

# BSP101CU

2" x 2"

Universal Drive



**IMPORTANT!** - Read all instructions in this manual before operating or servicing a pump.

Before installation, read the following instructions carefully. Failure to follow instruction and safety information could cause serious bodily injury, death and/or property damage. Each Barmesa product is carefully inspected to insure proper performance. Closely following these instructions will eliminate potential operating problems, assuring years of trouble-free service.

**⚠ DANGER** "Danger" indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.

**⚠ WARNING** "Warning" indicates an imminently hazardous situation which, if not avoided, MAY result in death or serious injury.

**⚠ CAUTION** "Caution" indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury.

**IMPORTANT! - Barmesa Pumps is not responsible for losses, injury or death resulting from failure to observe these safety precautions, misuse, abuse or misapplication of pumps or equipment.**

**ALL RETURNED PRODUCTS MUST BE CLEANED, SANITIZED, OR DECONTAMINATED PRIOR TO SHIPMENT, TO INSURE EMPLOYEES WILL NOT BE EXPOSED TO HEALTH HAZARDS IN HANDLING SAID MATERIAL. ALL APPLICABLE LAWS AND REGULATIONS SHALL APPLY.**

**⚠ WARNING** Installation, wiring, and junction connections must be in accordance with the National Electric Code and all applicable state and local codes. Requirements may vary depending on usage and location.

**⚠ WARNING** Installation and servicing is to be conducted by qualified personnel only.



Keep clear of suction and discharge openings. Do not insert fingers in pump with power connected; the rotating cutter and/or impeller can cause serious injury.



Always wear eye protection when working on pumps. Do not wear loose clothing that may become entangled in moving parts.

**⚠ DANGER** Pumps build up heat and pressure during operation. Allow time for pumps to cool before handling or servicing the pump or any accessory items associated with or near the pump.



**⚠ DANGER** Risk of electric shock. To reduce risk of electric shock, always disconnect pump from power source before handling any aspect of the pumping system. **Lock out power and tag.**



**⚠ WARNING** Do not use these pumps in water over 160° F. Do not exceed manufacturers recommended maximum performance, as this could cause the motor to overheat.

**⚠ DANGER** This pump is not intended for use in swimming pools or water installations where there is human contact with pumped fluid.



**⚠ WARNING** Operation against a closed discharge valve will cause premature bearing and seal failure on any pump, and on end suction and self priming pump the heat build may cause the generation of steam with resulting dangerous pressures. It is recommended that a high case temperature switch or pressure relief valve be installed on the pump body.



**⚠ WARNING** Carefully read instruction manuals supplied with motor or engine before operating or servicing.

**⚠ CAUTION** Make sure lifting handles are securely fastened each time before lifting. **Do not** operate pump without safety devices in place. Always replace safety devices that have been removed during service or repair. Secure the pump in its operating position so it can not tip over, fall or slide.

**⚠ DANGER** These pumps are not to be installed in locations classified as hazardous in accordance with the National Electric Code, ANSI/NFPA 70.



**IMPORTANT! - Prior to installation, record Model Number, Serial, Amps, Voltage, Phase and HP from pump name plate for the future reference. Also record the Voltage and Current Readings at Startup:**

