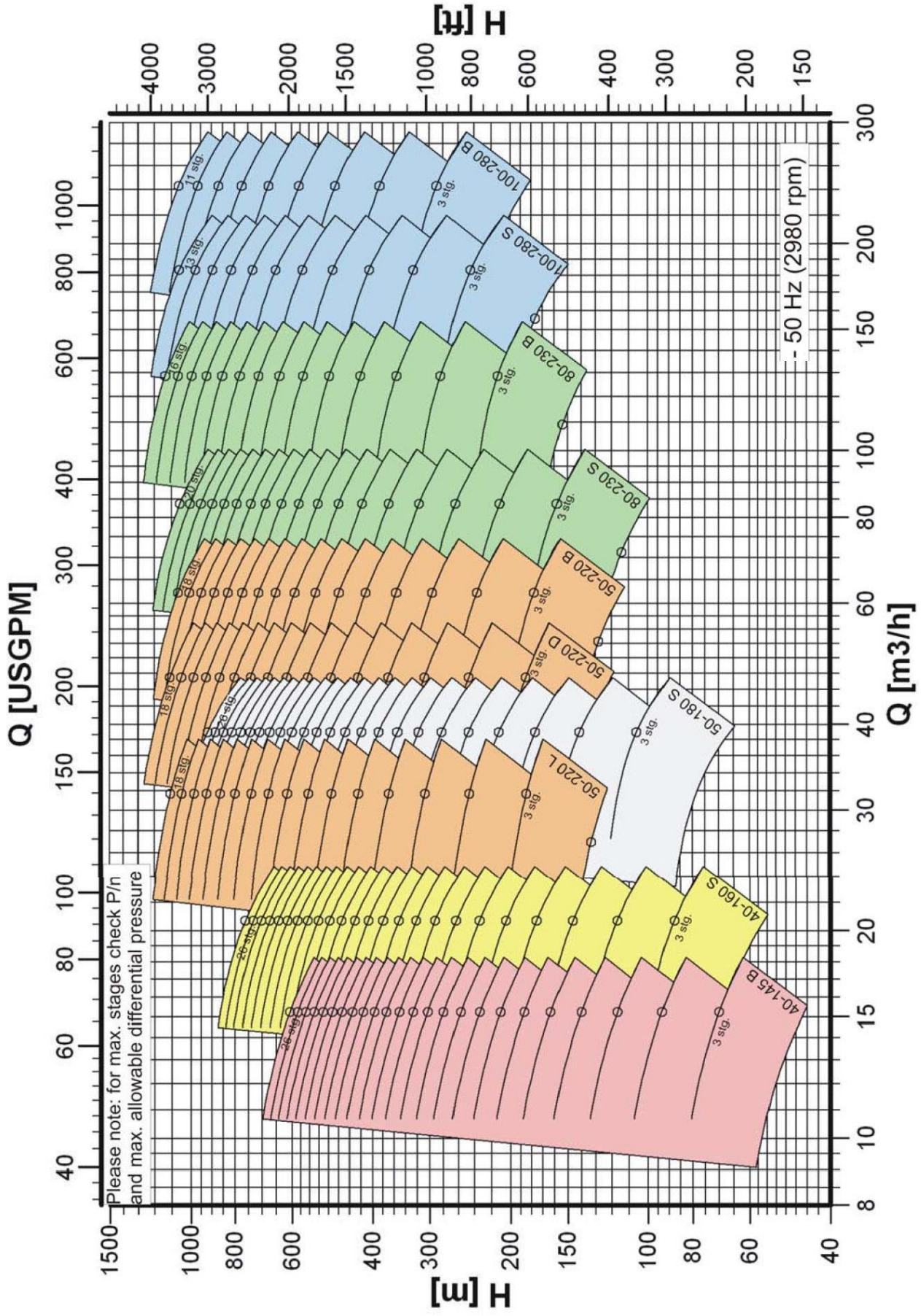
With connection flange

Section Drawing



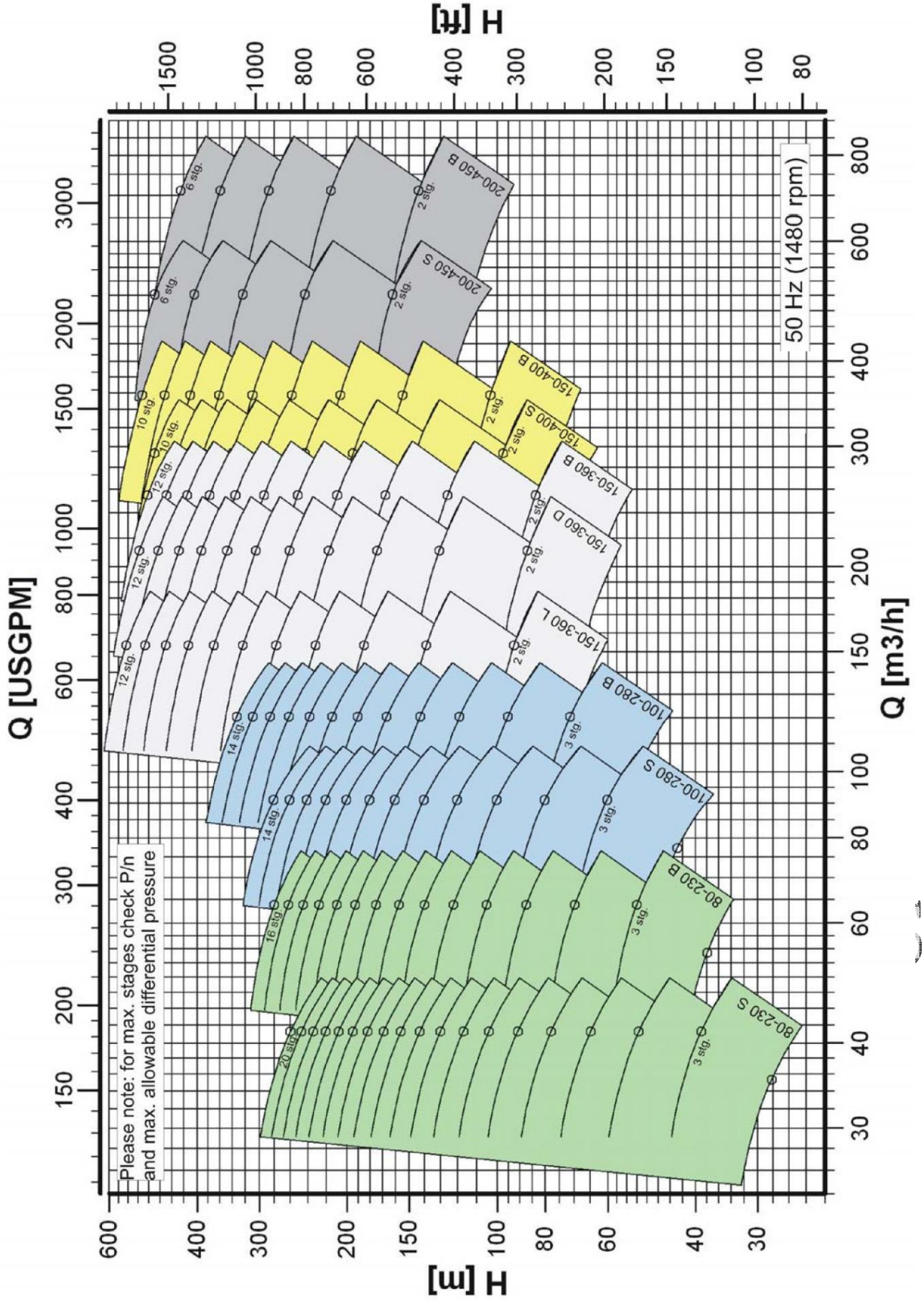
108.01	Stage Casing
138.01	Suction
148.01	Suction/Discharge Casing
160.01	Sealing Cover
162.01	Suction Cover
163.01	Disharge Cover
171.01	Diffuser
210.01	Shaft
230.01	Impeller
230.02	Impeller (first stage)
320.01	Bearing
341.01	Motor Bracket
342.01	Bearing Bracket
350.01	Bearing Housing
360.01	Bearing Cover
412.01	O-Ring
412.02	O-Ring
412.03	O-Ring
412.04	O-Ring
412.05	O-Ring
412.06	O-Ring
412.07	O-Ring
412.08	O-Ring
420.01	V-Ring
433.01	Mechanical Seal
451.01	Seal Housing
500.01	Ring
501.01	Ring
501.02	Ring
502.01	Wear Ring
502.02	Wear Ring
524.02	Shaft Sleeve
529.01	Bearing Sleeve
540.01	Shaft Sleeve
545.01	Bearing Sleeve
552.01	Clamp Device
580.01	Sleeve
591.01	Tank
603.01	Balance Drum
605.01	Balance Drum Sleeve
639.01	Oil gauge
673.01	Vent Cover
710.01	Pipe
711.01	Supporting Pipe
905.01	Connection Bolt
921.01	Circular Nut
924.01	Nut
960.01	Coupling
990.01	Oiler

