Dry Pit Submersible Wastewater Pump with Anti-Clog Technology

Model DDKEU
Model DDKEXU

Operating Instructions, Installation & Maintenance Manual

EBARA

EBARA Pumps Americas Corporation

TITLE	DOC. No.	REV.
CUSTOMER	COMPLETE IN WITH COVER	SHEETS
FINAL USER		
PROJECT	SERVICE	
JOB No.	EBARA SER. No.	
ITEM No.	EQUIP.	SET

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1. Preface

Design of this EBARA pump is based on superior engineering and long experience. To prevent trouble and provide satisfactory operation and long life, it is important to understand the EBARA pump thoroughly by careful study of this manual. If any questions arise regarding this manual, please direct them to EBARA. Your questions will be promptly answered and your suggestion may be considered for incorporation into our future products.

⚠ ***CAUTION :*** *THIS INSTRUCTION MANUAL INCLUDES NECESSARY ITEMS FOR INSTALLATION, OPERATION AND MAINTENANCE. READ THIS MANUAL CAREFULLY TO ENSURE CORRECT INSTALLATION, OPERATION AND MAINTENANCE. BE SURE TO KEEP THIS INSTRUCTION MANUAL ON HAND FOR FUTURE REFERENCE.*

Safety Labels

Four different types of safety labels are used in this manual. Please study the labels carefully so that the meaning of any safety warning you encounter is immediately clear.

⚠ ***DANGER :*** indicates a potentially hazardous situation which, if not avoided, will result in death or serious injury.

⚠ ***WARNING :*** indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury

⚠ ***CAUTION :*** indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or possible damage to the equipment or machine.

Note : is used to call attention or to emphasize essential information.

2. Acceptance Inspection

Upon arrival of the pump –

(1) Check the nameplate information for agreement with specifications in respect to model identification, head, pumping capacity, speed, output, voltage and frequency.

(2) Check the pump has not been damaged during shipment and all plugs and fastening bolts properly tightened.

(3) Check accessories and spare parts against the packing list.
If any problem is found, contact your dealer.

3. Installation

3.1 Check the Following Points (1) through (6) Prior to Pump Installation

(1) Ensure that the internal liquid chamber is filled with specified amount.
(2) All plugs and fastening bolts are properly tightened.
(3) The sealing chamber is not leaking.
(4) The pump is not damaged and the cable glands and cables are in satisfactory condition.
(5) Insulation resistance values are within limits.
(6) Other points that require particular attention.

3.1.1 Internal Liquid Supply (Figs. 1 and 2)

COOLANT (Internal liquid)

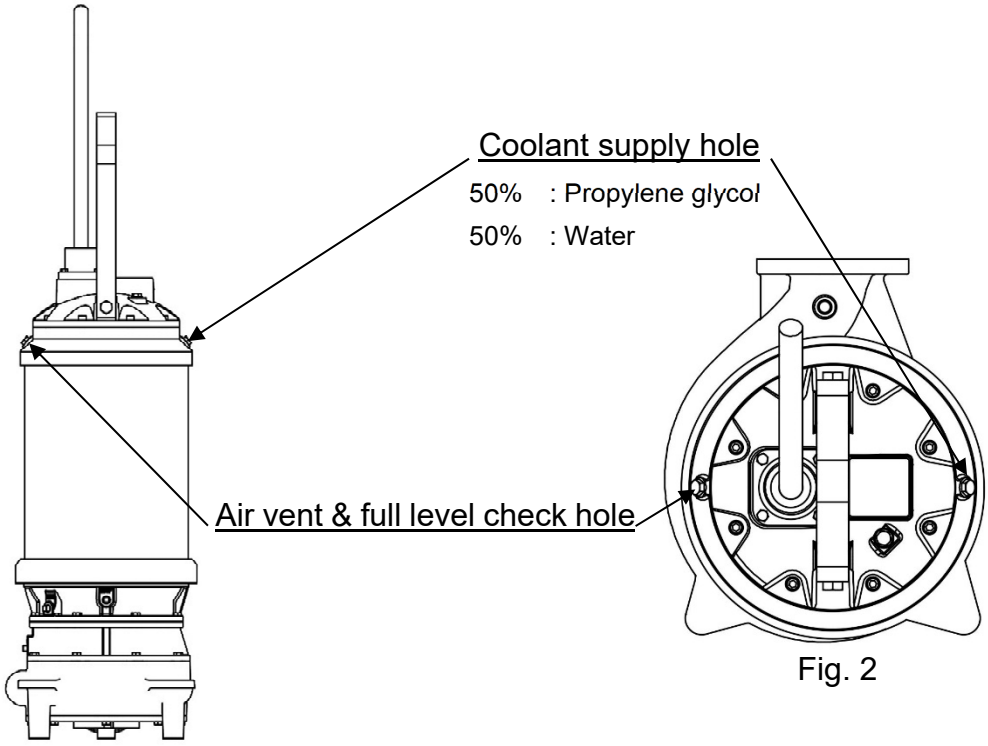


Fig. 1

Fig. 2

The motor shaft is sealed with a mechanical seal. The coolant chamber provided between the two sealing stages can be filled with coolant by standing the pump vertically and unplugging “Coolant supply hole” and “Air vent & full level check hole”.

⚠ ***CAUTION :*** *THE SEAL CHAMBER MAY BE UNDER PRESSURE. HOLD A RAG OVER THE PLUG TO PREVENT SPLATTER.*

Pour the specified coolant into the coolant chamber through “Coolant supply hole” until the coolant flows out of “Air vent & full level check hole”. (See Table 1)
After the coolant chamber is filled to the specified level, plug the two holes.

