

# MBH<sup>®</sup> PUMPS

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

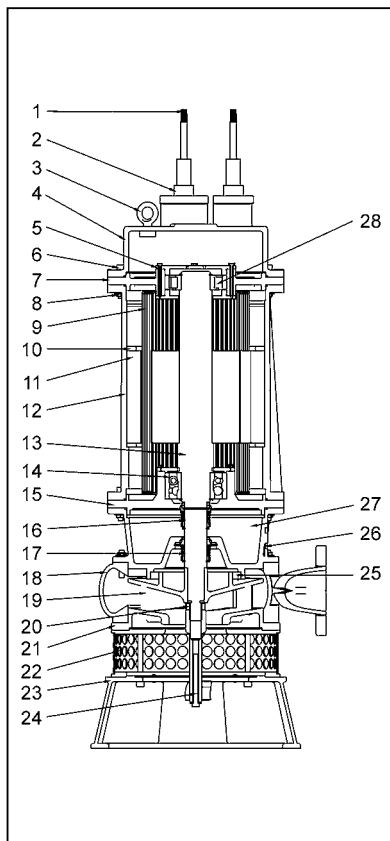
## **Ni-HARD SUBMERSIBLE PUMP**



**ISO 9001**  
*Certified Company*

*A Mark of Quality*

## CROSS SECTION DRAWING



NO.	DESCRIPTION	MATERIAL
1	CABLE	PVC. INSULATED SHEATHED
2	GLAND COVER	C.I. IS-210 FG260
3	EYE BOLT	S.S.
4	TOP COVER	C.I. IS-210 FG260
5	BEARING COVER	C.I. IS-210 FG260
6	HEX BOLT	S.S.
7	TOP BRG. COVER	C.I. IS-210 FG260
8	HEX NUT	S.S.
9	WINDING	COPPER
10	END RING	M.S.
11	STATOR STAMPING	M-47
12	STATOR BODY	C.I. IS-210 FG260
13	ROTOR SHAFT	S.S. 410
14	BALL BEARING (D.E.)	STD. MAKE
15	OIL CHAMBER	C.I. IS-210 FG260
16	MECH. SEAL UPPER	CR./ S.S.
17	MECH. SEAL LOWER	SIC / SIC.
18	VOLUTE	NI. HARD
19	IMPELLER	NI. HARD
20	IMPELLER NUT	S.S.
21	SPIRAL PLATE (WEAR PLATE)	NI. HARD
22	STRAINER	S.S.
23	PUMP STAND	M.S.
24	CUTTER	S.S.
25	NECK RING	S.S.
26	OIL PLUG	S.S.
27	OIL	HYLUBE MILCY Gr, 40
28	BALL BEARING (NDE)	STD. MAKE

## CONSTRUCTION OF NI-HARD SUBMERSIBLE PUMPSET

'MBH' Ni-hard submersible pumps are of close couple compact design and have pump below and motor above construction hence sump cleaning is possible to the minimum level. These are powered by squirrel cage induction dry motors suitable for operation at 400/440 volts, 3 phase, 50 Hz, A.C. Supply; bearing of these pumps are grease packed. Being a Submersible pump, it saves a lot of cost of construction compared to other conventional pumps and also provides noise free operation. Pumps are fitted with high efficiency non-clog or free flow impeller for smooth and economical pumping operation. Since they work under pumping liquid, suction is always flooded, hence no need of priming or suction pipe. Pumps are fitted with double mechanical seals to separate motor chamber from oil chamber and oil chamber from liquid being pumped. Pumps are provided with special safety devices like moisture detection sensor and thermistor protection against high winding temperature. That can also be provided with special lowering arrangement for easy access of the pump for maintenance.