Model Number: \_\_\_\_\_

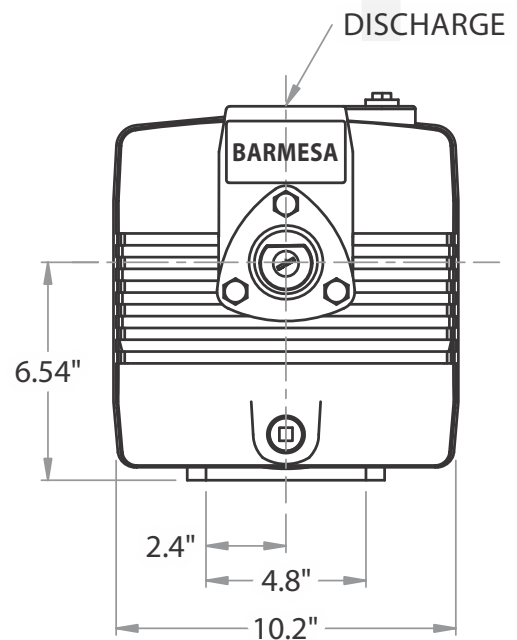
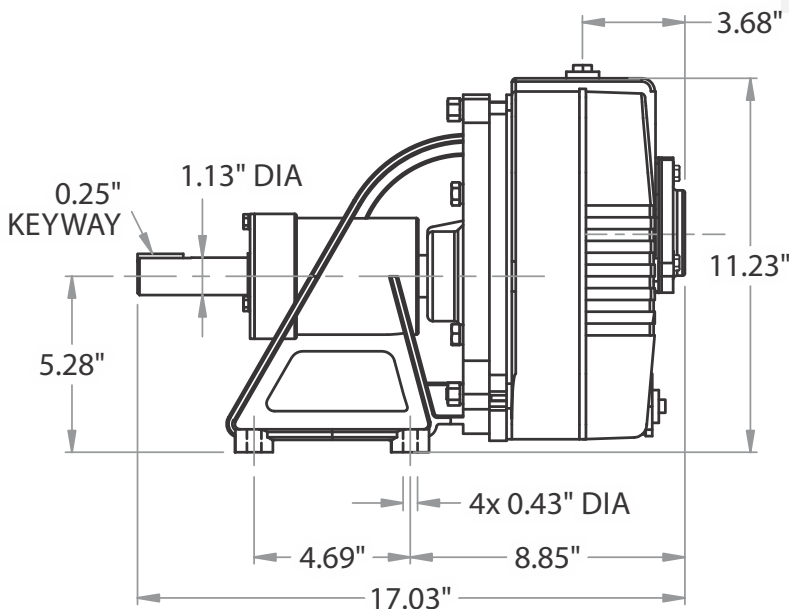
Serial: \_\_\_\_\_

Amps: \_\_\_\_\_ Voltage: \_\_\_\_\_

Phase: \_\_\_\_\_ HP: \_\_\_\_\_

<b>SUCTION/DISCHARGE:</b>	2" x 2" NPT, female flange.
<b>LIQUID TEMPERATURE:</b>	160 °F (71 °C) max.
<b>VOLUTE:</b>	Cast iron ASTM A-48 class 30.
<b>BODY:</b>	Cast iron ASTM A-48 class 30.
<b>PEDESTAL:</b>	Cast iron ASTM A-48 class 30.
<b>IMPELLER:</b>	Open, trash type, dynamically balanced. Cast iron ASTM A-48 class 30.
<b>SHAFT:</b>	Stainless steel.
<b>SHAFT SLEEVE:</b>	Stainless steel.
<b>O-RINGS:</b>	Buna-N.
<b>PAINT:</b>	Air dry enamel, water based.
<b>SEAL:</b>	Single mechanical with lip seal, water lubricated. Ceramic stationary part, carbon ring seal and exclusion in the rotating part. Buna-N elastomer and stainless steel spring.
<b>CHECKVALVE:</b>	Flap-neoprene, weight of steel.
<b>HARDWARE:</b>	Steel & stainless steel.
<b>BEARING-DRIVE END:</b>	Single row, ball, grease lubricated.
<b>BEARING-PUMP END:</b>	Single row, ball, grease lubricated.
<b>SHIM SET:</b>	Stainless steel.
<b>OPTIONAL:</b>	Bronze fitted volute and impeller.

barmesapumps



## ► Receiving inspection

Upon receiving the pump, it should be inspected for damage or shortages. If damage has occurred, file a claim immediately with the company that delivered the pump. If the manual is removed from the packaging, do not lose or misplace.

## ► Storage

Any product that is stored for a period longer than six (6) months from the date of purchase should be bench tested prior to installation. A bench test consists of, checking the impeller to assure it is free turning and a run test to assure the motor (and switch if provided) operate properly. Do not pump out of liquid.

## ► Installation

**Location** - The pump should be located as near as possible to the liquid to be pumped and in no case should the pump be more than 25 feet above the surface of the liquid supply. The pump should always be as level as possible.

Locate the pump on a firm footing to make sure the pump will not move due to vibration. Flex coupled and V-belt driven units should be permanently grouted onto a cement foundation. The pumps should be level to provide favorable operating conditions. In addition, the flexible coupling should be realigned after grouting in order to eliminate excessive wear on the coupling.