Table 1

Model	Approx. Coolant Capacity	
	Gallons	Liters
100DDKEB(X)U4611	5.5	21
100DDKEB(X)U4615	6.3	24
100DDKEB(X)U4618	8.7	33
100DDKEB(X)U4622	9.2	35
100DDKE(X)U465.5	6.1	23
100DDKE(X)U467.5	6.1	23
100DDKE(X)U4611	5.0	19
100DDKE(X)U4615	6.1	23
100DDKE(X)U4618	8.7	33
100DDKE(X)U4622	9.2	35
150DDKE(X)U467.5	5.8	22
150DDKE(X)U4611	5.0	19
150DDKE(X)U4615	6.1	23
150DDKE(X)U4618	8.2	31
150DDKE(X)U4622	8.7	33
150DDKEB(X)U4630	9.5	36
150DDKEB(X)U4637	9.5	36
150DDKE(X)U4645	10.6	40
150DDKE(X)U4630	9.5	36
150DDKE(X)U4637	9.5	36
150DDKE(X)U4645	10.6	40
200DDKE(X)U4630	9.5	36
200DDKE(X)U4637	9.5	36
200DDKE(X)U4645	10.6	40
250DDKE(X)U4630	9.5	36
250DDKE(X)U4637	9.5	36
250DDKE(X)U4645	10.6	40

3.1.2 Insulation Resistance Measurement

⚠ ***WARNING*** : *ALL ELECTRIC WORK SHOULD BE PERFORMED BY A QUALIFIED ELECTRICIAN AND ALL NATIONAL AND LOCAL ELECTRICAL CODES MUST BE OBSERVED.*

Although insulation resistance of this pump has been shop tested, it should be rechecked prior to installation, using the following procedure. Usually, insulation resistance of a minimum of 1MΩ is considered satisfactory (when measured with a DC 500V Megger).
Measurement procedure (Refer to Figs. 3 and 4)
Connect the minus (-) terminal of the DC 500V Megger to the G terminal of the cable, or a motor bolt.
Touch the plus (+) terminal of the Megger to L1-phase (or L2-phase or L3-phase) of the cable, and read the insulation resistance.
Also too, touch the plus (+) terminal of the Megger to P1 (or P2) and P3 (or P4), with the minus (-) terminal G connected as above, and read the insulation resistance.

⚠ ***CAUTION*** : *DO NOT CONNECT THE TWO MEGGER TERMINALS BETWEEN P1 AND P2, OR P3 AND P4, TO AVOID DAMAGE TO THE PROTECTIVE DEVICE.*
KEEP THE CABLE OFF THE GROUND WHILE TAKING ALL MEASUREMENTS.

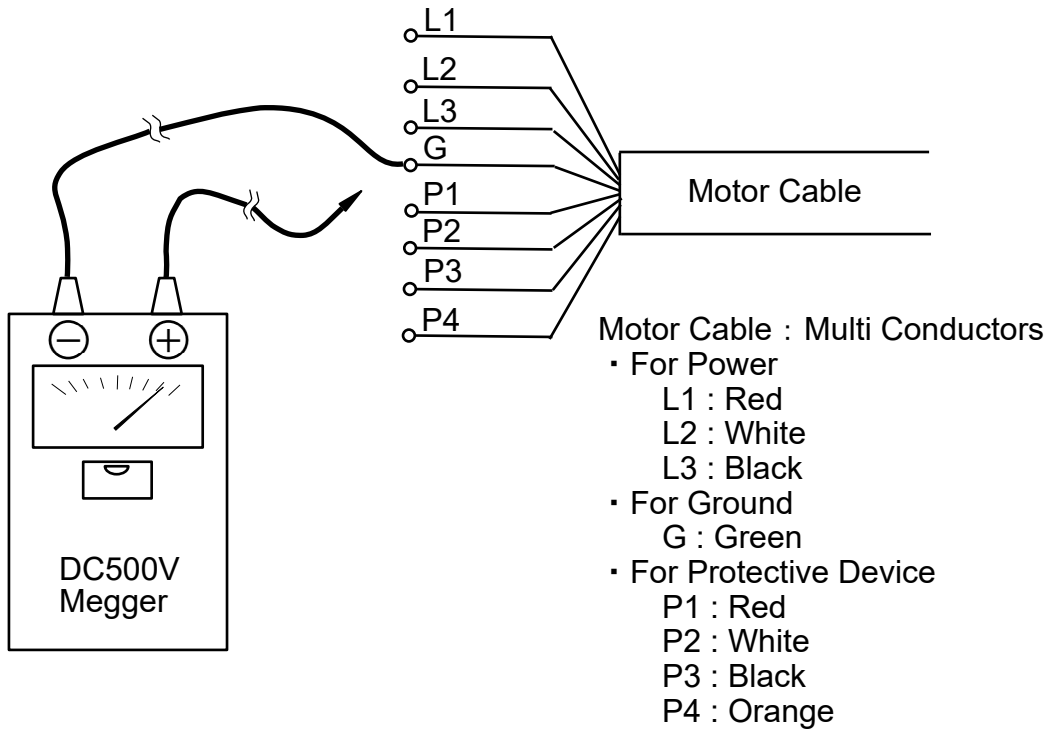


Fig.3

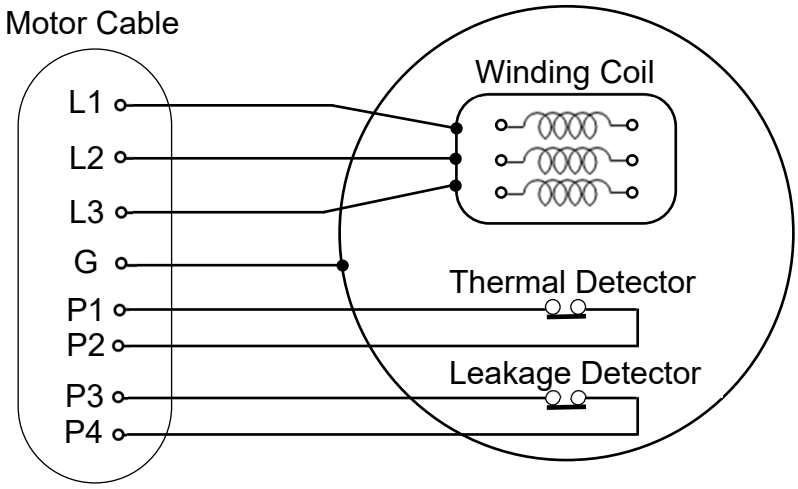


Fig.4 -

3.1.3 Other Checks Requiring Particular Attention

(1) Minimum operating water level

Be sure that the pump stop level is not lower than the minimum operating water level specified in the technical document. If the stop level is lower, a vortex flow can occur causing the pump to intake air, resulting in noise and vibration.

If there is possibility that the minimum water level may decrease to an excessive extent, it is necessary to use a minimum water level alarm. An alternative measure would be a water level-dependent automatic control system where the motor is turned off to automatically stop the pump with the water lowered to a critical level and is turned on again to resume automatic operation when water is restored to a safe level.

(2) Pump location relative to pump pit water inlet

If the pump is installed near the pump pit water inlet, it can be considerably disturbed; it can be shaken and the cables whipped by vigorous inlet water, resulting in damage. Therefore, the pump should be located as far from the water inlet as possible.

(3) Size of debris

Entry of large or long debris can result in a blocked impeller.

If such problem actually occurs, the pump can be readily lifted out and disassembled for servicing, which is however, time and labor consuming.

