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VERTICAL TURBINE PUMP

Description:-

A Wide range of Vertical pumps are available for handling clear water or contaminated water application. These pumps are designed to operate at 50Hz and 60Hz , In single or more than one stages according to head required. These pumps consisting of Bowl assembly, Column pipe-Assembly, Bearing Housing Assembly along with N.R.R (Non Reverse Ratchet) Assembly & Motor stool/Driving Unit Assembly.

Range:

Capacities up to 20,000 m³/hr,

Head up to 300 mtrs.

Bowl Sizes from 100mm to 1600 mm

Constructions:

- Self-Water Lubrication, Oil Lubrication External Water Lubrication
- Motor Water Lubrication]
- Combination Motor-Gear Drive Above Ground / Under Ground Discharge
- Standard / Special Material of construction.

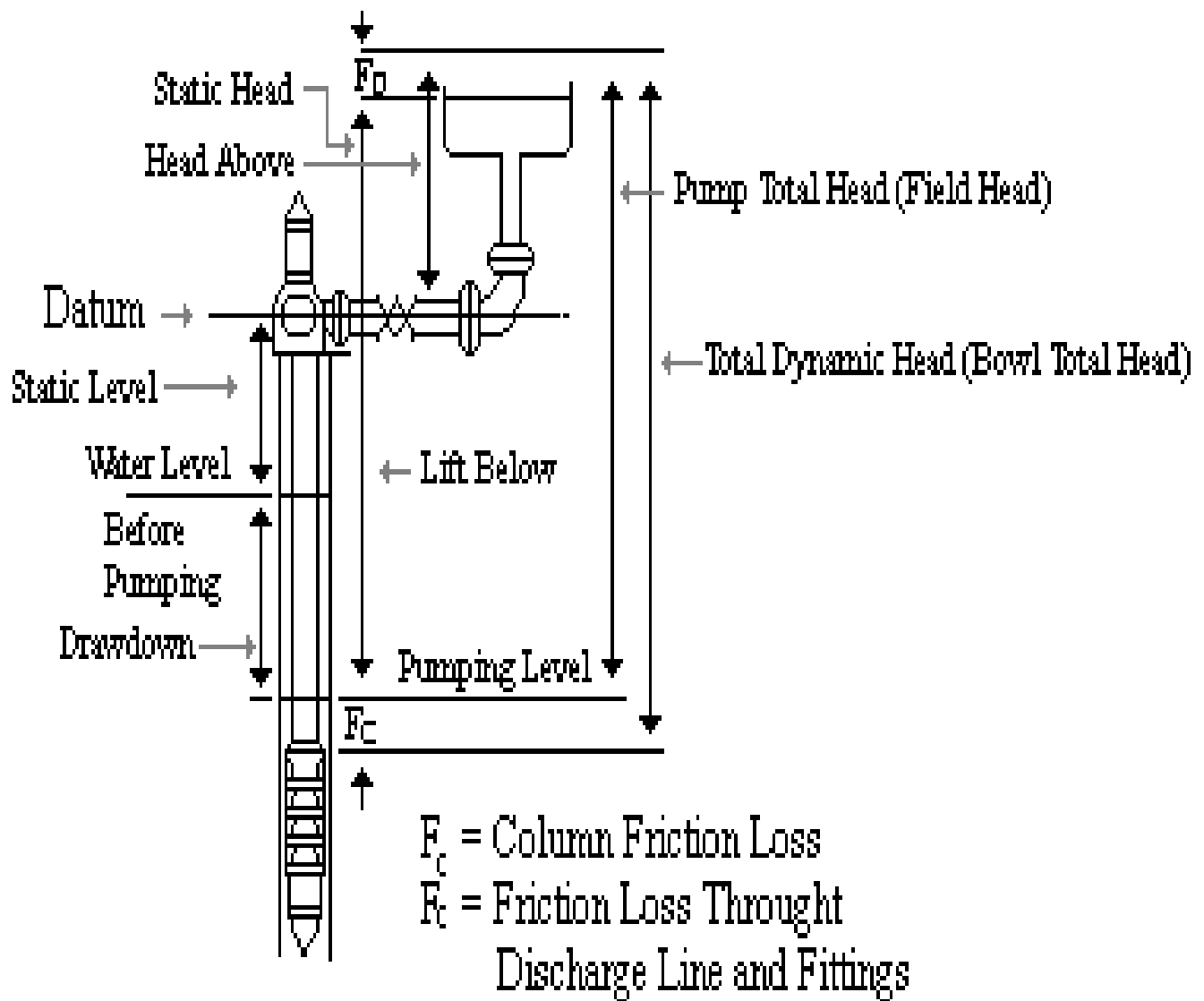
Applications:-

- General water pumping /conveying used for various industries.
- Spray and Injection water in sugar Industry.
- Cooling tower Circulation.
- Irrigation and drainage for agriculture.
- Process and Cooling water pumps for power plants.
- Fire fighting.
- Tube well Irrigation / Open well Irrigation and River / Canal Irrigation
- Sprinkle Irrigation
- Urban Water Supply / Rural Water Supply
- Domestic Water Supply in high rise building and Water Fountain.
- Raw & Threaded water services / Mine Dewatering.
- Fire Fighting Services.
- On line Boosting
- Oil / Petroleum Handling Services.