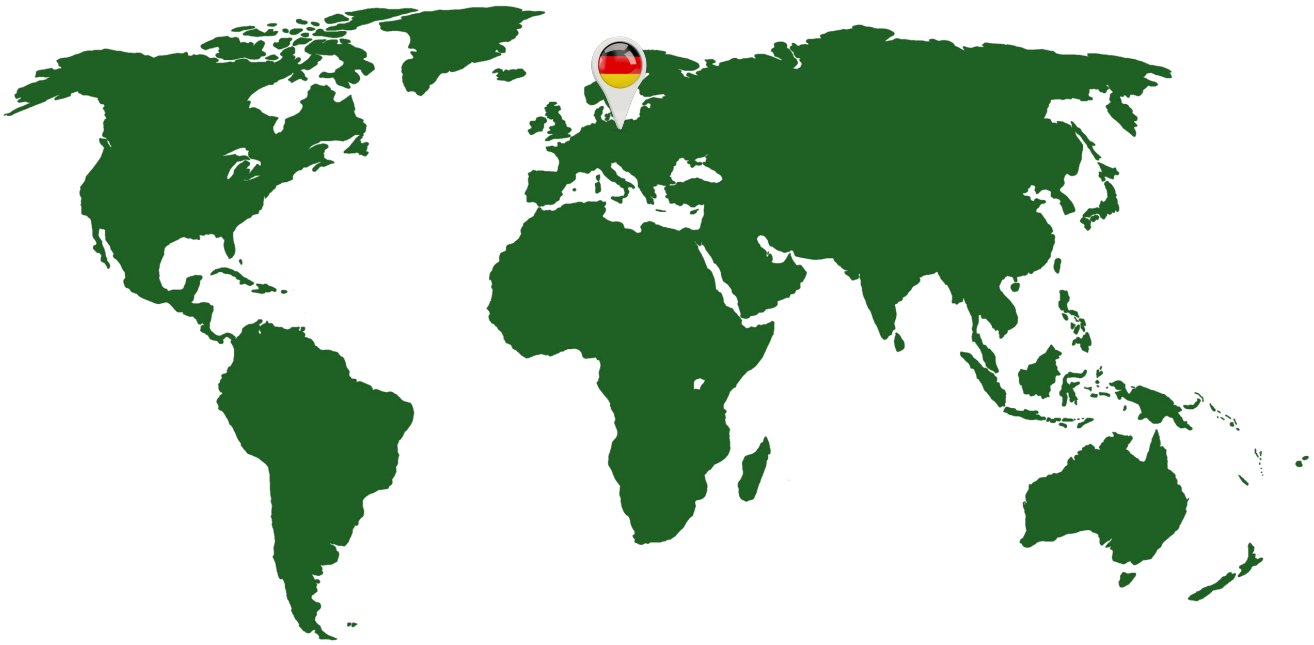
Performance Chart



SVT Series

Performance Chart





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