

# **BP33 & BP50**

0.3 & 0.5 HP  
@ 3450 RPM



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

**⚠ 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 104° F. Do not exceed manufacturers recommended maximum performance, as this could cause the motor to overheat.

**⚠ DANGER** Do not lift, carry or hang pump by the electrical cables. Damage to the electrical cables can cause shock, burns or death. **Never** handle connected power cords with wet hands. Use appropriate lifting device.

**⚠ WARNING** Ground Fault Circuit Interrupter (GFCI) to be used with plug-in type power cord.

**⚠ WARNING** Sump and sewage pumps often handle materials which could cause illness or disease. Wear adequate protective clothing when working on a used pump or piping. Never enter a basin after it has been used.

**⚠ DANGER** Failure to permanently ground the pump, motor and controls before connecting to power can cause shock, burns or death.

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

**⚠ WARNING** The Uniform Plumbing Code (UPC) states that sewage systems shall have an audio and visual alarm that signals a malfunction of the systems, that are required to reduce the potential for property damage.

**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:**

1 Phase Models	
Amps:	Volts:
3 Phase Models	
Amps L1-2:	Volts L1-2:
Amps L2-3:	Volts L2-3:
Amps L3-1:	Volts L3-1:

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

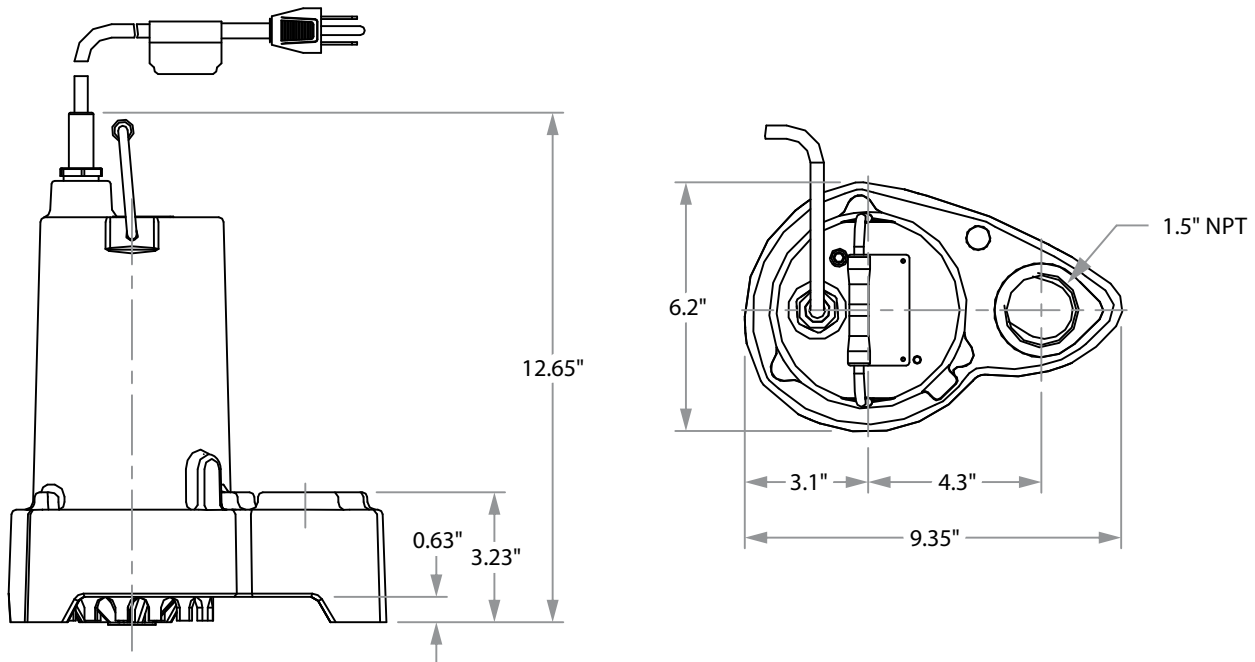
Serial: \_\_\_\_\_

PHASE: \_\_\_\_\_ HP: \_\_\_\_\_

- DISCHARGE:** 1½" NPT, female, vertical.
- SPHERICAL SLD HNDLG:** 1/2"
- LIQUID TEMPERATURE:** 104° F (40° C) max.
- VOLUTE:** Cast iron ASTM A-48 class 30.
- MOTOR HOUSING:** Cast iron ASTM A-48 class 30.
- IMPELLER:** 10 vane vortex, with vanes on back side, balanced. Cast iron ASTM A-48 class 30, dynamically balanced, ISO G6.3.
- SHAFT:** 416 series stainless steel.
- O-RINGS:** Buna-N.
- PAINT:** Air dry enamel, water based.
- SEAL:** Single, mechanical, oil filled chamber. Carbon / ceramic / Buna-N, with stainless steel hardware.
- HARDWARE:** 300 series stainless steel.
- CORD ENTRY:** Neoprene cord SJOW 18/3, sealed against moisture.
- UPPER BEARING:** Ball, single row, oil lubricated, for radial load.
- LOWER BEARING:** ball, single row, oil lubricated, for radial and thrust load.
- MOTOR:** NEMA L, single phase, permanent split capacitor, 120 volts, 60 Hz, 3450 RPM, oil filled, with overload protection in motor.
- PUMP OPERATION:** Automatic float switch or automatic vertical float switch.