Allow a minimum of 18 inches in front of the pump case cover or hatch cover to permit easy removal and access to the interior of the pump. On belt driven units, allow a minimum of 10 inches at the shaft end to permit easy removal of the pedestal or rotating cartridge.

## ► Controls

Be sure the electrical specification of the control selected properly match the electrical specifications of the pump.

## ► Motor connection

All wiring of motor and control, overload protection and grounding should be in accordance with the National Electrical Code, State and Local codes. Make motor connection per label located on motor or motor manufactures manual.

## ► Rotation

All units rotate clockwise as viewed from shaft end of pump. It is necessary to slide one half of the flex coupling back when checking rotation to eliminate the possibility of unscrewing the impellers which are threaded on the shaft.

## ► Suction

**⚠ CAUTION THIS PUMP SHOULD NOT BE OPERATED WITHOUT A STRAINER ON THE END OF THE SUCTION LINE TO PREVENT STICKS, STONES, RAGS AND OTHER FOREIGN MATTER FROM BEING DRAWN INTO THE IMPELLER. THE STRAINER SHOULD BE CLEANED REGULARLY TO INSURE FULL FLOW.**

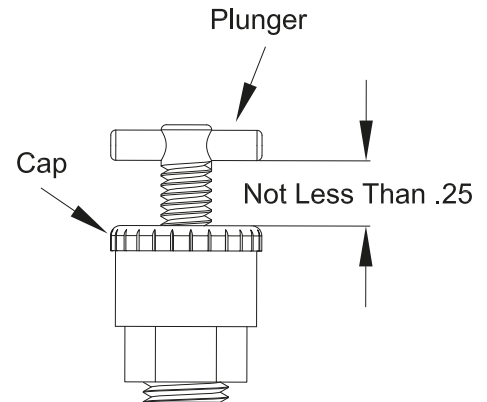
The use of pipe the same size as the port size is highly recommended. Using a smaller pipe line can cause internal damage. Make sure all lines have air-tight joints. The smallest air leak in the suction line may prevent the pump from priming. All horizontal suction lines should slope up to the pump to avoid trapped air pockets. All piping should be properly supported.

## ► Discharge

Connect discharge hose or pipe to the discharge port. Make sure all lines have air-tight joints

## ► Lubrication

The seal is the only component that requires lubrication. It is grease filled at the factory but must be checked before putting unit into operation. A spring loaded grease cup attached to the seal chamber maintains the grease fill.



The plunger and handle should be no less than 1/4" above the cap which indicates the seal chamber is full or pressurized. If less than 1/4" above cap, the seal chamber needs additional lubricant.

Filling through the grease cup by turning the handle clockwise in order to compress the plunger spring into the cap. Removing cap, fill with grease, replace cap and release spring by turning handle counterclockwise until it is in contact with plunger flange.

Approved grease: SHELL ALVANIA R2, MOBILE MOBILUX 2, AMPOL RR2, B.P. ENERGERASE LS2, CALTEX MULTIFAX 2 or equal.

**⚠ CAUTION PLUNGER AND HANDLE MUST BE TOGETHER AND NO LESS THAN 1/4" ABOVE CAP DURING PUMP OPERATION.**

## ► Priming

Remove pipe plug in top of body and fill the pump body completely with solids free liquid. In freezing weather prime pump with warm water.

**⚠ CAUTION DO NOT OPERATE PUMP WITHOUT PRIMING FIRST. OPERATING DRY WILL DAMAGE SEAL.**

▶ **Starting**

To start pump, apply power to motor per the **MOTOR OR ENGINE INSTRUCTIONS MANUAL.**

▶ **Shutdown**

Discontinue operation by stopping the engine as stated in ENGINE MANUAL or by disconnecting electric power to motor. It is recommended to drain and flush pump if pump has been operating in freezing weather.

▶ **Service**

Turn off and lock out power before servicing pump.

▶ **Check valve**

Disconnect suction piping and remove hex nuts and suction flange. Remove gasket, weights, screw and lockwasher and replace if worn or damaged.

To replace, the HINGE section of gasket is at the TOP and the LARGE weight is on the pump side of gasket.

▶ **Body, Volute & Impeller**

Disconnect suction and discharge piping. Remove hex nuts and lockwashers then remove body, o-ring and seal plate from pedestal.

