

SINTECH
PUMPS

VERTICAL

SUMP PUMPS



Capacity (Maximum) m ³ /hr.	: 600
Head (Maximum) m	: 100
Temperature °C	: 80
Working Pressure kg/cm ²	: 10
Installation Depth (mm)	: 4000

Applications

- Dewatering applications where water is contaminated with solid particles.
- Raw sewage, slurry.
- Effluent, industrial waste transfer in industries (Thermal Power, Steel, Cement, Chemical, Sugar, Oil). Waste water management in hotels, hospitals, malls and housing societies.
- Drainage of basements, tunnels, boiler rooms.
- Storm water.

Salient Features

- Compact design, easy to install
- Extra heavy shaft
- Screen less, chockless and glandless design.
- Also available in dry pit designs
- The impeller is submerged, so pump does not require to be primed and is always ready for use.
- The positive suction condition also prevents the cavitation in the pump and pitting impeller and diffuser.

Design Features

Closed type and semi-open type impeller designs are offered to handle a variety of liquids. Impeller and casing are designed for maximum hydraulic efficiency and minimum thrust on rotating assembly. Unique space-saving design due to vertical mounting of pump. Impeller and casing are totally submerged in liquid so no priming or air venting is required. Inside tank and outside tank mounting designs available for respective applications.

Glandless type and / or vapour sealing type execution available. In vapour sealing design, the gland and acid resistant asbestos packing prevents the leakage of vapours of hazardous liquids from coming out. Thus the environment is kept free from pollution and dangers of inflammable obnoxious liquids. Very rigid construction with extra wall-thickness provided for corrosive applications. It is virtually maintenance free.

Vertical pumps are best suited for wet pit applications where fluctuations in liquid levels are considerable. The pump unit is suspended by a column pipe which also protects the transmission shaft and is submerged in the liquid to be pumped. These pumps require small floor area and can be started without priming.

Discharge / Suction flanges conforms to ASA / DIN / BS standards.



Special Features

1. Vertical pumps take little space in plan since the liquid is led away to the axis of shaft.
2. The impeller is submerged, so pump does not require to be primed and is always ready for use.
3. The positive suction condition also prevents the cavitation in the pump and pitting in impeller and diffuser.
4. 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.

Constructional Features

Delivery Casing : The delivery casing has an area sufficient enough to ensure easy passage of liquid with optimum efficiency.

Impeller: Impellers are enclosed / semi-open / open with large passage ways and thickened vanes at the inlet. All impellers are dynamically balanced.

Pump Shaft : The pump shafts are of high tensile carbon steel and designed for high torque transmission. Stainless steel shafts can be provided against requirement. The bearing areas are protected by stainless steel sleeves.

Intermediate, line and head shafts are of ample strength and rigidity. Minimum bearing span is adopted to keep deflection and vibration to a minimum.

Line Shaft / Intermediate Shaft : Line shafts / intermediate shaft of high tensile carbon steel designed for high power transmission are connected by intermediate couplings and run in closely spaced bearings for vibration-free operation. .

Stuffing Box : Fitted at support plate level comprising five packings and a lantern ring.

Grease sealing by water / liquid optional. Mechanical seal instead of packings can be offered against specific requirement.

Motor Stool : The heavy duty cast iron / mild steel motor stool is capable of taking the motor and rotor assembly weights as well as the axial thrust. It also houses the thrust bearings.

Thrust Bearing Assembly : An anti-friction thrust bearing located in the motor stool and lubricated by grease is capable of taking the dead weight of the rotor and axial thrust. A sleeve bearing is fitted below the thrust bearing and is also grease lubricated. The bearing nut and bearing lock nut are easily accessible and serve to adjust the axial position of the rotor unit such that the clearance between impeller and casing can be adjusted.

Intermediate Bearings : The transmission bearings may be lubricated by one of the following methods:

1. External supply of clear cold water.
2. By liquid being pumped.
3. Grease

External clear water lubrication is recommended when it is available at a pressure higher than the discharge pressure of the pump.