## RECOMMENDATIONS

1. Follow maintenance schedule strictly, so as to avoid costly repairs in the long run.
2. 'MBH' Ni-hard submersible pumpsets are being supplied with special features like over heating protection (Thermistor) and seal monitor sensor, control panel is a mandatory supply with each and every pumpset. Ensure that pumpset is connected properly to the control panel.
3. If pumping media available is falling short of the pump capacity, it will result in spurt, which is harmful for the pump. In such a case reduce discharge by throttling.
4. Ensure that pump rotates in correct direction (clockwise). Counter clockwise rotation result in lower discharge and increased wear. At instant of starting Ni-hard pump should give anticlockwise jerk.  
The rotation of impeller should match the arrow on the pump casing.  
In case of reverse rotation the current consumption will rise and pumpset will produce unwanted noise.
5. Avoid too many creases in the hosepipe (in case of portable installation), it results in increased friction losses. Use the shortest possible delivery line.
6. Protect cable from damage-during storage, transportation and operation. A damaged cable may give shock or burn the motor.
7. Always earth the unit, before starting.
8. Never hoist the pumpset up or down by the connecting cable.
9. Use NRV if pipe length is more than 4.5 mtrs.

## PRECAUTION FOR LONG STORAGE

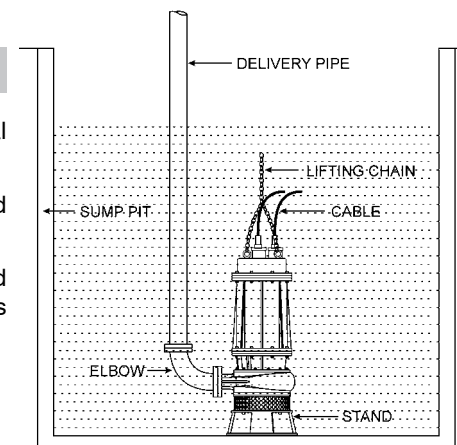
Clean the pump set with fresh water and wipe the cable. Put pump set in cool, dry place in vertical position and the cable wrapped on top of the pump. Do not leave cable on the floor where it is likely to get damaged.

## PORTABLE MOUNTING

The pump must be installed in vertical motor position above on a solid floor.

For portable mounting, stand is supplied along with the pumpset.

Suspend the pump from the chain and shackle attached to the eye bolt which is on the top cover.



## WARNING

- Ensure that pump set rotates in the correct direction of rotation.
- Always operate pumpset with the original control panel supplied by the manufacturer.
- Never bypass any protection like Thermistor, Moisture sensor & Level controller.  
In case the pump set stops due to above protection, remove the pump set from sump and correct the defect.
- Protect the cable from damage.
- Ensure proper earthing of the pump set before starting.

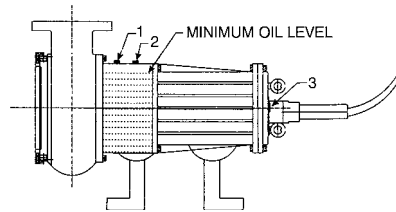
## MAINTENANCE

Practically 'MBH' Ni-hard submersible pumpset is totally maintenance free. However oil in seal chamber has to be checked every six months and needs to be replaced if quality gets deteriorated or it is to be changed after one year or 5000 working hrs. whichever is early. List of standard oil types is as under.

◆ BPCL - Hydrol 46 / Turbol 46 ◆ HPC - Hylube-30 / Milcy-40 ◆ IOC - Servo super 10

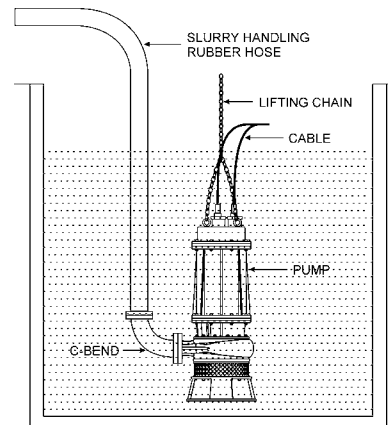
## PROCEDURE OF OIL CHANGE

Position the pump horizontally as shown in Fig. Place a suitable receptable under the threaded plug. Remove the plugs with 'O' ring and drain the oil. If the oil is between light yellow and white in colour this means the seal is intact and the oil change can proceed. However, if there is more water than oil in the chamber you must inspect the mechanical seals and fit new ones if necessary. Screw the threaded plugs, with 'O' ring back in.