The primary consideration therefore should be to prevent the ingress of any oversized objects into the sump by use of a screen, etc. Another important consideration is to minimize presence of abrasive substances, such as sand, in the liquid.

If the contents of such substances become high, the impeller is increasingly worn, leading to the degradation of capacity.

NOTE : **In case any problem as above actually takes place, contact us immediately.**

3.2 Pump Installation

⚠ ***WARNING*** *: WHEN LIFTING THE PUMP, USE AN APPROPRIATE CRANE (OR A HOIST) AND LIFT SYSTEM.*
CHECK POSITION AND TIGHTNESS OF LIFT SYSTEM SO THAT WEIGHT OF THE PUMP IS NOT UNBALANCED.
FAILURE TO OBSERVE THIS PRECAUTION CAN RESULT IN SERIOUS ACCIDENTS.

⚠ ***CAUTION :*** *BEFORE INSTALLATION CHECK ROTATION.*
CORRECT ROTATION IS CLOCKWISE WHEN VIEWED FROM TOP OF MOTOR.
READ ELECTRICAL WIRING.

1. Clean the installation area.
2. Under no circumstances should the cable be pulled while the pump is being transported or installed. Attach a chain or rope to the grip and install the pump.
3. This pump must not be installed on its side. Ensure that it is installed upright on a secure base.
4. Install piping so that the air will not be entrapped. If piping must be installed in such a way that the air pockets are unavoidable, install an air release valve wherever such air pockets are most likely to develop.
5. DKEU series does not have an automatic operating system based on built-in floats.

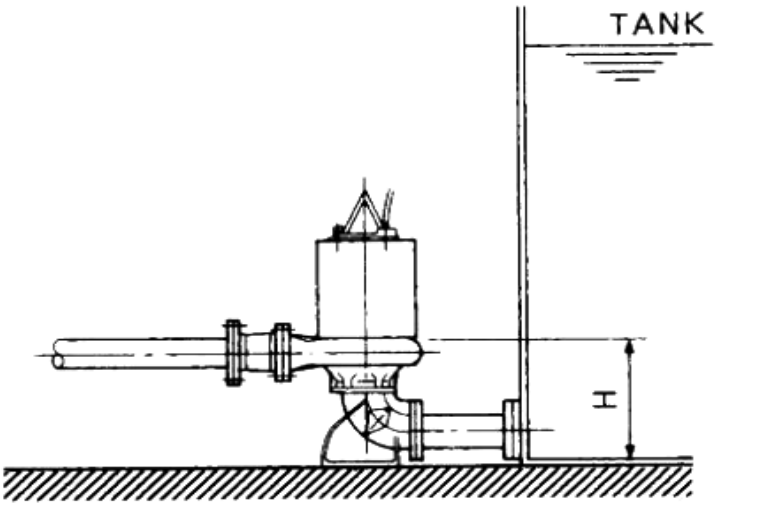


Fig.5

4. Electric Wiring

4.1 Power Leads Connection

⚠ ***WARNING :*** *CHECK THAT THE POWER IS LOCKED OFF AND DISCONNECTED BEFORE WORKING ON PUMP. ALL ELECTRICAL WORK SHOULD BE PERFORMED BY A QUALIFIED ELECTRICIAN AND ALL NATIONAL AND LOCAL ELECTRICAL CODES MUST BE OBSERVED.*

⚠ ***WARNING :*** *IF THE PURCHASED PUMP IS AN FM EXPLOSION-PROOF PRODUCT, CHANGE THE INTERNAL WIRING OF THE MOTOR (VOLTAGE CHANGE 208/230V ⇄ 460V) AT OUR SERVICE SHOP THAT HAS FM APPROVAL. UNAUTHORIZED WORK MAY IMPAIR EXPLOSION-PROOF PERFORMANCE AND IS DANGEROUS AND MUST BE AVOIDED.*

Wiring

a) Wire as indicated for the appropriate start system as shown in Fig. 7.

b) Loose connections will stop the pump. Make sure all electrical connections are secure.

The electric wiring for a submersible motor is no different from that of an ordinary motor, except that the direction of rotation cannot be easily verified.
Wiring to wrong terminals results in a reversed motor, and to prevent this and to achieve best results, the following wiring procedure is recommended.
Connect terminals L1, L2 and L3 to the secondary terminals L1, L2 and L3 of the electromagnetic switch or breaker respectively. Connect the remaining terminal G to ground.

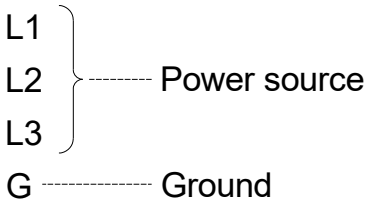
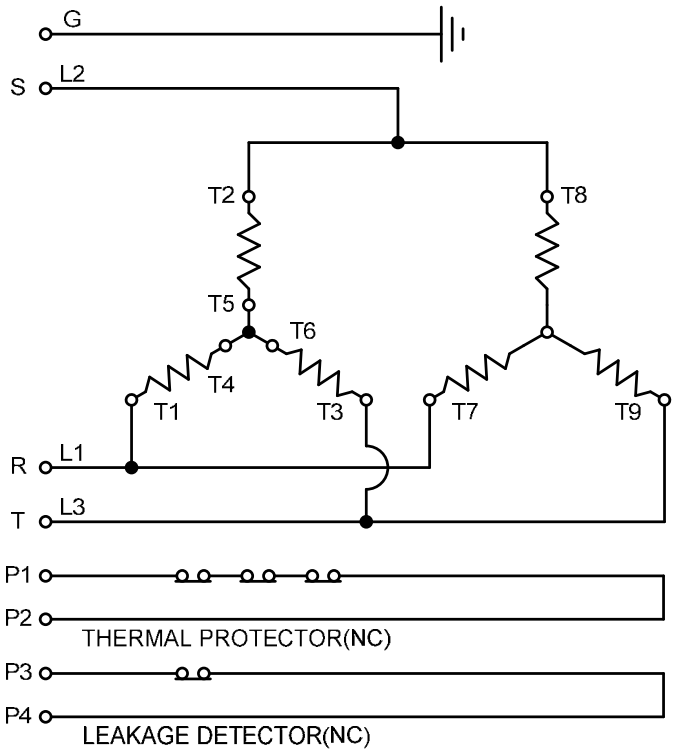


