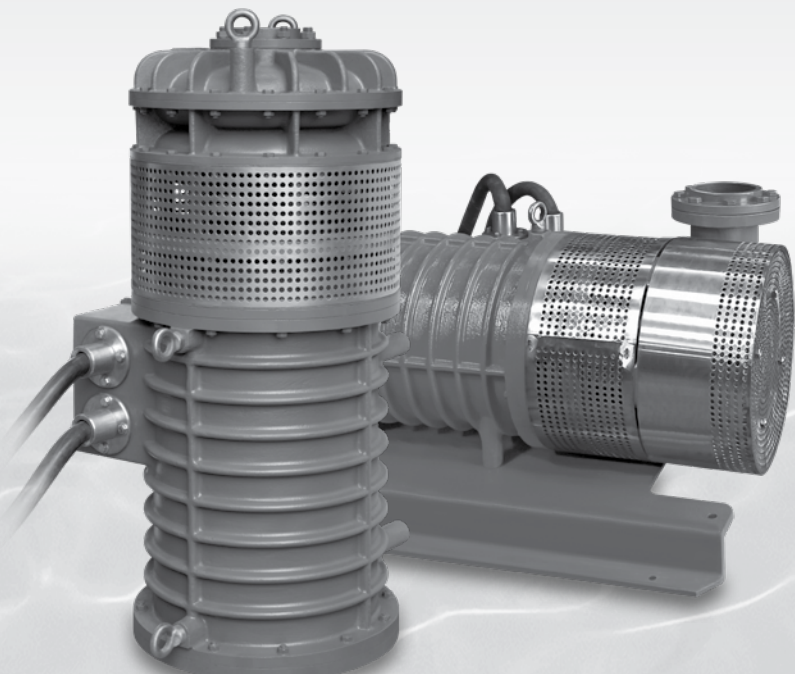


MBH[®] PUMPS

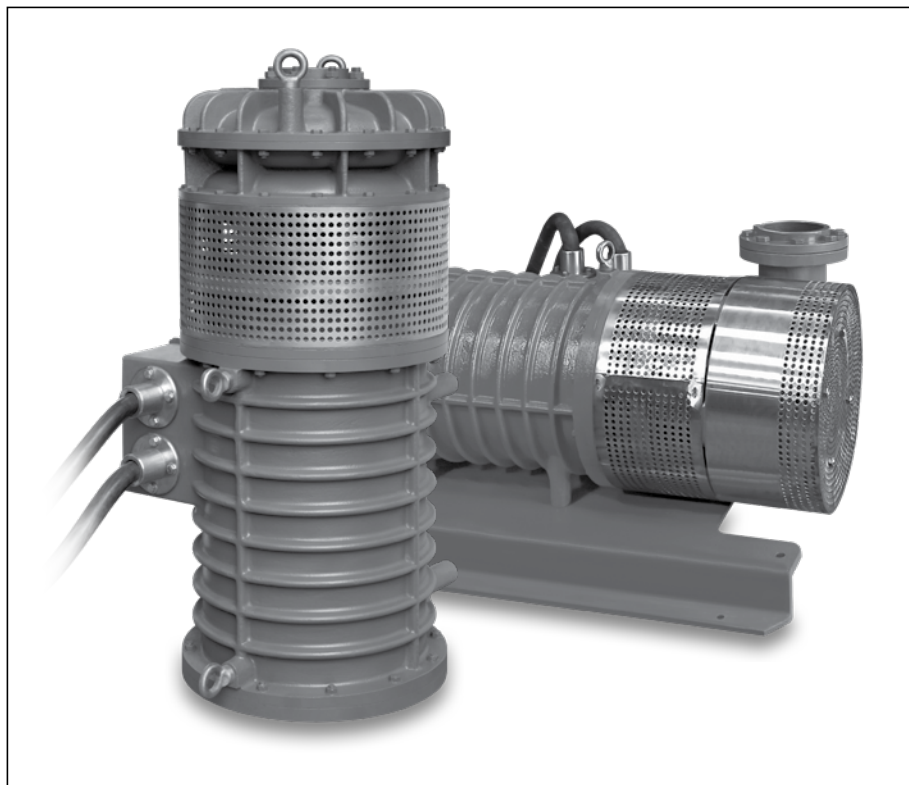
**Instruction, Installation, Operation
and Maintenance Manual**

