

# VERTICAL TURBINE PUMPS



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GENERAL INFORMATION





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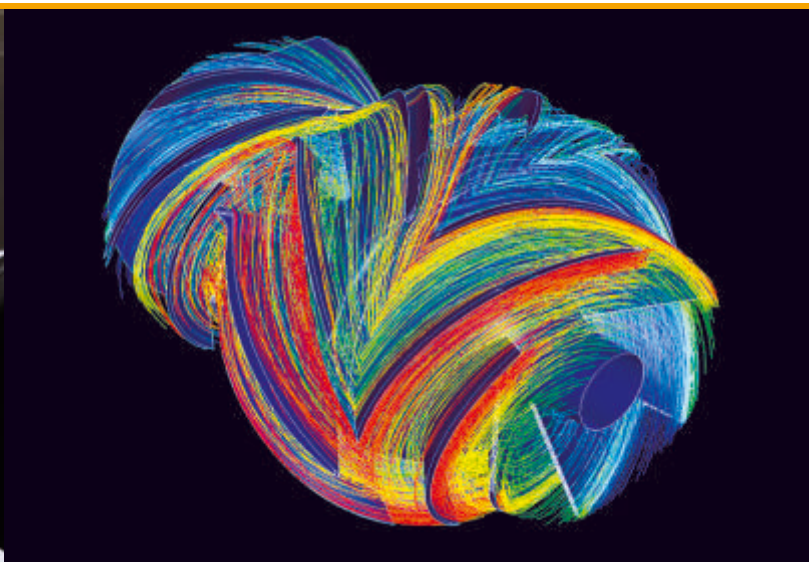
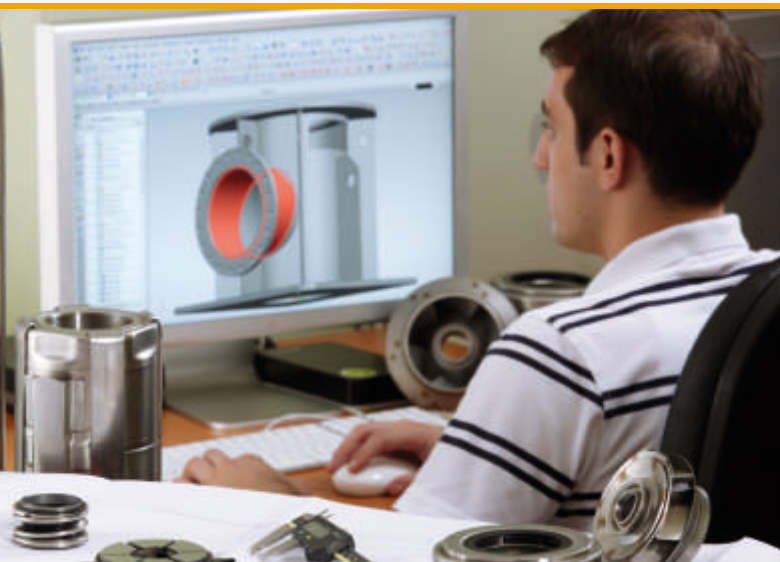




## ABOUT US

Vansan was established at a 200 m<sup>2</sup> workshop in 1964 by Mech. Eng. A. Ozden ERTÖZ and developed rapidly on the path of becoming a global trademark by bringing together its expert engineering, importance given on R&D activities and its customer-oriented working policy with its approximately 260 employees working in 12000 m<sup>2</sup> open and 8500 m<sup>2</sup> closed area. Vansan achieves to export its products to 40 countries around the world.





# Powered by Engineering

## **Research and Development**

Vansan R & D department uses a special design software already prepared by Vansan Engineers to create a new impeller and diffuser. Design results will be rechecked by CFD programs before starting the preparation of patterns. This ability gives a great flexibility to create a new pump in a short period with high efficiency.

## **High Efficiency**

% 20 of produced energy in the world is consumed by pumps. Saving % 30 of this energy is possible with a good system design and well designed pumps. With this awareness our purpose is to produce pumps with high efficiencies up to %93. The most important criteria for Vansan Team is life cycle cost.

## **Different Material Option**

Vansan gives a great material selection option to the customers for different applications such as cast iron, cast steel, non-alloyed and low alloy steel grades, stainless CrNi Steel grades, duplex and superduplex steel grades, Bronze, Ni-Al Bronze and others.