Fig.6

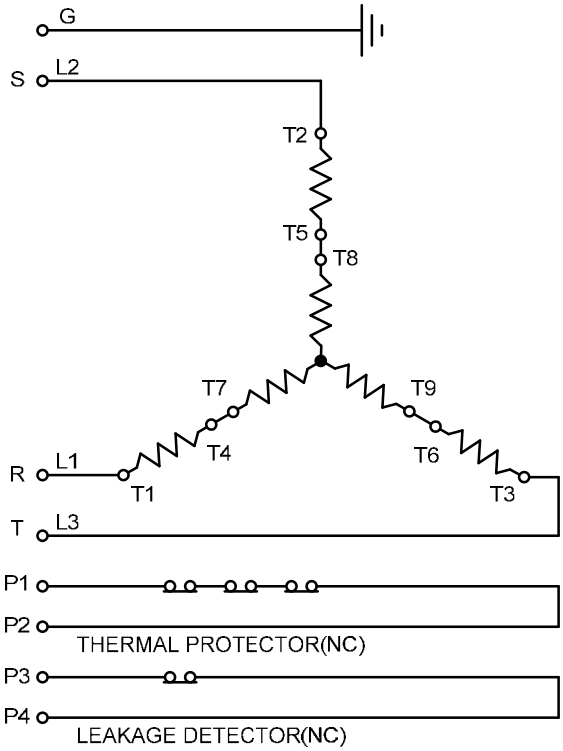
⚠ ***WARNING :*** *WHEN PREPARING POWER CABLE LEADS FOR CONNECTION TO CONTROL, IT IS ESSENTIAL THAT THE GROUND LEAD BE LONGER THAN THE POWER LEADS. THE GROUND LEAD MUST HAVE AT LEAST 2" (50 MM) SLACK REMAINING AFTER CONNECTION, WHEN SPACE PERMITS. THIS IS DONE FOR ELECTRICAL SAFETY. IF THE CABLE IS MISTAKENLY PULLED OUT, THE GROUND LEAD WILL BE THE LAST WIRE BROKEN.*

Output 2 to 10HP - 208/230V



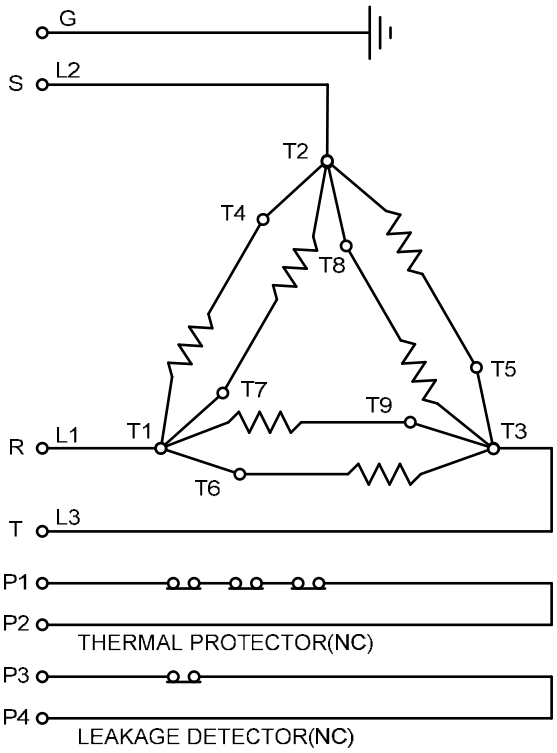
G - GRN
L1 - RED - T1 - T7
L2 - WHT - T2 - T8
L3 - BLK - T3 - T9
T4 - T5 - T6
P1 - RED
P2 - WHT
P3 - BLK
P4 - ORG

Output 2 to 10HP - 460V



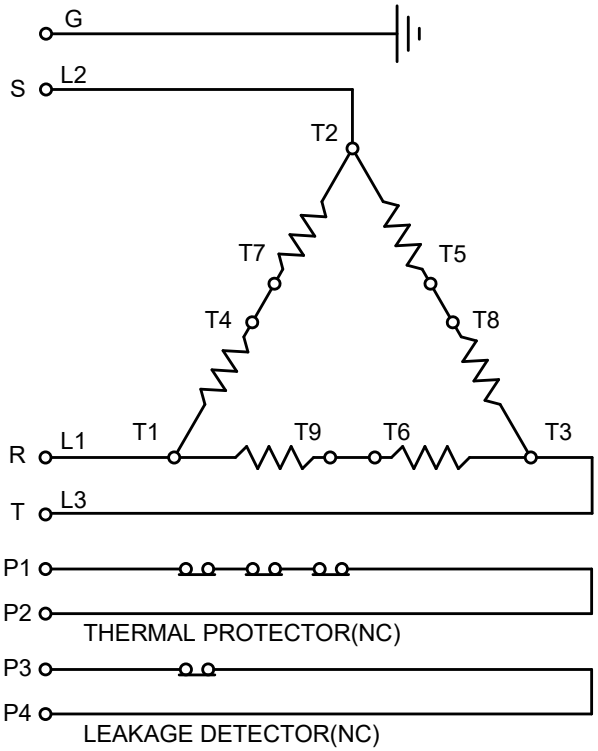
G - GRN
L1 - RED - T1
L2 - WHT - T2
L3 - BLK - T3
T4 - T7
T5 - T8
T6 - T9
P1 - RED
P2 - WHT
P3 - BLK
P4 - ORG