Pull volute and gasket from seal plate. Remove cap screw and washers. Unscrew the impeller from shaft in the right hand direction. Take note of the size and quantity of shims used. To replace lip seal, press out of seal plate.

To reassemble, use the required number of shims to result in an impeller-to-volute clearance of .010" to .020".

▶ **Shaft seal**

Remove rotating member, spring and retaining ring of seal from shaft. To remove stationary, remove cap screws and lockwashers and pull seal plate from pedestal. Press stationary out of seal plate. If any part shows wear or damage replace complete seal. Replace shaft sleeve if worn or damaged.

**⚠ CAUTION HANDLE ALL SEAL PARTS WITH EXTREME CARE. DO NOT DAMAGE LAPPED FACES.**

Replace seal plate onto pedestal. Lightly oil shaft and inner surface of stationary. Press over shaft and into seal plate.

Oil inner surface of rotating member and with lapped surface facing pedestal, slide rotating member onto shaft until lapped faces of stationary and rotating member are together.

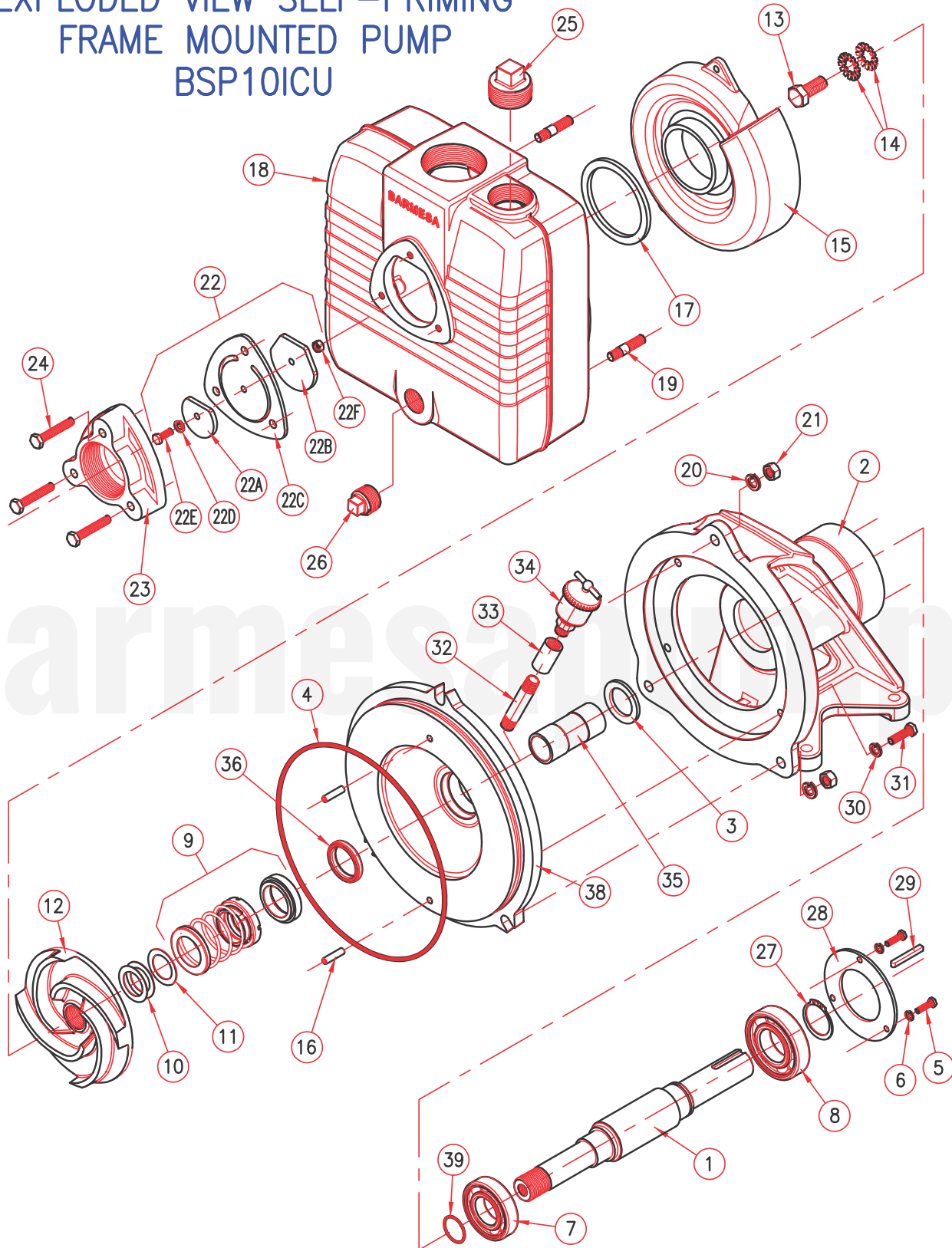
Replace the rest of the seal. Replace shims and impeller, making sure that spring is properly seated against impeller.