### Quality Assurance

Quality Control is a continuous process in Vansan. It starts from the quotation phase, ordering phase, manufacturing process, installation & operation phase, warranty period & after sales operations.

#### Test capabilities:

- ▶ Performance test
- ▶ Noise level testing
- ▶ Vibration analysis
- ▶ Liquid dye penetrant testing
- ▶ Magnetic particle testing
- ▶ Radiographic examination of welding
- ▶ Ultrasonic examination of raw materials & weldings
- ▶ Metallurgical analysis





### **Pattern Shop**

Vansan has complete in house pattern shop powered by CAD-CAM programs. It gives a quick action ability for the new designs and improvements.

### **Foundries**

Thanks to the location of the factory, Vansan has a wide range of alternative foundries for different materials.

### **Welding Process**

Fabrication is made by qualified and certified welders who utilize M.I.G , T.I.G , and innershield welding process.

### **Machinery**

CNC boring machines up to 2500mm diameter, Vertical & Horizontal lathes and individual production equipment supports an efficient and flexible manufacturing process.





# Features

## Coating

Any coating available for potable and nonpotable services.

## Assembly

All components are assembled precisely according to the customer specifications for the best efficiency, long service life and the best appearance.

## Test

Vansan has great ability for testing up to 30.000 m<sup>3</sup>/h flow capacity with magnetic flowmeters ranges from  $\Phi$ 40mm up to  $\Phi$ 1200mm.

Test bench has voltage variety from 400V - 690V - 1.000V - 3.300V - 6.300V and the power up to 3600 kW.

Test bench is capable to test the pump in various speeds by frequency convertors and fully computerized.



## PRODUCT PARTS FEATURES

# Specifications

### Suction Bell

Each suction bell includes entrance guide vanes to prevent prerotation while guiding the liquid flow parallel to the drive shaft for maximum efficiency. Suction bells can be fitted with strainers to restrict entry of foreign objects during operation.

### Impeller

Impellers, enclosed or semi-open, are precisely trimmed and balanced to reduce vibration and wear. Impellers are secured firmly to the shaft by means of a key and a split thrust ring or by a taper colled for small pump sizes.

### Bowls

Bowl guide vanes are precisely designed for the maximum conversion of kinetic energy to the pressure energy to achieve peak efficiency. The bowls are flanged and the material selection is made according to the pumping fluid. Bowls can be enamelled, plastic or ceramic coated to reduce the friction losses and to maintain a protective layer. Single or dual bronze and rubber bearings provide alignment and dampen vibration. Bowls are supplied with a replaceable wear rings.

### Shafts

The pump shaft is divided into three sections: head shaft, line shaft and bowl shaft. Shafts are turned, ground and polished and the material selection varies depending on the application. The shaft is tailor made to the service needs and sized individually for each installation; calculated for maximum torque.

### Discharge Head

The discharge head consists of a surface or underground sectional elbow. Heads are available in high strength cast iron, fabricated steel or other materials that are compatible to the pumped fluid. Heads may be coated internally to further resist product corrosion. In addition efficiency improvement NSF coatings for potable water are available.

### Column Assembly

Column pipes can be threaded or flanged according to the size and the customer request. Pipes are machined between the centers to ensure perfect alignment. The lubrication of the column assembly can be in three ways:

**Oil Lubrication:** Oil is supplied to bronze lineshaft bearings by an oiler, secured on the motor base. Oiler can be hand operated or solenoid for automatic lubrication. Oil lubricated columns contain a lineshaft enclosing tube. The suction bell bearing is packed with water resistant grease, ensuring a long period operation.

**Grease Lubrication:** Grease is supplied to bronze lineshaft bearings by a grease pump, secured to the motor base.

**Water Lubrication:** The rubber lineshaft bearings are lubricated by the pumped water. The suction bell bearing is grease lubricated.