Output 15 to 30HP – 208/230V



G - GRN
L1 - RED - T1 - T7 - T6
L2 - WHT - T2 - T8 - T4
L3 - BLK - T3 - T9 - T5
P1 - RED
P2 - WHT
P3 - BLK
P4 - ORG

Output 15 to 30HP – 460V

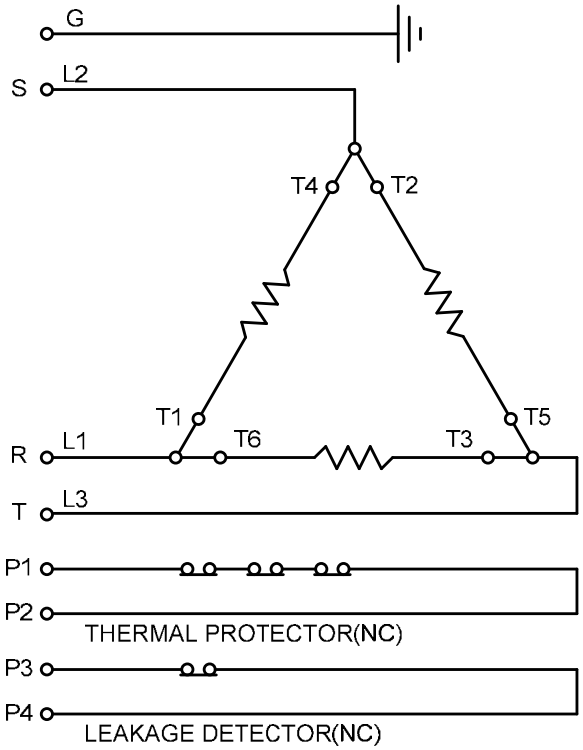


G - GRN
L1 - RED - T1
L2 - WHT - T2
L3 - BLK - T3
T4 - T7
T5 - T8
T6 - T9
P1 - RED
P2 - WHT
P3 - BLK
P4 - ORG

Output 40 to 60HP – 208/230V

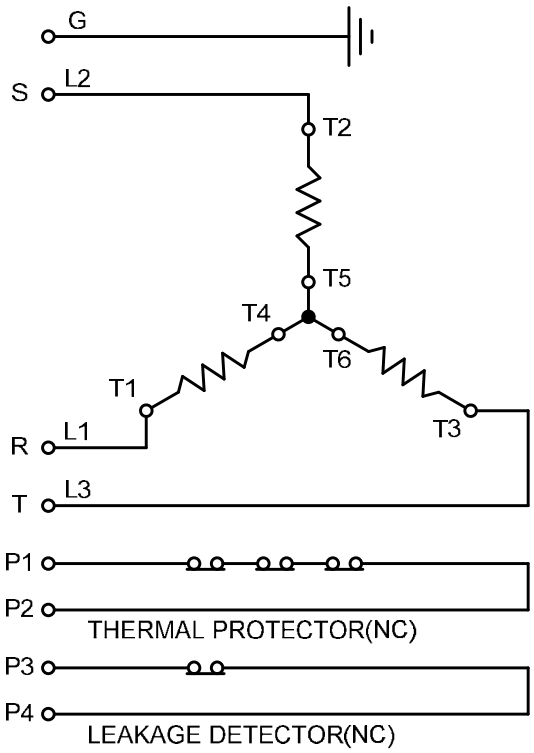
(Not available)

Output 40 to 60HP – 460V



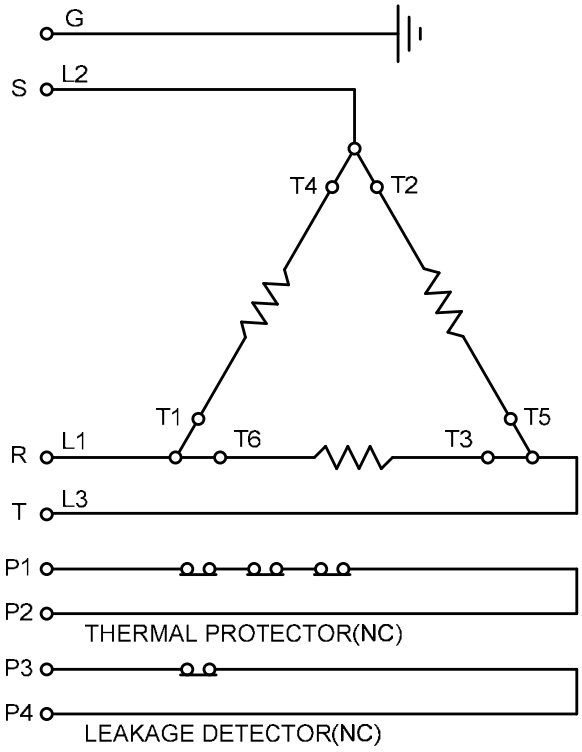
G - GRN
L1 - RED - T1 - T6
L2 - WHT - T2 - T4
L3 - BLK - T3 - T5
P1 - RED
P2 - WHT
P3 - BLK
P4 - ORG

Output 2 to 10HP – 575V



G - GRN
L1 - RED - T1
L2 - WHT - T2
L3 - BLK - T3
P1 - RED
P2 - WHT
P3 - BLK
P4 - ORG

Output 15 to 60HP – 575V



G - GRN
L1 - RED - T1 - T6
L2 - WHT - T2 - T4
L3 - BLK - T3 - T5
P1 - RED
P2 - WHT
P3 - BLK
P4 - ORG

4.2 Grounding (Fig. 7 and Table 2)

Be sure to connect the ground line (labeled “G”) to ground. Prior to grounding, ensure that the wire is the specified one (labeled “G”).

Also, verify that grounding continuity has been established inside the motor by checking that ground wire (labeled “G”) is electrically conductive with the bolt on the top of the motor (to be stripped of paint).

Ground the motor according to local codes.

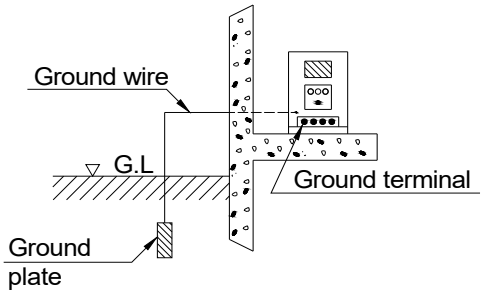


Fig.7

Table 2 (Example)

Motor classification	Grounding resistance	Grounding line diameter
AC 600V below	10Ω	ϕ1.6 mm

(Source ： Electrical Equipment Technical Standards, Ministry of International Trade and Industry).

4.3 Protective Device Leads Connection (Table 3)

This pump has a leakage detector at the motor bottom, and a thermal detector in the stator coil to protect the motor. Connect terminals P1 and P2 for the thermal detector to P1 and P2 of the same control connector. Also too, Connect terminals P3 and P4 for the leakage detector to P3 and P4 of the same control connector. Table 4 shows detailed specifications regarding protective devices.

Table 3

	Thermal detector	Leakage detector	
Type	9700K 06-215	LS11R-1A	OLV-5
Applied Model	ZXDL 2-60hp	ZXDL 2-30hp	ZXDL 40-60hp
Contact rating	AC 115V/230V x 18A/12A (max)	AC 300V x 0.5A (max)	AC 300V x 0.5A (max)
Contact type	B-contact (Normally Closed)	B-contact (Normally Closed)	B-contact (Normally Closed)
Cable terminal identification	P1-P2	P3 & P4	P3 & P4

⚠ ***WARNING*** *: AN EARTH LEAKAGE BREAKER MUST BE USED ACCORDING TO LAW TO PREVENT ELECTRICAL ACCIDENTS.*

⚠ ***CAUTION*** *: A MOTOR PROTECTIVE DEVICE ("3E" RELAY) SHOULD BE INSTALLED ON CONTROL PANEL TO PROTECT THE SUBMERSIBLE MOTOR AGAINST OVERCURRENT, OPEN PHASE, AND REVERSE PHASE.*

5. Operation

5.1 Operational Limitations

This pump is designed to operate under the following conditions:

(1) Liquid temperature : max. 40°C (105°F)

(2) Liquid : This pump must not be used with sea water and corrosive chemicals or combustible liquids.