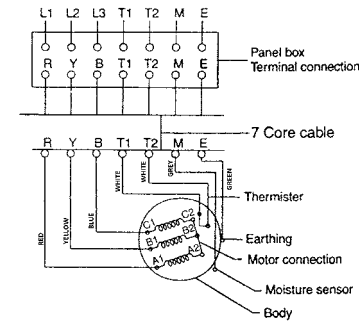


## CORRECT INSTALLATION

- A good water to slurry ratio.
- Sump level control - If the sump empties, the pump should switch itself off via the automatic control panel. The pump will switch on via a float switch or timer when the level rises.
- Pump should not exceed 20 starts per hour.
- The pump should be suspended by chains at least 200 mm from base of the sump to ensure maximum concentration of solids pumped.



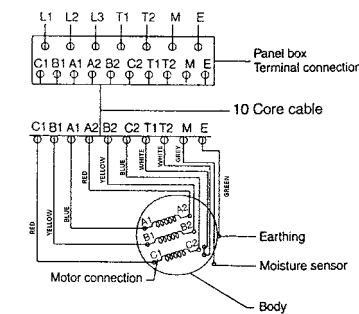
## CABLE CONNECTION OF MOTOR TO CONTROL PANEL



### (1) D.O.L. CONNECTION

7 LEAD CABLE OR 4+4 LEAD CABLE

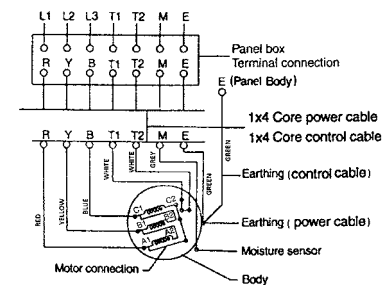
R, Y, B : Power Lead  
M : Moisture Lead  
T1, T2 : Thermistor Lead  
E : Earthing Lead  
L1, L2, L3 : Incoming Supply



### (2) STAR-DELTA CONNECTION

10 LEAD CABLE OR  
4+4+4 LEAD CABLE

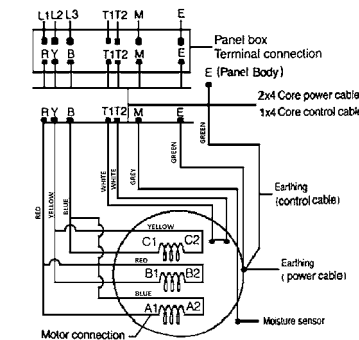
A1, B1, C1 : Power Lead  
A2, B2, C2 : Power Lead  
M : Moisture Lead  
T1, T2 : Thermistor Lead  
E : Earthing Lead  
L1, L2, L3 : Incoming Supply



### (3) A.T.S. CONNECTION

4 CORE POWER CABLE &  
4 CORE CONTROL CABLE

R, Y, B : Power Lead  
M : Moisture Lead  
T1, T2 : Thermistor Lead  
E : Earthing Lead  
L1, L2, L3 : Incoming Supply




### (4) A.T.S. CONNECTION 2 PARALLEL POWER CABLE

4 CORE POWER CABLE &  
4 CORE CONTROL CABLE

R, Y, B : Power Lead  
M : Moisture Lead  
T1, T2 : Thermistor Lead  
E : Earthing Lead  
L1, L2, L3 : Incoming Supply