### ShaftSeal

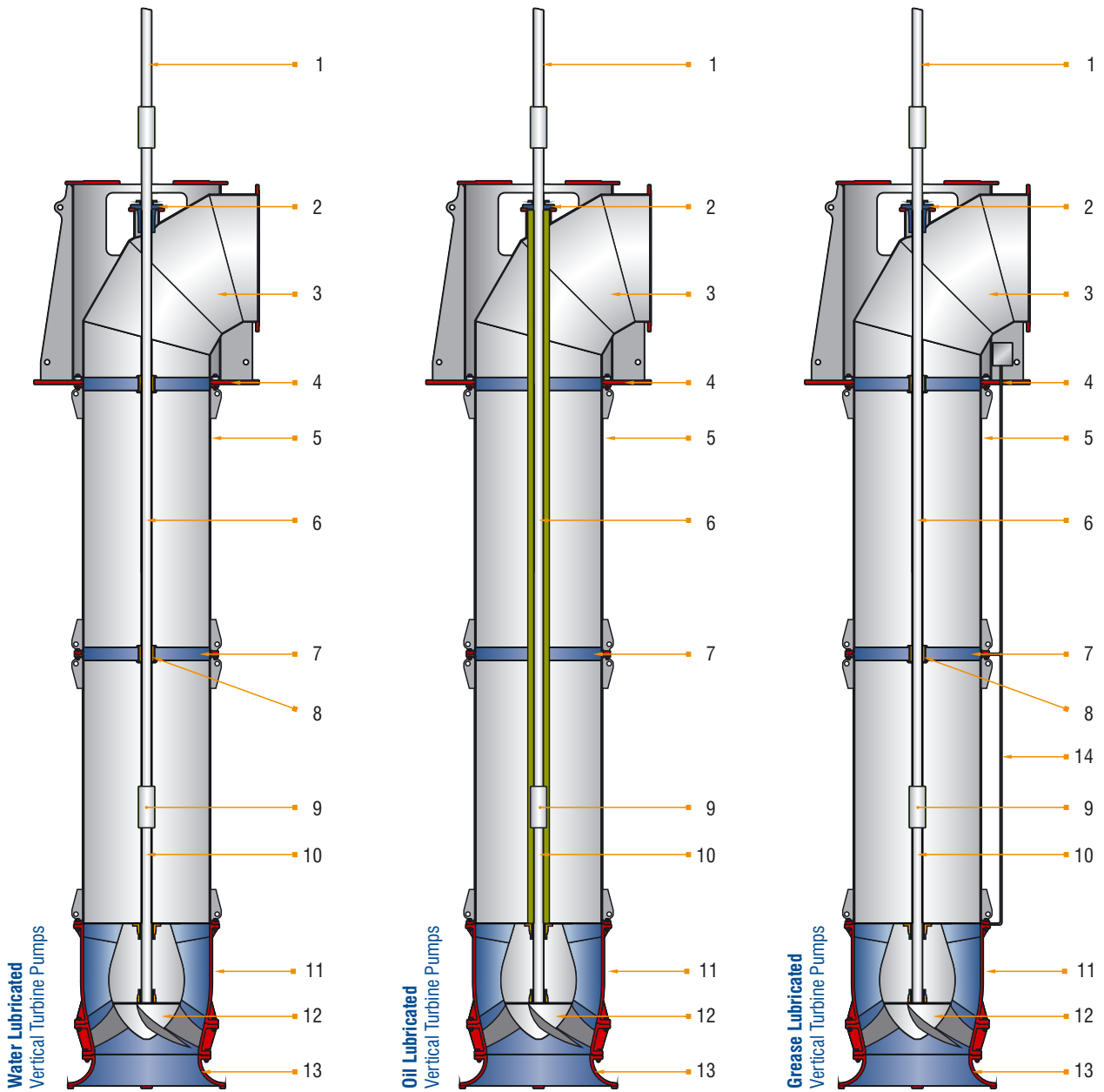
Options are provided for reliable sealing and simple maintenance including gland packing and various mechanical seal arrangements.

### Drivers

Vertical electric motors are connected directly to the pump. With hollow shaft motors, the pump downthrust is carried by a thrust bearing built in the motor. The drive shaft extends up through the motor shaft and is properly secured at the top.

With solid shaft motors, the headshaft is connected to a heavy oil lubricated ball bearing thrust assembly, located on the pump base plate. If the thrust load is more than the ball bearing assembly capacity then tilting pad type bearings are located on the base plate. Bearings are oversized to assure a minimum life of 40,000 hours operation.

Horizontal electric motors or internal combustion engines are connected to the pump through suitable right angle gear drive or belt drive.