(3) Lowest liquid level : Refer to lowest liquid level shown in the technical document.

(4) Voltage variations : The motor is designed to supply its rated output at variations of up to ±10% of the rated voltage at the rated frequency.

(5) Frequency variations : The motor is designed to supply its rated output at variations of up to ±5% of the rated frequency at the rated voltage.

(6) Combined variations :A combined variation in voltage and frequency of 10 percent (sum of absolute values) of the rated values, provided the frequency variation does not exceed ±5% of rated frequency.

5.2 Checking Rotation Direction (Figs. 8 and 9)

Check the motor for rotation direction by the following procedure after the pump has been installed in the pump pit.

A reversing pump is no problem if operation is not prolonged.

(1) If the pump performance curve is available.

Open the sluice valve on the discharge side approximately half a turn (so that air is released and a small quantity of liquid is discharged), and turn the main switch ON. With all air released from the discharge pipe, fully close the sluice valve.

At this time, if the value of shut-off head (H1 + H2) (m), where

H1 (m) Compound pressure gauge reading

H2 (m) Vertical distance from gauge to liquid surface

is generally in agreement with the pump performance at hand, the pump is operating normally.

If the pump is reversed, a performance curve as denoted by dashed lines in Fig. 8 is usually obtained, where the pump's discharge pressure is lower than normal or specified, and a sudden rise in electric current occurs with gradual opening of sluice valve.

In this event, change connections as shown in Fig. 9.

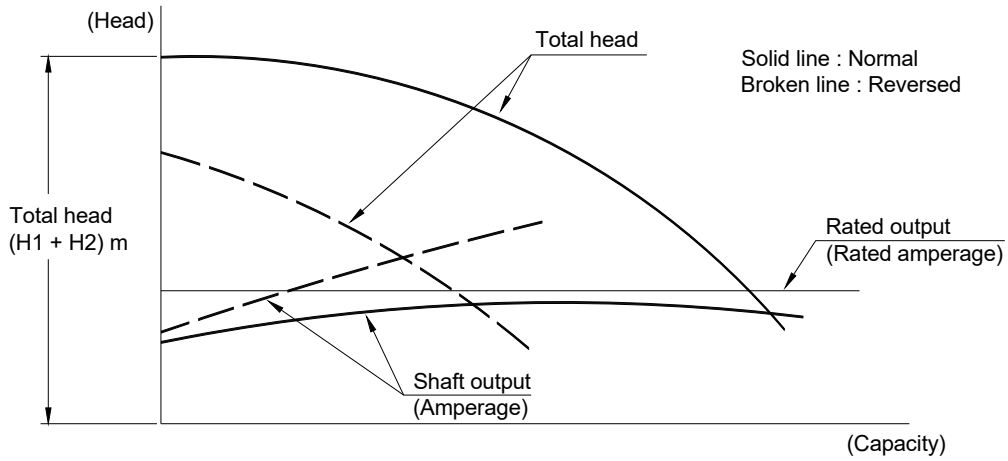


Fig. **8** Pump performance for Normal Rotation

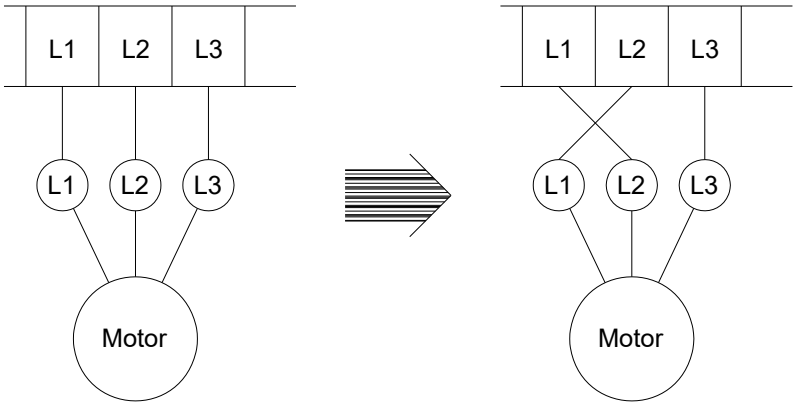


Fig. **9** Change of Connections for Normal Pump Performance

WARNING **:** *CHECK THE PUMP TO REDUCE THE TORQUE PRODUCED BY A LARGE SIZED PUMP.*

(2) If the pressure gauge or compound pressure gauge is not installed on the discharge pipe, if checks of the rotating direction of the pump in the water as described above cannot be per formed, proceed as follows.
Lay the pump on the ground. Turn switch on and off instantaneously, and check visually the rotation direction through the discharge bore of the pump. The rotating direction of the pump should be clockwise when viewed from above.

⚠ ***CAUTION*** ***:*** *SINCE THE STARTING TORQUE ON LARGE PUMPS CAN BE POWERFUL, THE PUMP MUST BE SUPPORTED.*

⚠ ***DANGER*** ***:*** *DURING CHECKING THE DIRECTION OF ROTATION, DO NOT TOUCH ROTATING PARTS OF THE PUMP. KEEP HANDS, HAIR AND TOOLS AWAY FROM ROTATING PARTS TO PREVENT SERIOUS ACCIDENTS.*

5.3 Cautions for Operation

Closed valve operation of the pump is no problem if operating is not prolonged.
Otherwise, the pump not only becomes overheated but also is caused to rattle and vibrate by backward flow of the liquid at the suction port.
Avoid closed valve operation as much as circumstances allow.

5.4 Operation

(1) Starting

- Open the valve if provided.

Note : A pump of lower shut off power than rated horse power may be started with the valve closed. In such case, open the valve within 1 minute after motor start.

- Start motor

⚠ ***CAUTION*** ***:*** *DO NOT START THE MOTOR IF REVERSE FLOW OCCURS.*

(2) Stopping

- Stop motor

Note : A pump of lower shut off power than rated horse power may be stopped just after the valve is closed.

5.5 Cautions During Operation

Pay attention to abnormal noise and vibration. If air or foreign matter enters the pump or if there is a change in the operating point, mis-operation or valve defect in the discharge lines, abnormal noise and vibration can occur. Pump discharge pressure can also vary greatly or the current meter of the motor can vary suddenly during operation.
In such cases, immediately check to find the cause of these problems.