## TROUBLE SHOOTING CHART

Pump fails to deliver	The discharge is too low	The line current is excessive	The total head is too low	The power consumption is excessive	Noisy operation of pump	
 <p style="font-size: 1.2em; font-weight: bold; margin: 0;">Ni-HARD SUBMERSIBLE PUMP</p>						
CAUSE						REMEDY
	•					The pump delivers against an excessively high discharge pressure. Open the isolating valve further, until the duty point conditions have been attained.
•						The pump and / or piping are incompletely vented. Vent the pump & system completely.
	•	•			•	Suction line or impeller clogged. Remove deposits in the pump & piping.
	•	•	•	•	•	Reverse rotation. Change over two of the phase leads of the power supply cable.
	•	•	•	•	•	Excessive wear of the pump internals. Replace worn components by new one.
	•					Operating Voltage too low. Check the supply terminals inform the supply authorities.
		•	•			The motor is running on two phase only. Replace the defective fuse, check the cable connection.
					•	The rotor is out of balance. Clean the rotor, Rebalance the rotor dynamically.
•						The motor refuses to run because there is no voltage. Check the electrical system, inform the supply authority.
•						The pump is silted up. Clean out the inlet, Pump components & check valve.
•	•					Defective motor or cable. Please consult our works.
•	•	•				Defective riser pipe. (pipe & gasket) Replace defective lengths of riser pipe by new ones, fit new gasket.
	•					Abnormal (excessive) drop in the liquid level during operation. Please consult our works.
	•	•	•			The Star-Delta motor remains stuck at the star stage during start-up. Check the switchgear/control panel.
	•					The isolating valve in the discharge line is not fully open. Open the valve fully.
	•	•		•		Excessive amount of air or gas in the liquid pumped. Check the operating parameters with reference to duty point. & correctness of submergence.
	•					Defective Ammeter. Replace with new one.
		•				The insulation resistance of the winding is inadequate (The minimum resistance in warm condition during operation should be 1000 ohms / volt of operating volt.) Please consult our works.
		•	•	•		Defective radial bearing in the motor. Please consult our works.
					•	Vibration caused by improper installation. Correct the installation.
•						The temp. sensor for monitoring the temp. of winding in the control circuit has stopped the motor because the winding temp is too high. Wait for some time so that the motor cools down & the pumpset will start automatically.

# MBH<sup>®</sup> PUMPS

# WARRANTY

## Ni-HARD SUBMERSIBLE PUMP

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.

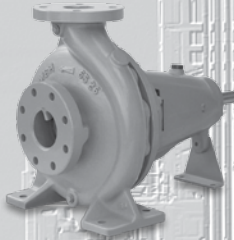
14, G.I.D.C. Naroda Indl. Estate, Ahmedabad-382 330, India.

Phone : 079-2282 3066 / 2282 1018

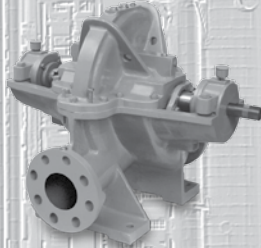
E-mail : marketing@mbhpumps.com / exports@mbhpumps.com

Website : www.mbhumps.com

# OTHER PRODUCTS



**CENTRIFUGAL  
BACKPULL OUT PUMP**



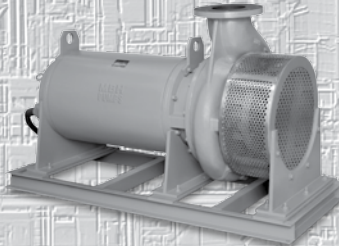
**HORIZONTAL  
SPLIT CASING PUMP**



**SUBMERSIBLE  
SEWAGE PUMP**



**PORTABLE  
SUBMERSIBLE PUMP**



**SUBMERGED  
CENTRIFUGAL PUMP**



**POLDER  
PUMP**



**ISO 9001**  
*Certified Company*

# **MBH<sup>®</sup>** **PUMPS**

**mbh pumps (gujarat) pvt. ltd.**

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