### Part List For Standard Application

ITEM	DESCRIPTION	MATERIAL
1	Head Shaft	AISI 420
2	Stuffing Box	ASTM A48
3	Discharge Elbow	ASTM A48 / Fabricated Steel
4	Base Plate	ASTM A48 / Fabricated Steel
5	Column Pipe	Fabricated Steel
6	Line Shaft	AISI 420 / AISI 316
7	Bearing Retainer	ASTM A48

ITEM	DESCRIPTION	MATERIAL
8	Bearing	Rubber / SAE 63
9	Shaft Coupling	AISI 420 / AISI 316
10	Pump Shaft	AISI 420 / AISI 316
11	Diffuser	ASTM A48
12	Impeller	ASTM A48 / SAE 63 / AISI 316
13	Suction Bell	ASTM A48
14	Grease Tube	AISI 316

Different material options available ⓘ

## PERFORMANCE RANGE

# High Performance



### Vertical Flow Turbine Pumps

- ▶ Q: 10 - 30.000 m<sup>3</sup>/h capacity & Head up to 600 m.
- ▶ Water, oil & grease lubricated options

### Axial Flow Turbine Pumps

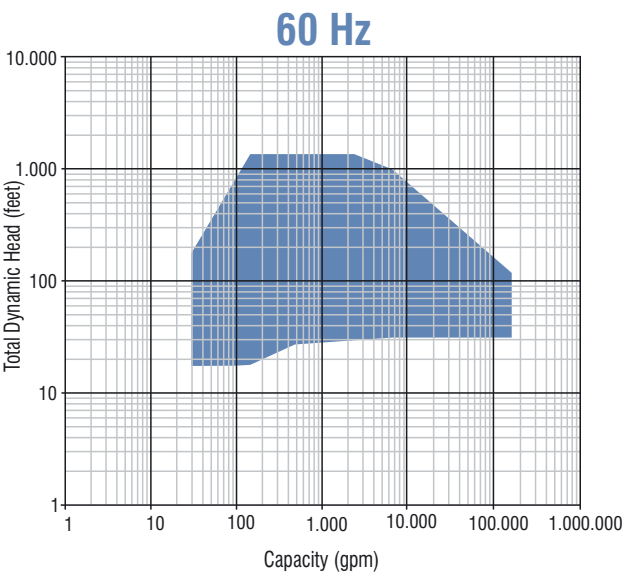
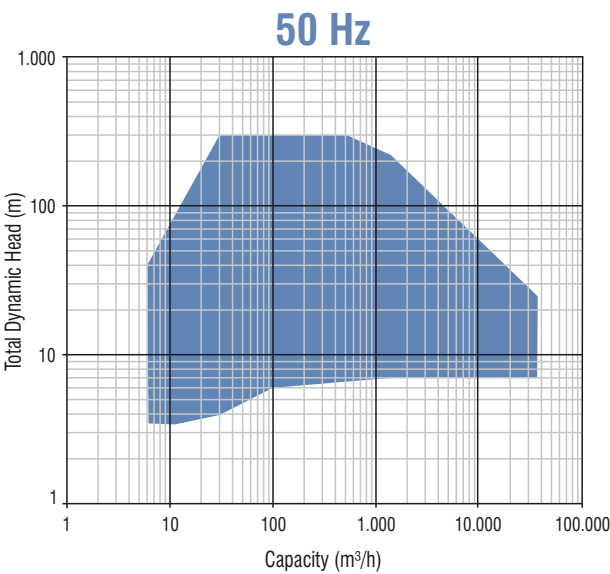
- ▶ Q: 900 - 20.000 m<sup>3</sup>/h capacity & Head up to 8 m.
- ▶ Water, oil & grease lubricated options