TOUGH PUMPS DEWATERING



ISO 9001
Certified Company

A Mark of Quality



HD SERIES TOUGH PUMPS DEWATERING

TECHNICAL SPECIFICATIONS :

Head : upto 210 meters
Capacity : upto 550 m³/hr
HP : 120
Solid Size : upto 15 mm
MOC : Cast Iron
Frequency : 50 / 60 Hz

Available with various voltage options for mining application

27% high chrome impellers

Offered with horizontal and vertical installation kit

APPLICATIONS

- Mining Source Water
- Tunneling Face & Stage Dewatering
- Open Pit - Underground Mine Dewatering

PRODUCT DESCRIPTION

The HD series dewatering pump is ideal for operation in deep excavations where very high head pumping is needed, such as in open pit mines as well as in underground mines. Other typical applications include quarries and tunneling projects. HD series dewatering is designed to handle pH levels from 6 to 13; zinc anodes are available for extra protection. As this pump is made of cast iron, it is also the right choice for heavy-duty applications in salt water. MBH reliable pumps are designed for long time operation and are easy to install.

INSTALLATION

Precautions

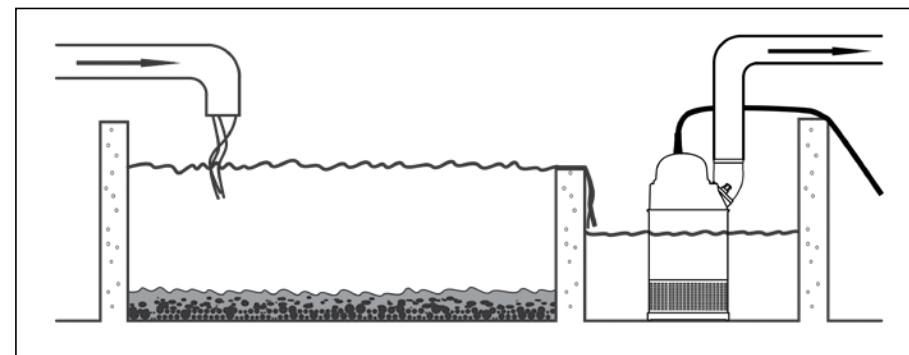
Before starting work on the unit makes sure that the unit and the control panel is isolated from the power supply and cannot be energized. This applies to the control circuit as well.

Sedimentation prevention

In order to avoid sedimentation when the pumped liquid contains solid particles, the velocity of the liquid in the discharge line must exceed a certain value. Choose applicable minimum velocity from the table, and choose proper dimension of the discharge line accordingly.

Mixture	Minimum velocity, meter per second (feet per second)
Water + coarse gravel	4 (13)
Water + gravel	3.5 (11)
Water + sand, particle size <0.6 mm (0.024 in)	2.5 (8.2)
Water + sand, particle size <0.1 mm (0.004 in)	1.5 (4.9)

For more permanent installations with a heavily contaminated pumped liquid, a settling pump-sump is recommended.