▶ **Pedestal & Shaft**

Remove capscrews, lockwashers and bearing cap from pedestal. Remove shaft, slinger and bearing assembly. To replace bearing remove retaining ring and slinger. Press off bearings from shaft.

REASSEMBLE REMAINDER OF PUMP IN OPPOSITE ORDER.

# EXPLODED VIEW SELF-PRIMING FRAME MOUNTED PUMP BSP10ICU



For Repair Part Please supply: Model Number and Serial as shown on Name Plate, and Part Description and Part Number as shown on Parts List.

## Self Priming Frame Mounted Pump BSP10ICU, Parts List

Item	Part No.	Description	Qty			Material
1	30400774	Shaft	1		●	Stainless
2	03040030F	Pedestal	1		●	Cast Iron
3	92010014	Slinger	1	■	◆	Neoprene
4	92010033	O-Ring # 2-269	1	■	◆	Buna
5	91010220A	Hex Hd Screw # 10-32UNF x 1/2" lg.	3		◆	Steel
6	91010010H	Lockwasher #10	3		●	Steel
7	31020009	Bearing	1		◆	Brand NSK
8	31020022	Bearing	1		◆	Brand NSK
9	31030136	Shaft Seal	1	■	◆	C/CE/B/SS
10	91010121	Shim 0.010"	3	■	◆	Stainless
11	91010130	Shim 0.031"	2	■	◆	Stainless
12	03140225	Impeller 10CCE & ICU, 5 1/2"Ø	1			Bronze
	03140232					Cast Iron
13	91010349B	Hex hd Screw 1/2"-20UNF x 1.0" SS	1	■	◆	Stainless
14	91010081	Shakeproof Washer 1/2"	2	■	◆	Stainless
15	03120035	Volute 10CCE & ICU	1			Bronze
	03120039					Cast Iron
16	91010181	Volute Pin # 17715 1/4"Ø x 1"	2		◆	Steel
17	92010091B	Volute Gasket	1	■	◆	Buna
18	03090097	Body	1			Cast Iron
19	91010374	Stud 3/8"-16UNC x 2.0" lg. SS	3			Stainless
20	91010013	Lock washer 3/8" SS	3		◆	Stainless
21	91010414	Hex Nut 3/8" SS	3			Stainless
22		Check Valve Assembly				
22A	01080002	Weight 1.56"Ø	1			Steel
22B	01080001	Weight 2 1/4"Ø	1			Steel
22C	92010229	Gasket	1	■	◆	Neoprene
22D	91010066	Lock washer 1/4" SS	1			Stainless
22E	91010407B	Round Hd Screw 1/4"-20NC x 1.0" SS	1			Stainless
22F	91010411C	Hex Nut 1/4" SS	1			Stainless
23	03050021	Suction Flange	1			Cast Iron
24	91010225	Hex Hd Screw 5/16"-18UNC x 2 1/4" lg.	3			Stainless
25	93010146	Pipe Plug 1 1/4" NPT	1			Cast Iron
26	93010148	Pipe Plug 3/4"	1			Cast Iron
27	31010004	Snap Ring # 5100-137	1		◆	Truarc
28	30400850C	Bearing Cap	1		●	Steel
29	30400633	Shaft Key 1/4" x 1/4" x 1 1/4" lg.	1		◆	Steel
30	91010060	Lock washer 5/16" SS	4		●	Steel
31	91010343C	Hex Hd Screw 5/16"-18UNC x 1.0"	4		●	Steel
32	93010067A	Pipe Niple 1/4" x 2 1/2"	1			Steel
33	93010031	Coupling 1/4"	1			Steel
34	93010042	Grease Cup	1			Steel
35	30400840C	Shaft Sleeve	1	■	◆	304 SS
36	31150012	Lip Seal (1 1/4"Ø x 1.688"Ø x 1/4")	1	■	◆	Brand SKF
38	03180037	Seal Plate	1		●	Cast Iron
39	92010029J	O-Ring # 0-022	1			Buna