6. Maintenance & Service

While the life of the pump depends largely on the ambient conditions, daily servicing and inspection helps extend service life considerably. To achieve that, carry out the maintenance as follows :

6.1 Daily Checks

Check the following items at least once a week.

(7) Current
If the ammeter reading exceeds the motor rating listed on the data plate or is abnormally lower than usual, it is an indication of a problem.

(8) Voltage
Voltage should be within ± 10% of the rated value throughout operation.

(9) Vibration
Check for the abnormal vibrations.

(10) Protective devices
Check protective devices by reading the panel indicator.

6.2 Monthly Checks

Check the following items at least once a month.

(1) Discharge pressure
Check pump discharge pressure and discharge flow rate (if flow meter is provided).

(2) Insulation resistance

Operation is safe as long as insulation resistance is more than 1MΩ. If higher than 1MΩ, but this occurs after a sharp decline from a certain value, check the cables, and / or overhaul is required.

6.3 Annual Checks

Even if there is nothing wrong with the pump under normal service condition, it should be lifted out and inspected once a year at least.

Particularly, when the pump is in use under severe conditions, such as where the liquid being handled contains sand or is corrosive, or oversized debris is pumped through, inspect it as often as circumstances allow.

A recommended procedure for the inspection is outlined below. If the mechanical seal must be re placed or on overhaul is considered necessary as a result of the inspection, contact the nearest dealer, or us directly.

⚠ ***WARNING*** ***:*** *BEFORE PULLING THE PUMP, DISCONNECT MOTOR CABLE AND ENSURE THAT THE PUMP IS ISOLATED FROM THE POWER SUPPLY.*

⚠ ***WARNING*** ***:*** *ALWAYS LIFT THE PUMP BY THE LIFTING LUGS, NEVER BY THE MOTOR CABLE.*

⚠ ***WARNING*** ***:*** *WHEN LIFTING THE PUMP, USE AN APPROPRIATE CRANE (OR A HOIST) AND LIFT SYSTEM.*
CHECK POSITION AND TIGHTNESS OF LIFT SYSTEM SO THAT WEIGHT OF THE PUMP IS NOT UNBALANCED.
FAILURE TO OBSERVE THIS PRECAUTION CAN RESULT IN SERIOUS ACCIDENTS.

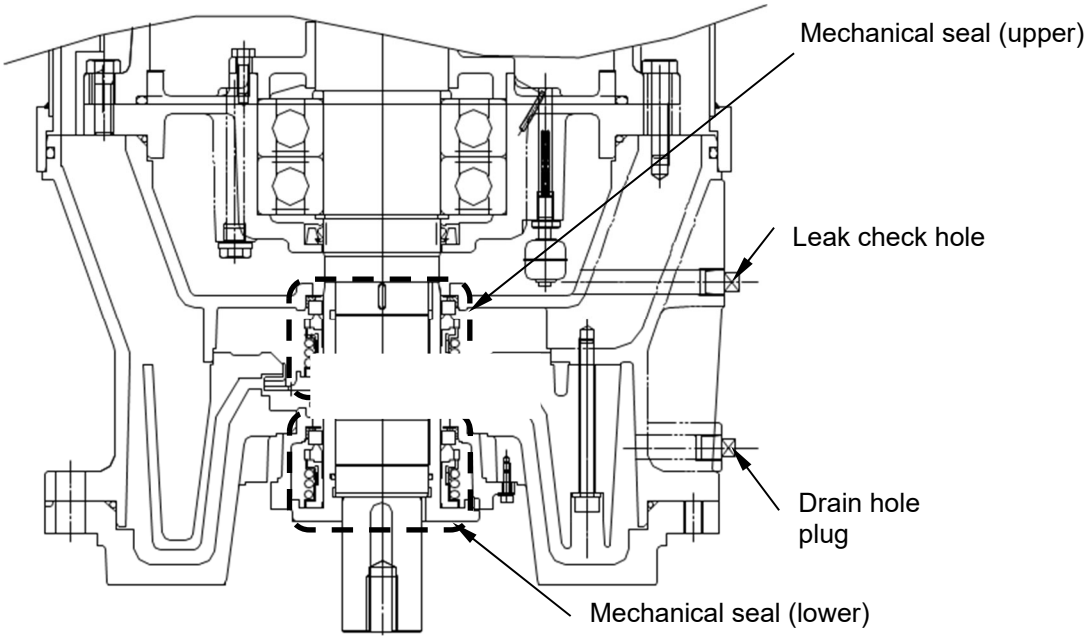
6.3.1 Inspection Procedure

(1) Appearance check
Check the impeller, motor cable, bolts and nuts, external surface conditions for abnormal conditions.

⚠ ***CAUTION*** ***:*** *THE SEAL CHAMBER MAY BE UNDER PRESSURE. HOLD A RAG OVER THE PLUG TO PREVENT SPLATTER.*

(2) Mechanical seal (upper)

(a) Lift the pump out of the pump pit, and stand it on the floor in a vertical position. Unplug “Leak check hole” in the intermediate casing of the pump.
(b) If no liquid leaks from “Leak check hole”, the mechanical seal (upper) in Fig. 10 is in satisfactory condition.
(c) If a very small quantity of any liquid leaks out, there is no practical problem. If any liquid, in excess of 1 liter (after one year of use) leaks out, the mechanical seal must be replaced.
(d) If much liquid is emitted, the mechanical seal or others components may be damaged, and an overhaul is necessary.
(e) When inspection is completed, wind seal tape to the plug, and tighten the plug.



5.5~45kW (7.5~60hp)

Fig.10

(3) Mechanical Seal (lower)

(a) Unplug “Drain hole” (shown in Fig. 11) and drain all internal liquid (coolant or oil). When drain coolant, open “Air vent” (shown in Figs. 1 and 2)
(b) If the drained liquid is muddy, it contains pumped liquid.
The mechanical seal (lower) is in satisfactory condition as long as the internal liquid does not contain much pumped liquid. Otherwise, it must be replaced.
(c) After the internal liquid has been inspected, pour fresh internal liquid (coolant or oil) based on paragraph 3.1.1. The amount is shown in Table 1 or 2.
(d) Replug “Supply hole” as carefully as the other ports.
(e) To replace either upper or lower mechanical seal, the pump must be disassembled. After the mechanical seal has been replaced with a new one, reassemble the pump and supply the specified internal liquid as well. At this point, turn the rotating body by hand to ensure that it turns smoothly.
Also, check for coolant leaks.