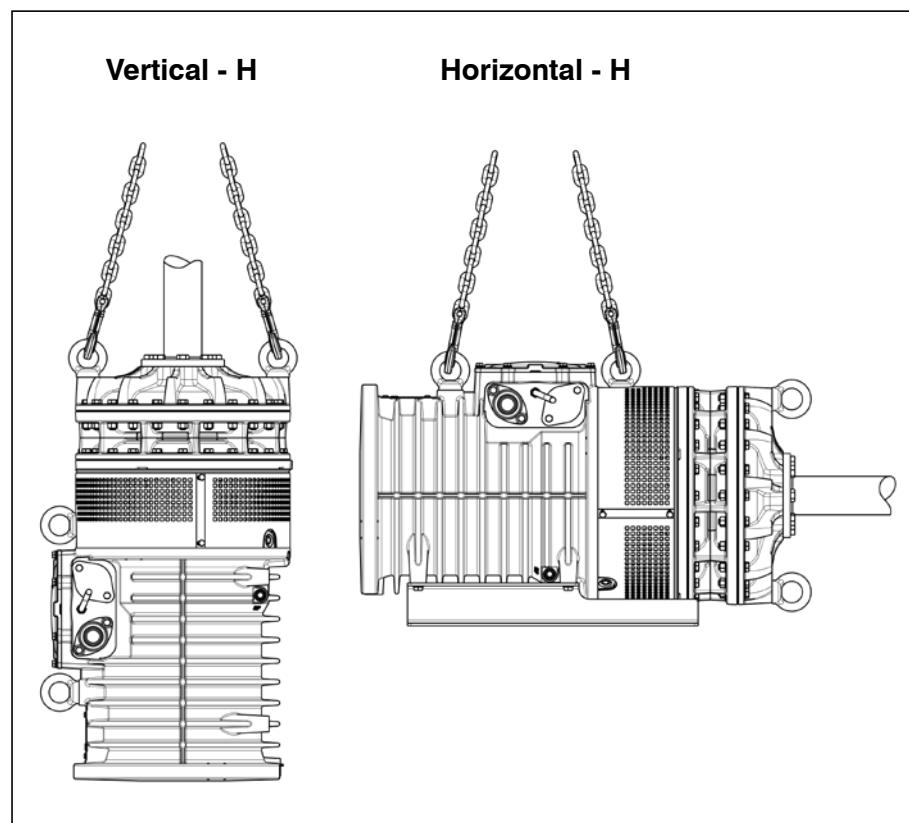
Fasteners

- Only use fasteners of the correct size and material.
- Replace all corroded or damaged fasteners.
- Make sure that all the fasteners are correctly tightened and that there are no missing fasteners.

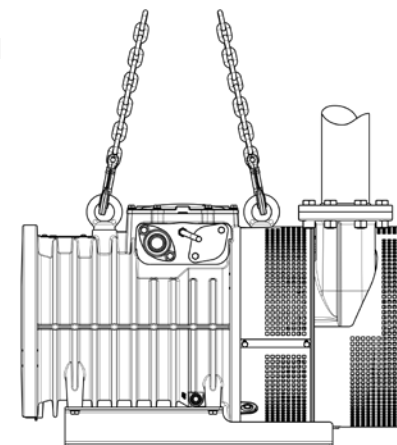
Pumps suspended in chains

- The pump can be suspended from chains just above the sump bottom.
- All chains and their welds are vulnerable to sustained dynamic load.
- If chains are used as a permanent support for the pump, then frequent inspections of the chains are required.
- The chains that are used for the permanent support of the pump must not be used for lifting the pump. Additional lifting equipment must be used.

Designated lifting points



Horizontal - M



INSTALL WITH S-INSTALLATION IN THE S-INSTALLATION

In the S-installation, the pump is transportable and intended to operate either completely or partially submerged in the pumped liquid. The pump is equipped with a connection for hose or pipe. These requirements and instructions only apply when the installation is made according to the dimensional drawing.

1. Run the cable so that it has no sharp bends. Make sure that it is not pinched, and cannot be sucked into the pump inlet.
2. Connect the discharge line.
3. Lower the pump into the sump.
4. Place the pump on the base and make sure it cannot fall over or sink. Alternatively, the pump can be suspended with chains just above the sump bottom. Make sure that the pump cannot rotate at start-up or during operation.
5. Connect the motor cable and the starter and monitoring equipment according to the separate instructions.