Seal Kit: (■) 3, 4, 9, 10, 11, 13, 14, 17, 22C, 35, 36

Overhaul Kit: (◆) 3, 4, 5, 7, 8, 9, 10, 11, 13, 14, 16, 17, 20, 22C, 27, 29, 35, 36

Power End: (●) 1, 2, 3, 5, 6, 7, 8, 27, 28, 29, 30, 31, 35, 38

For Repair Part Please supply: Model Number and Serial as shown on Name Plate, and Part Description and Part Number as shown on Parts List.



**Always disconnect the pump from the electrical power source before handling.**

**If the system fails to operate properly, carefully read instructions and perform maintenance recommendations.**

Symptom	Possible Cause(s)	Corrective Action
Little or no discharge and unit will not prime	<ol style="list-style-type: none"> <li>1. Casing not filled with water</li> <li>2. Total head too high</li> <li>3. Suction head higher than pump designed for</li> <li>4. Impeller partially or completely plugged</li> <li>5. Leak in suction line</li> <li>6. Foot-valve too small</li> <li>7. Impeller damaged</li> <li>8. Foot-valve or suction line not submerged deep enough in water, pulling air</li> <li>9. Insufficient inlet pressure or suction head</li> <li>10. Suction piping too small</li> <li>11. Body gasket leaking</li> <li>12. Suction or discharge line valves closed</li> <li>13. Piping damaged</li> <li>14. Clogged strainer or foot-valve</li> </ol>	<ol style="list-style-type: none"> <li>1. Fill pump body with water.</li> <li>2. Shorten suction head</li> <li>3. Lower suction head, install foot-valve and prime</li> <li>4. Disassemble pump and clean out impeller</li> <li>5. Repair or replace suction line</li> <li>6. Match foot-valve size to piping or install one larger size foot-valve</li> <li>7. Disassemble pump and replace impeller</li> <li>8. Submerge lower in water</li> <li>9. Increase inlet pressure by adding more water to tank or increasing back pressure by turning gate valve on discharge line partially closed.</li> <li>10. Increase pipe size to pump inlet size or larger</li> <li>11. Replace</li> <li>12. Open</li> <li>13. Clean or replace</li> <li>14. Clean or replace</li> </ol>
Loss of suction after satisfactory operation	<ol style="list-style-type: none"> <li>1. Air leak in suction line</li> <li>2. When pump was last turned off, water siphoned out of pump body</li> <li>3. Suction head higher than pump designed for</li> <li>4. Insufficient inlet pressure or suction head</li> <li>5. Clogged foot-valve, strainer or pump</li> <li>6. Defective wearplate</li> </ol>	<ol style="list-style-type: none"> <li>1. Repaire or replace suction line</li> <li>2. Refill (reprime) pump body before restarting</li> <li>3. Lower suction head, install foot-valve and prime</li> <li>4. Increase inlet pressure by adding more water to tank or increasing back pressure by turning gate valve on discharge line to partially closed.</li> <li>5. Unclog or replace</li> <li>6. Replace</li> </ol>
Pump overloads driver	<ol style="list-style-type: none"> <li>1. Total head lower than pump rating, unit delivering too much water</li> <li>2. Specific gravity and viscosity of liquid being pumped different than the pump rating</li> </ol>	<ol style="list-style-type: none"> <li>1. Increase back pressure by turning gate valve on discharge line to partially closed position that will not overload motor.</li> <li>2. Consult factory</li> </ol>
Pump vibrates and/or makes excessive noise	<ol style="list-style-type: none"> <li>1. Mounting plate or foundation not rigid enough</li> <li>2. Foreign material in pump causing unbalance</li> <li>3. Impeller bent</li> <li>4. Cavitation present</li> <li>5. Piping not supported to relieve any strain on pump assembly</li> </ol>	<ol style="list-style-type: none"> <li>1. Reinforce</li> <li>2. Disassemble pump and remove</li> <li>3. Replace impeller</li> <li>4. Check suction line for proper size and check valve in suction line if completely open, remove any sharp bends before pump and shorten suction line</li> <li>5. Make necessary adjustments</li> </ol>
Pump runs but no fluid	<ol style="list-style-type: none"> <li>1. Air leak in suction piping</li> <li>2. Pump located too far from fluid source</li> <li>3. Gate valve closed</li> <li>4. Clogged strainer</li> <li>5. Fouled foot-valve</li> <li>6. Discharge height too great</li> <li>7. Fouled impeller</li> <li>8. Faulty mechanical seal</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace</li> <li>2. Replace</li> <li>3. Open</li> <li>4. Clean or Replace</li> <li>5. Clean or Replace</li> <li>6. Lower the height</li> <li>7. Clean or Replace</li> <li>8. Replace</li> </ol>
Pump leaks at shaft	<ol style="list-style-type: none"> <li>1. Worn mechanical seal</li> <li>2. Seal not installed properly</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace</li> <li>2. Follow service instructions for installing seal</li> </ol>