If the pumped liquid has a turbidity of less than 50 ppm (silica scale) or 500 ppm (chloride scale) and total solids less than 3000 ppm with pH value between 6.5 and 8.5, then it may be used as the lubricating liquid.

Grease lubricated bearings are recommended when external or self lubrication is not possible. Grease is supplied by a grease pump driven either through the pump coupling or by a separate motor.

Angular contact ball bearing at the top to take residual axial thrust and the weight of rotating parts.

Delivery Pipe : Heavy duty delivery pipe upto the motor stool floor level with one bend is standard supply with all.

Accessories : The following accessories are recommended.

1. Screens at inlet of the sump to prevent solids of sizes larger than that recommended from entering the pump.
2. Liquid level controllers to guard against dry running of the pump.
3. Power operated positive displacement grease lubricator for grease lubricated pumps.
4. Delivery pipes and bend upto the motor stool.

Material of Construction

Parts Name	All Cast Iron	02S Fitted	CF 8 Fitted	CF 8M Fitted	Ni-Hard Fitted
Volute Casing	Cast Iron	Cast Iron	CF 8	CF 8M	Ni-Hard
Impeller	Cast Iron	CF 8	CF 8	CF 8M	Ni-Hard
Column Pipe	M.S.	M.S.	S.S.	S.S.	M.S.
Shaft	EN 8	SS 410	SS 410	SS 316	SS 410
Sleeve	SS 410	SS 410	SS 410	SS 316	SS 410
Bearing Housing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron

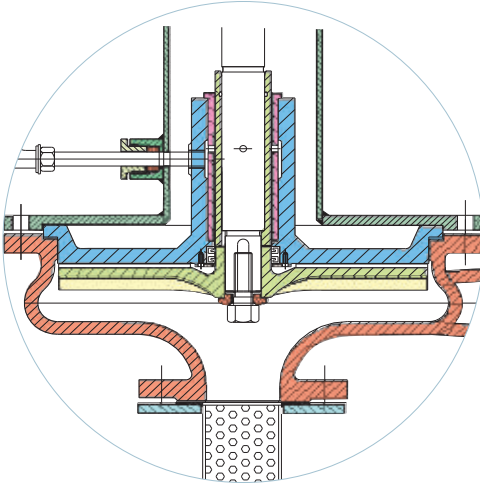
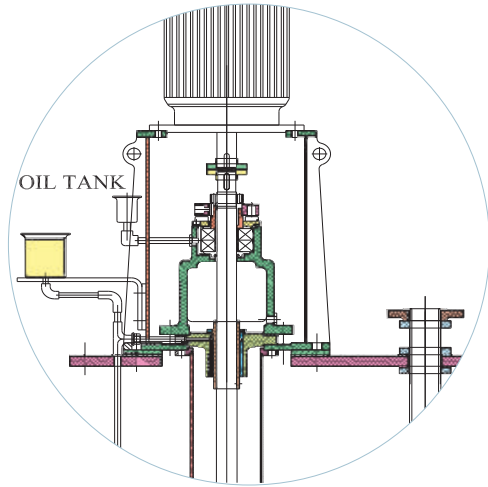
Other Materials as Cast Iron, Cast Steel, CA15, CF8, CF8M, Ni-Resist, DIN 4136, 28/2 CrMo Steel, CN7M, R-55, Hast alloy grades and other special stainless steel alloys are available on request.

The materials of construction are offered as examples of generally accepted practice, but are not intended as recommendations of fitness for a particular purpose. The customer must determine and take the ultimate responsibility for specifying the proper materials to handle the particular fluid pumped. Unless otherwise specified, all pumps shall be furnished with the standard fitted materials.

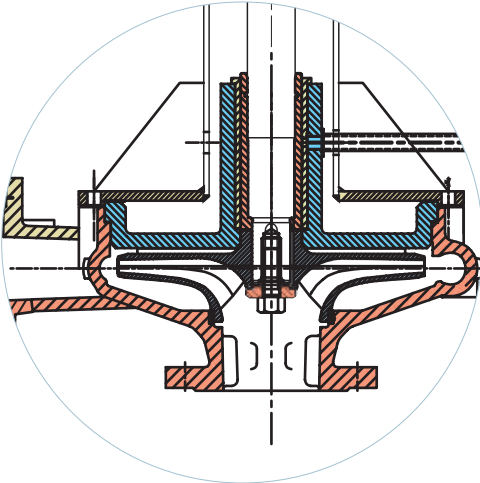
The other materials are available, subject to confirmation.