Make sure that the impeller rotation is correct.

MAKE THE ELECTRICAL CONNECTIONS

Requirements

These general requirements apply for the electrical installation:

- If the pump will be connected to the public mains, then the supply authority must be notified before installing the pump. When the pump is connected to the public power supply, it can cause flickering of incandescent lamps when started.
- The mains voltage and frequency must agree with the specifications on the data plate.
- The thermal contacts or Thermistor must be in use.

Motor and short-circuit protection

A qualified electrician must select the size of motor protection breakers and fuses. The size must be chosen for the specific motor data such as rated current and starting current. It is important that the short-circuit protection is not over-dimensioned. Over-dimensioned fuses or motor protection breakers decrease the protection for the motor.

- The fuse rating and the cables must be in accordance with the local rules and regulations.
- The fuses and circuit breakers must have the correct rating.
- The pump overload protection must be connected and set to the rated current.

The starting current in direct-on-line start can be up to six times higher than the rated current.

Cables

These are the requirements to follow when you install cables:

- The cables must be in good condition, not have any sharp bends, and not be pinched.
- The cables must not be damaged and must not have indentations or be embossed (with markings, etc.) at the cable entry.
- The cable entry seal sleeve and washers must conform to the outside diameter of the cable.
- The minimum bending radius must not be below the accepted value.
- If using a cable which has been used before, a short piece must be peeled off when refitting it so that the cable entry seal sleeve does not close around the cable at the same point again. If the outer jacket of the cable is damaged, then replace the cable. Contact a sales or authorized service representative.
- The voltage drop in long cables must be taken into account. The drive unit's rated voltage is the voltage measured at the cable connection point in the pump.

CHECK THE IMPELLER ROTATION

Check the direction of rotation each time the cable has been re-connected and after phase or total supply failure.

1. Start the motor.
2. Stop the motor.
3. Check that the impeller rotates in the correct direction.

When started, the pump will react in the opposite direction to the impeller rotation. See the correct start reaction direction on the stator housing of the pump.

If the impeller rotates in the wrong direction, then do the following.

If the motor has a 3-phase connection, then transpose two phase conductors and repeat this procedure from step 1. For 3-phase pumps with external starters or without built-in motor protection, the phases must be shifted on the output terminal of the starter.

MAINTENANCE

During the maintenance and before reassembly, always remember to perform these tasks:

- Clean all parts thoroughly, particularly O-ring grooves.
- Change all O-rings, gaskets, and seal washers.
- Lubricate all springs, screws, O-rings with grease.

During the reassembly, always make sure that existing index markings are in line. The reassembled drive unit must always be insulation-tested and the reassembled pump must always be test-run before normal operation.

SERVICE

Type of service	Purpose	Inspection interval
Inspection	To prevent operational interruptions and machine breakdown. Measures to secure performance and pump efficiency are defined and decided for each individual application. It can include such things as impeller trimming, wear part control and replacement	2,000 hours or 1 year, whichever comes first. Applies to normal applications and operating conditions at media (liquid) temperatures < 40°C (104°F)
Overhaul	To secure a long operating lifetime for the product. It includes replacement of key components and the measures taken during an inspection.	4,000 hours or 2 years, whichever comes first. These intervals apply to normal applications and operating conditions at media (liquid) temperatures < 40°C (104°F).

Note: Shorter intervals may be required when the operating conditions are extreme, for example with very abrasive or corrosive applications or when the liquid temperatures exceed 40°C (104°F).