# BARMESA PUMPS FACTORY WARRANTY

Barmesa Pumps warrants that products of our manufacture will be free of defects in material and workmanship under normal use and service for 18 months from date of manufacture or 12 months from installation date whichever occurs first. This warranty gives you specific legal rights, which vary from state to state.

This warranty is a limited warranty, and no warranty related claims of any nature whatsoever shall be made against Barmesa Pumps, until the ultimate consumer or his/her successor notifies us in writing of the defect and delivers the product and/or defective part(s) freight prepaid to our factory or nearest authorized service station as instructed by Barmesa Pumps. THERE SHALL BE NO FURTHER LIABILITY, WHETHER BASED ON WARRANTY, NEGLIGENCE OR OTHERWISE. PRODUCT SHALL BE EITHER REPLACED OR REPAIRED AT THE ELECTION OF BARMESA PUMPS. Guarantees relating to performance specifications provided in addition to the foregoing material and workmanship warranties on a product manufactured by Barmesa Pumps, if any, are subject to possible factory testing. Any additional guarantees, in the nature of certified performance specifications or time frame must be in writing and such writing must be signed by our authorized factory manager at time of order placement and/or at time of quotation. Due to inaccuracies in field testing and should a conflict arises between the results of field testing conducted by or for the user, Barmesa Pumps reserves the right to have the product returned to our factory for additional testing.

This warranty shall not apply when damage is caused by (1) improper installation, (2) improper voltage, (3) lightning, (4) excessive sand or other abrasive material, (5) corrosion build-up due to excessive chemical content or (6) uncontrollable acts of god. Any modification of the original equipment will also void the warranty. We will not be responsible for loss, damage or labor cost due to interruption of service caused by defective pumps, parts or systems. Barmesa Pumps will not accept charges incurred by others without our prior written approval.

This warranty is void if our inspection reveals the product was used in a manner inconsistent with normal industry practice and/or our specific recommendations. The purchaser is responsible for communication of all necessary information regarding the application and use of the product. UNDER NO CIRCUMSTANCES WILL WE BE RESPONSIBLE FOR ANY OTHER DIRECT OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO TRAVEL EXPENSES, CONTRACTOR FEES, UNAUTHORIZED REPAIR SHOP EXPENSES, LOST PROFITS, LOST INCOME, LABOR CHARGES, DELAYS IN PRODUCTION, IDLE PRODUCTION, WHICH DAMAGES ARE CAUSED BY ANY DEFECTS IN MATERIAL AND/OR WORKMANSHIP AND/OR DAMAGE OR DELAYS IN SHIPMENT. THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER EXPRESS OR IMPLIED WARRANTY. No rights extended under this warranty shall be assigned to any other person, whether by operation of law or otherwise, without our prior written approval.

## IMPORTANT!

If you have a claim under the provision of the warranty, contact Barmesa Pumps or your authorized Barmesa Pumps Distributor:  
[warranty@barmesapumps.com](mailto:warranty@barmesapumps.com)  
[www.barmesapumps.com/US](http://www.barmesapumps.com/US)