Direction of Rotation

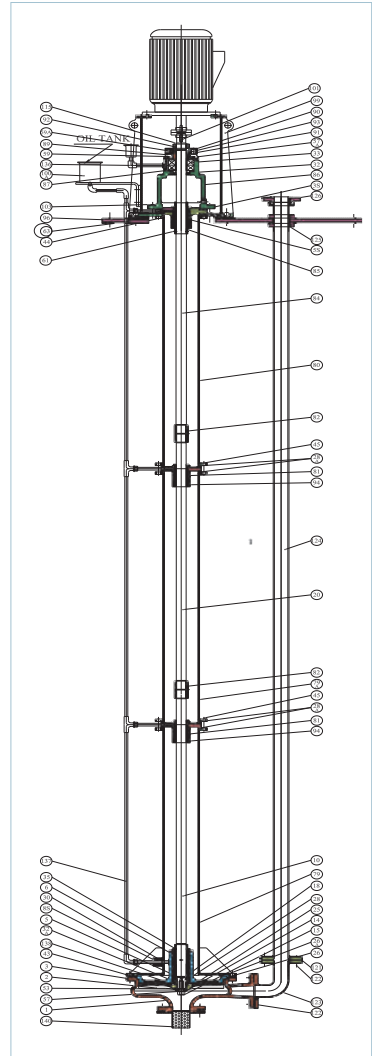
Clockwise when seen from drive end.



Semi-Open Impeller



Closed Impeller



63	HEX. HD. CAP SCREW	140	STRAINER
61	ALLEN SET SCREW	139	HEX. HD. CAP SCREW
59A	ALLEN SET SCREW	138	OILSEAL PLATE
59	ALLEN CAP SCREW	137	OIL PIPE WITH ELBOW NIPPLE UNION
57A	'O' RING	136	G. CUP WITH ELBOW & NIPPLE
57	'O' RING	126	DELIVERY FLANGE
45	HX BOLTS WITH NUT	125	PIEP LOCK NUTS
44	STUD WITH NUT	124	DISCHARGE PIEP
43	STUD WITH NUT	123	ELOBOW
35	'O' RING	122	HEX. HD. BOLTS WITH NUTS
33	BEARING	121	GASKET (ELOBOW - DISCH. PIPE)
32A	OIL SEAL	115	HX. HD. CAP BOLTS
32	OIL SEAL	103	HEX. HD. CAP SCREW
30	GLAND PACKING	101	PUMPS COUPLING KEY
28A	GASKET (COL. PIPE-SPIDER)	100A	OIL TANK
28	GASKET (SLEEVE - IMPELLER)	99	MOTOR STOOL
26A	GASKET (G-PLATE BOTTOM)	96	BASE PLATE
26	GASKET	94	SPIDER
25	GASKET (IMP-WASHER-IMP)	93	GIB KEY
20	LINE SHAFT	92	TOP ADJUSTING NUT
18	IMP KEY (ONE END ROUND)	91	RATCHET PIN
15	BOLT FOR IMP.	90	RATCHET COVER
14	IMP. WASHER	89	RATCHET
10	PUMP SHAFT	87	BRG. SLEEVE
8S	GLAND PIECE	86	THRUST BRG. HOUSING
6	BUSH (S. BOX)	85	SHAFT SLEEVE (S. BOX)
5S	GLAND BUSH	84	TOP SHAFT
5	STUFFING BOX	82	LINE SHAFT COUPLING
3S	GLAND BUSH	81	BUSH FOR SPIDER
3	GLAND PLATE	80	TOP COLUMN PIPE
2	IMPELLER	79A	INTERMEDIATE COLUMN
1	CASING	79	BOTTOM COLUMN PIPE



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