TROUBLESHOOTING

Electrical troubleshooting

Follow these guidelines when troubleshooting:

- Disconnect and lock out the power supply except when conducting checks that require voltage.
- Make sure that no one is near the unit when the power supply is reconnected.
- When troubleshooting electrical equipment, use the following:

1. Universal instrument multimeter
2. Test lamp (continuity tester)
3. Wiring diagram

The pump does not start

Cause	Remedy
An alarm signal has been triggered on the control panel.	Check that: <ul style="list-style-type: none"> • The impeller rotates freely. • The sensor indicators do not indicate an alarm. • The overload protection is not tripped.
The pump does not start automatically, but can be started manually.	Check that: <ul style="list-style-type: none"> • The start level regulator is functioning. Clean or replace if necessary. • All connections are intact. • The relay and contactor coils are intact. • The control switch (Man/Auto) makes contact in both positions. Check the control circuit and functions.
The installation is not receiving voltage.	Check that: <ul style="list-style-type: none"> • The main power switch is on. • There is control voltage to the start equipment. • The fuses are intact. • There is voltage in all phases of the supply line. • All fuses have power and that they are securely fastened to the fuse holders. • The overload protection is not tripped. • The motor cable is not damaged.
The impeller is stuck.	Clean: <ul style="list-style-type: none"> • The impeller • The sump in order to prevent the impeller from clogging again.

If the problem persists, then contact a sales or authorized service representative.
The pump runs but the motor protection trips

Cause	Remedy
The motor protection is set too low.	Set the motor protection according to the data plate and if applicable the cable chart.
The impeller is difficult to rotate by hand.	<ul style="list-style-type: none"> • Clean the impeller. • Clean out the wet well. • Check that the impeller is correctly trimmed.
The drive unit cannot receive full voltage on all three phases.	<ul style="list-style-type: none"> • Check the fuses. Replace fuses that have tripped. • If the fuses are intact, then notify a certified electrician.
The phase currents change, or they are too high.	Contact a sales or authorized service representative.
The insulation between the phases and ground in the stator is defective.	<ol style="list-style-type: none"> 1. Use an insulation tester. Use a 1000 VDC insulation and continuity tester to check that the insulation between the phases, and between any phase and ground, is > 5 megohms. 2. If the insulation is less, then do the following: Contact a sales or authorized service representative.

Cause	Remedy
The density of the pumped fluid is too high.	<p>Make sure that the maximum density is 1100 kg/m³ (9.2 lb/US gal)</p> <ul style="list-style-type: none"> • Change the impeller, or • Change to a more applicable pump • Contact a sales or authorized service representative.
The ambient temperature is more than the maximum ambient temperature.	The pump must not be used for such an application.
There is a malfunction in the overload protection.	Replace the overload protection.

If the problem persists, then contact a sales or authorized service representative.
The pump delivers too little or no water

Cause	Remedy
The impeller rotates in the wrong direction.	<ul style="list-style-type: none"> • If it is a 3-phase pump, then transpose two phase leads. • If it is a 1-phase pump, then do the following: Contact a sales or authorized service representative.
One or more of the valves are set in the wrong positions.	<ul style="list-style-type: none"> • Reset the valves that are set in the wrong position. • Replace the valves, if necessary. • Check that all valves are correctly installed according to media flow. • Check that all valves open correctly.
The impeller is difficult to rotate by hand.	<ul style="list-style-type: none"> • Clean the impeller. • Clean out the sump. • Check that the impeller is properly trimmed.
The pipes are obstructed.	To ensure a free flow, clean out the pipes.
The pipes and joints leak.	Find the leaks and seal them.
There are signs of wear on the impeller, pump, and casing.	Replace the worn parts.
The liquid level is too low.	<ul style="list-style-type: none"> • Check that the level sensor is set correctly. • Depending on the installation type, add a means for priming the pump, such as a foot valve.

If the problem persists, then contact a sales or authorized service representative.

MBH[®] PUMPS

WARRANTY

TOUGH PUMPS DEWATERING

The pump is warranty against defects in material and workmanship under normal use and service for the period of 15 months from the date of purchase or 12 months from the date of commissioning, whichever is less.