(4) Rotor

(a) After checking the coolant, put your hand through the pump discharge and turn the impeller. If it turns smoothly, the rotating components should be in satisfactory condition.
(b) If the impeller resists or feels locked, the pump requires an overhaul.

6.4 Parts that will need to be replaced.

Replace the appropriate part when the following conditions are apparent.

Replaceable Part	Mechanical Seal	Seal Washer	Internal Liquid (Coolant/Oil)	O-Ring
Replacement guide	Whenever internal liquid is clouded	Whenever coolant is re-placed or inspected	Whenever clouded or dirty	Whenever pump is overhauleed
Frequently	Annually	Annually	Annually	Annually

Above replacement schedule is based on normal operating conditions.

7. Troubleshooting

Symptoms	Probable Causes	Remedies
Pump fails to start	• Defective cable or motor. • Malfunction inside control panel. • Power source trouble. • Pump is mechanically locked • Defective protector.	• Lift pump and replace cable or motor. • Inspection made by competent electrician. • Inspection made by competent electrician. • Lift pump, inspect and/or overhaul. • Replace protector.
Pump fails to function despite motor operation	• System head too high. • Clogged discharge pipe (Pressure too high). • Clogged pump or strainer (Pressure too low). • Wrong direction rotation. • Internal pump wear. • Valve is closed.	• Recheck requirements. • Clean discharge pipe. • Clean strainer or impeller and casing. • Check and change rotation. Transpose two of three phase leads at panel. • Repair and/or replace. • Check valve operation.
Insufficient capacity	• Air suction. • System head too high. • Clogged discharge pipe. (Pressure too high) • Clogged pump or strainer. (Pressure too low) • Air accumulation in pipe. • Internal pump wear. • Wrong direction rotation. • Liquid viscosity different from dsign value. • Damaged impeller.	• Raise water level in pump pit. • Recheck requirements. • Clean discharge pipe. • Clean strainer, impeller and bowl. • Install air vent valve. • Repair and/or replace. • Check and change rotation. Transpose two of three phase leads at panel. • Recheck requirements. • Repair and/or replace.
Excessive current	• Gravity of pumped liquid greater than that specified. • Sand mixed with water. • Refer to “Pump fails to start”	• Change pump unit. • Lift pump and overhaul. Remove sand in tank.
Vibration and/or noise	• Internal pump wear. • Clogged pump. • Cavitation or vortex. • Resonance in pipe line or foundation. • Rotating component in contact with fixed component. • Damaged impeller.	• Repair and/or replace. • Clean pump. • Raise suction water level. Operate at proper flow rate. • Repair to change characteristic vibration. • Internal pump check. Repair and/or replace. • Repair and/or replace.

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PUMP START-UP REPORT

WARRANTY VOID IF NOT COMPLETED AND MAILED TO EBARA INTERNATIONAL CORPORATION WITHIN 30 DAYS OF START-UP

Date: _____ Job Name: _____

Contractor: _____ Signature: _____

Design Conditions: _____ GPM @: _____TDH

please select voltage below: AB AC BC

Pump Model: _____ HP: _____ Voltage: ○ 208/230 ○ 460 _____ _____ _____

Pump Serial No.: #1 _____ #2 _____ #3_____

Control Manufacture: _____ Heater Size: _____

GRD Connected: _____ Alternator Tested_____

Megger Check:
#1_____ Red _____ White _____ Black_____
#2_____ Red _____ White _____ Black_____ { To Ground
#3_____ Red _____ White _____ Black_____

Resistance Check:
#1_____ RW _____ RB _____ WB _____
#2_____ RW _____ RB _____ WB _____ { Rated _____
#3_____ RW _____ RB _____ WB _____

Amperage Check:
#1_____ A _____ B_____ C _____
#2_____ A _____ B_____ C _____ {FL Amps ____
#3_____ A _____ B_____ C _____

Performance Test:
#1_____ GPM@ ____ TDH _____
#2_____ GPM@ ____ TDH _____ Water Level _____
#3_____ GPM@ ____ TDH _____

1. Check oil ☐
2. Sensor cable connected ○ yes ○ no
3. Check moisture sensor ○ closed ○ open
4. Check thermal sensor ○ closed ○ open
5. Check rotation ☐
6. Guide Rails ○ Plumb ○ Secured
7. Station clean of debris ☐
8. Check valves for proper operation ☐
9. Pump seated properly ☐
10. Check for leaks in piping ☐
11. Flow meter ☐
12. Pressure gauge ☐
13. Ebara Capacitor pack or equivalent (1ø only) ☐

Relay # _____
Start Cap MFD _____
Run Cap MFD _____

Comments _____

_____

I certify this report to be accurate (*please sign):* _____

Official Start Date: _____ Report Date: _____

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Industrial/Standard Warranty

Industrial/Standard warranty is 12 months from startup or 18 months from purchase, which ever shall occur first.

All pumps returned for evaluation found to be NON-Warranty will be assessed a labor charge of $55.00.

NOTICE- REQUIREMENTS HAVE CHANGED

- This form must be filled out in detail and returned to EBARA Pumps Americas Corporation before an RMA can be issued.
- All Industrial Service Pump Evaluation Forms must have an MSDS Sheet provided with this completed form before an RMA can be issued.
- All pumps used in "**Industrial Service Applications**" that are returned for evaluation must have an M.S.D.S Sheet securely attached to the exterior of the package, **NO EXCEPTIONS.**
- All pumps used in "Sewage Applications" are excluded from the above requirement regarding MSDS sheets.
- ***** **NOTE** ***** When returning product(s) to EBARA that have been used in **sewage applications**, be sure to clean and disinfect pumps or parts thoroughly with a solution of 25% Bleach and repackage securely so no further damage will occur.
- **On the exterior of packaging, please note: "Pump Has Been Disinfected".**
- All returns shall have an RMA number clearly written on exterior of packaging with a copy of the RMA paperwork inside the package.
- **Failure to follow the above instructions will result in your shipment being refused and returned to Distributor, at the Distributor's expense.**

Today's Date: _____
Date of Start Up: _____
Date of Failure: _____
Pump Model: _____
Serial No._____
HP: ____ Voltage: _____ Operating Conditions: Head_____
Flow_____
Application: _____
Distributor Name (who was the pump purchased from?): _____
Dist. original P.O.#_____
Distributor Contact Name: _____ Phone: _____
Email: _____

Detailed Description of Failure:
_____
_____
_____
_____

Contact your dealer or supplier
for more information about other EBARA products:

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