MODEL	PART No.	HP	VOLTS	PHASE	RPM (Nominal)	MAX AMPS	LOCKED ROTOR AMPS	WINDING RESISTANCE MAIN-START	CORD SIZE	CORD TYPE	WEIGHT (pounds)
BP33	62180001	0.3	115	1	3500	7.5	23	2.9 - 28.8	18/3	SJTOW	23.1
BP33A	62180002	0.3	115	1	3500	7.5	23	2.9 - 28.8	18/3	SJTOW	23.1
BP33A-X	62180003	0.3	115	1	3500	7.5	23	2.9 - 28.8	18/3	SJTOW	23.1
BP33VF	62180004	0.3	115	1	3500	7.5	23	2.9 - 28.8	18/3	SJTOW	23.1
BP50	62180005	0.5	115	1	3500	8	23	2.9 - 28.8	18/3	SJTOW	23.1
BP50A	62180006	0.5	115	1	3500	8	23	2.9 - 28.8	18/3	SJTOW	23.1
BP50VF	62180007	0.5	115	1	3500	8	23	2.9 - 28.8	18/3	SJTOW	23.1

A = Automatic Float Switch, -X = 20 ft power cord, VF = Automatic Vertical Float Switch.



## ► 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

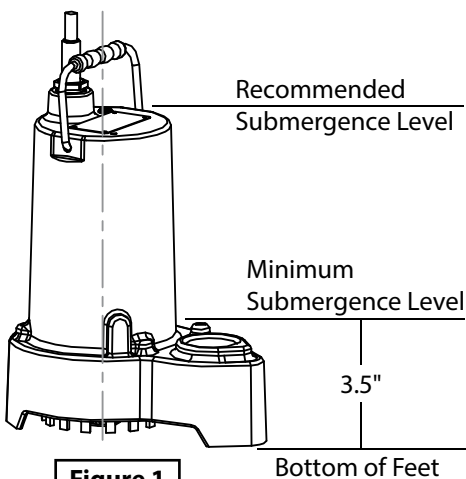
Any product that is stored for a period longer than six (6) months from the date of purchase should be bench tested prior to installation. A bench test consists of, checking the impeller to assure it is free turning and a run test to assure the motor (and switch if provided) operate properly.

## ► Controls

Manual models require a separate approved pump control device or panel for automatic operation. Be sure the electrical specification of the control selected properly match the electrical specifications of the pump.

## ► Submergence

The pump should always be operated in the submerged condition. The minimum sump liquid level should never be less than above the pump's volute (See Figure 1).



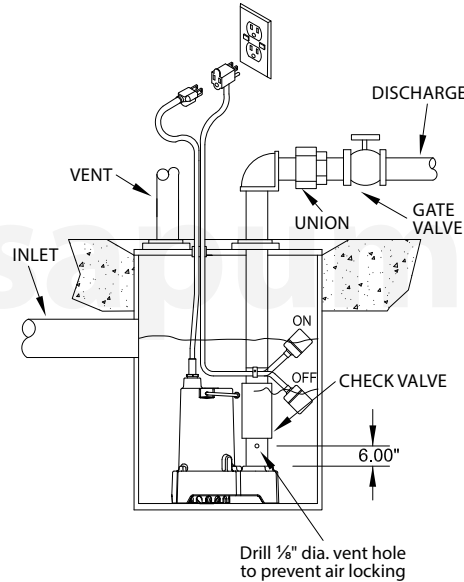
**Figure 1**

## ► Liquid Level Control

### Typical Discharge Pipe Mounted:

Refer to Figure 2 below which shows a typical installation of a 1 phase 115 volt pump using a level control mounted to the discharge piping with a piggyback plug. The level control should have adequate clearance so it cannot hang up in it's swing and that the pump is completely submerged when the level control is in the "Off" mode. By adjusting the cord tether the control level can be changed.