Special Features:-

- Vertical pumps take little space in plan since the liquid is led away to the axis of shaft.
- The Impeller is submerged, so pump does not require to be primed and is always ready to use.
- The suction condition also prevents the cavitation in the pump and pitting in impeller & diffuser.
- Due to positive head at suction the pump gives its rated performance as well as high overall efficiency, whereas in Horizontal pumps due to losses in suction line, foot valve etc. the rated performance of the pumps is not achieved.



TECHNICAL SPECIFICATION:

Bowl Assembly:-

Bowl Assembly consists of suction bell , impeller , bowl, pump shaft.

Suction Bell:-

Suction Bell designed for smooth & steady entrance of liquid with minimum losses.

Bowl :-

The Bowl is a casing with diffuser vane cast integrally to reduce the velocity of the liquid coming from impeller & increasing the pressure.

Impeller:-

Impellers are of open (propeller), semi-open (mixed flow) & closed (vertical turbine) type depending upon the specific speed of pumps and are accurately machined ,dynamically & hydraulically balanced.

Shaft:-

The shaft is of high tensile strength steel.

Column Pipe Assembly:-

It consists of column pipe, line shaft & line shaft bearing.

Column Pipe:-

Casted or Fabricated, It houses line shaft bearing retainer.

Line shaft Bearing:-

line shaft bearing provided in leaded bronze shell with cut less rubber (natural/synthetic) bearing lubrication self or pressurized external water.

Trust Bearing Assembly:-

anti friction bearings are provided to take care of axial thrust & weight of rotor assembly as well as radial load. Lubrication with oil/grease Non reverse ratchet are provided with thrust bearing housing assembly to avoid the rotation of impeller (pump) in opposite direction causing opening of the threaded coupling.

Discharge Head / Discharge Elbow:-

Either cast of fabricated designed to direct flow from column pipe to discharge pipe. It may be on ground level or below ground level.

Motor Stool:-

M.S Fabricated heavy duty to ensure vibration free operation.

Couplings:-

For line shaft threaded barrel or muff type coupling as per requirement. For pump to motor pin bush flexible coupling are provided.

Direction of Rotation:-

counter clock wise when viewed from driving end.



SCOPE OF SUPPLY:-

Standard Equipment	Driver	Optional Equipment	Accessories
Discharge Head Assembly	Motor	Depth Gauge with Airline	Sluice Valve
Column Assembly	Diesel Engine with Belt head attachment Right Angle gear Drive	Pipe and Fittings	Non-Return
Bowl Assembly		Sole Plate	Pressure Gauge with fittings
Strainer		Companion Flange	Motor Control Gear
Pre-lub Tank Assembly (Water-lub Pump of high setting)		Foundation Bolts	
Oiler Assembly (Oil-lub Pump)	Turbine	Thrust Bearing Housing	
		Non Reverse Ratchet	

DATA REQUIRED FOR SELECTION OF A VERTICAL TURBINE PUMP:-

- Capacity
- Total head
- Speed of operation (Full load driver rpm.)
- Setting for well application (Column length or pumping water lable)
- Inside diameter and length of upper well casing.
- Overall depth for sump application (from bottom of mounting base to bottom of sump) with maximum and minimum water levels.
- Surface or Underground Discharge.
- Water analysis, It other than clear water.
- Driver data.
 - Type of drive
 - A.C. power supply details
 - Diesel engine / Gear drive details.
 - Horizontal motor details.

2	Impeller	41	Oil Drain Plug	85	Top shaft sleve
3	Gland Housing	49	Oil level Window	86	Brg Housing
5	Gland Bush	64	Spacer	87	Brg Sleeve
7	Lantern Ring	71	Suction Cap	88	Brg support Disc.
8	Gland piece	72	Suction Cone/Bell	89	Ratchet
10	Pump shaft	73	Diffuser	90	Ratchet cover
15	Assly Bolt	74	Bowl Linear	91	Ratchet pin
16	Wearing Ring	75	Guard Ring	92	Top Adjusting Nut
17	Slinger	76	Bush with cage (Suction)	93	Gip Key
18	Imp key (Both end Round)	77	Bush with cage (Diffuser)	95	Straight Key
20	Line Shaft	78	Split Ring (Set)	97	Oil Retaining ring
21	Bush (Suction)	79	Column Pipe	99	Motor stool
30	Gland Packing	81	Line with cage (pipe)	101	Pump coupling key
32	Oil seal	82	Line Shaft coupling	109	Plate for Ratchet pin
33	A contact ball bearing	83	Discharge Head	110	Ratchet cover sheet
34	Deep Groove ball bearing	84	Top shaft		