### Applications

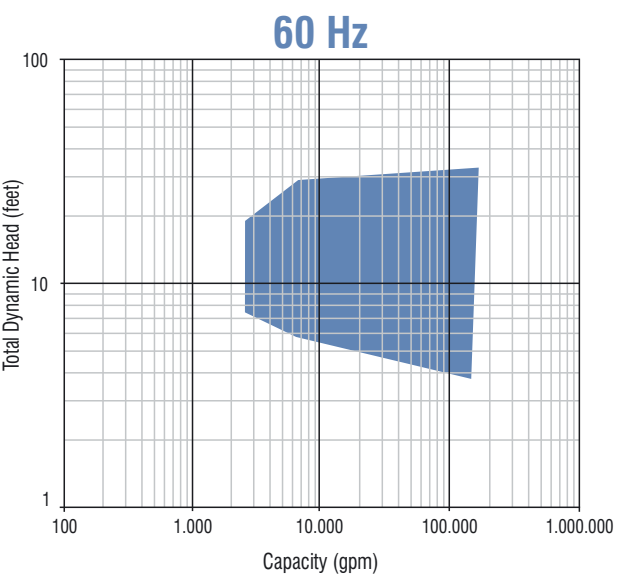
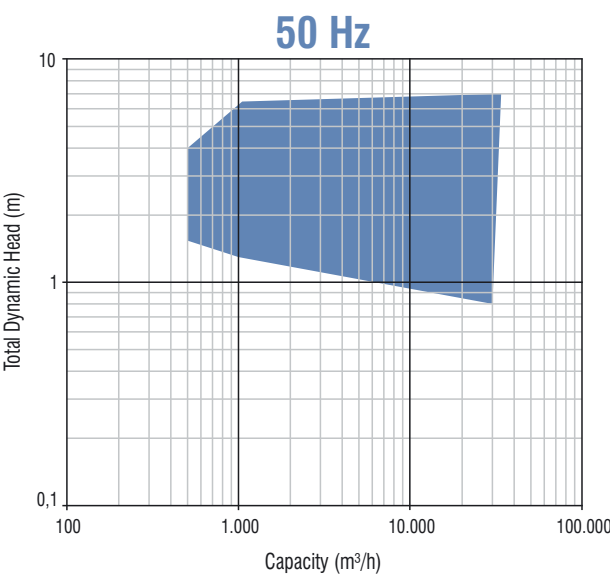
- ▶ Municipal water
- ▶ Irrigation
- ▶ Industrial
- ▶ Power generation
- ▶ Oil & Gas production
- ▶ Mining
- ▶ Storm water
- ▶ Sump service



Mixed Flow Vertical Turbine Pumps Performance Range



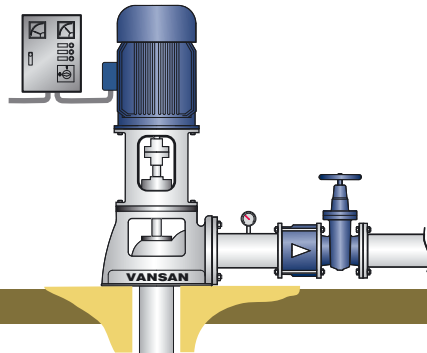
Axial Flow Vertical Turbine Pumps Performance Range



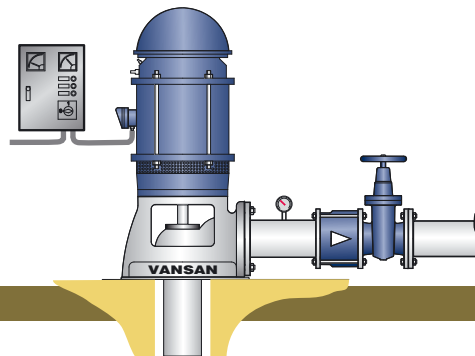
## VERTICAL TURBINE PUMPS DRIVE VARIETIES

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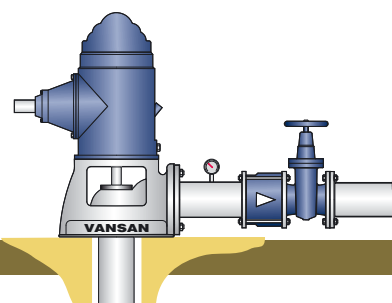
Vertical Solid Shaft Motor



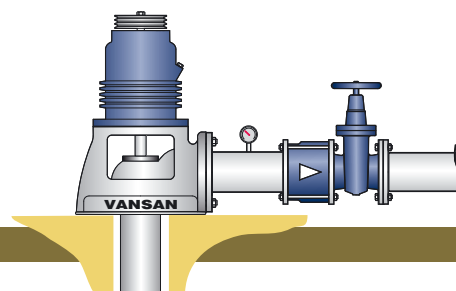
Vertical Hollow Shaft (VHS) Electric Motor



Right Angle Gear Drive



Vertical Pulley Assembly



**Powered by**

**ENGINEERING**

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