The General terms and conditions for above warranty are :

1. This warranty is valid only if the pump is operated strictly as per the Instructions given in the user guide attached herewith.
2. Our obligation shall be limited to rectifying; repairing or replacing defective items, ex-works/service station/Authorized Service Center, provided the purchaser has given immediate written notice. The equipment for repairs should be returned to us duly packed, on prepaid freight basis.

Model : _____ Pump Sr. No. _____

Customer Name : _____

Address : _____

Date of Purchase / Bill No.: _____

Dealers Name : _____

Signature : _____ Date : _____

mbh pumps (gujarat) pvt. ltd.

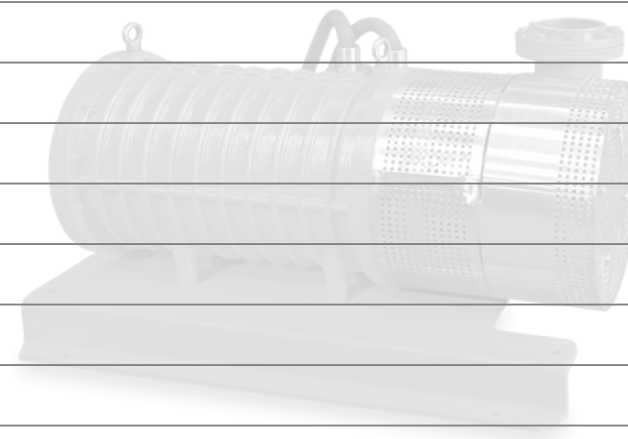
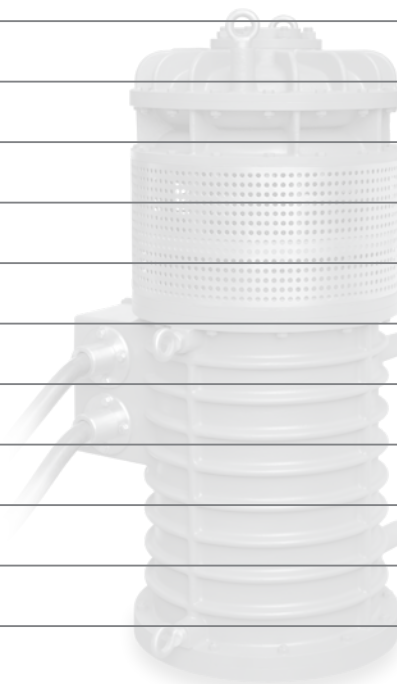
14, G.I.D.C. Naroda Indl. Estate, Ahmedabad-382 330, India.

Phone : 079-2282 3066 / 2282 1018

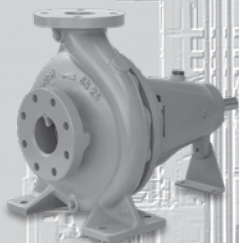
E-mail : marketing@mbhpumps.com
exports@mbhpumps.com

Website : www.mbhumps.com

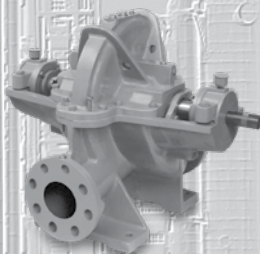
NOTE:



OTHER PRODUCTS



**Centrifugal
Backpull Out Pump**



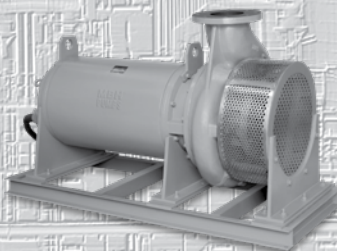
**Horizontal
Split Casing Pump**



**Submersible
Sewage Pump**



**Portable
Submersible Pump**



**Submerged
Centrifugal Pump**



**Polder
Pump**



**ISO 9001
Certified Company**

MBH[®] PUMPS

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