**Typical Discharge Pipe Mounted Level Control**

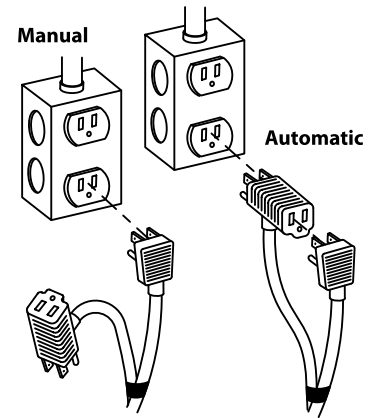


**Figure 2**

### Level Control Basic instructions:

Plug the level control plug into the GFI receptacle, then plug the pump into the piggy-back plug (See Figure 3). One cycle of operation should be observed, so that any potential problems can be corrected.

It is recommended that the level control float should be set to insure that the liquid in the sump never drops below the top of the motor housing or a minimum level of 6 inches above the basin floor.



**Automatic:** Plug float cord into GFI outlet, then plug pump cord into float cord.

**Manual:** Plug pump cord directly into GFI outlet.

**Figure 3**

### ► Installation

These pumps are recommended for use in a sump or basin. The sump, basin or lift station shall be sealed and vented in accordance with local plumbing codes. **This pump is designed to pump sewage, effluent or wastewater, non-explosive and non-corrosive liquids and shall NOT be installed in locations classified as hazardous in accordance with the National Electrical Code (NEC) ANSI/NFPA 70 or Canadian Electric Code (CEC).** The minimum sump depth should be at least 24". Check the dimensions for minimum sump diameter. These are minimum requirements.

The pump should never be installed in a trench, ditch, or hole with a dirt bottom. The legs will sink into the dirt and the suction will become plugged.

**A. Excavation:** Excavate the hole as small as possible, with minimum recommended 8" diametrical clearance around the tank. Never place basin directly in contact with rocks or other sharp objects. Place only fine, 1/8" to 3/4" pea gravel or 1/8" to 1/2" washed, crushed stone as bedding between the basin and the hole walls. Do not use sand or native soil as backfill. Properly compact underneath the basin to provide a solid level base that can support the weight of the filled basin.

**B. Inlet Connection & Initial Backfill:** Only fine, 1/8" to 3/4" pea gravel or 1/8" to 1/2" washed, crushed stone should be used around the bottom of the basin to hold it in place. Do not use sand or native soil as backfill. Make the inlet connection as required for your basin.

**C. Final Backfill:** Only fine 1/4" to 3/4" pea gravel or 1/8" to 1/2" washed crushed stone is recommended. Do not use sand or native soil as backfill.

### ► Discharge Piping

Discharge piping should be as short as possible and sized no smaller than the pump discharge. **Do not reduce the discharge pipe size below that which is provided on the pump.** Both a check valve and a shut-off valve are recommended for each pump. The check valve is used to prevent backflow into the sump. The shut-off valve is used to manually stop system flow during pump servicing.

### ► Electrical Connections

#### Power cable:

The power cable mounted to the pump must not be modified in any way except for shortening to a specific application. This pump is provided with a 3 wire cord and 3 prong grounded plug that must be connected into a 3 wire grounded Ground Fault receptacle. **DO NOT USE THE POWER CABLE TO LIFT PUMP.** Do not use an extension cord.

Always rely upon a Certified Electrician for installation.

### Overload Protection:

**Single Phase** - The stator in-winding overload protector used is referred to as an inherent overheating protector and operates on the combined effect of temperature and current. This means that the overload protector will trip out and shut the pump off if the windings become too hot, or the load current passing through them becomes too high.

**IMPORTANT!** - The overload will then automatically reset and start the pump up after the motor cools to a safe temperature. In the event of an overload, the source of this condition should be determined and corrected immediately.

### ► Pre-Operation

- 1. Check Voltage and Phase** - Compare the voltage and phase information stamped on the pump name plate.
- 2. Check Pump Rotation** - Improper motor rotation can result in poor pump performance and can damage the motor and/or pump. Incorrect rotation for Single-Phase pumps is unlikely. If the rotation is incorrect contact factory.
- 3. Name Plate** - Record the information from the pump name plate to drawing in front of manual for future reference.
- 4. Insulation Test** - An insulation (megger) test should be performed on the motor. Before the pump is put into service. The resistance values (ohms) as well as the voltage (volts) and current (amps) should be recorded.
- 5. Pump-Down Test** - Be sure pump has been properly wired, lowered into the basin, sump or lift station, check the system by filling with liquid and allowing the pump to operate through its pumping cycle. The time needed to empty the system, or pump-down time along with the volume of water, should be recorded.



**Risk of electric shock. Always disconnect the pump from the power source before handling inspections or repairs.**

Symptom	Possible Cause(s)	Corrective Action
Pump will not run	<ol style="list-style-type: none"> <li>1. Poor electrical connection, blown fuse, tripped breaker or other interruption of power; improper power supply</li> <li>2. Motor or switch inoperative (go to manual operation)                             <ol style="list-style-type: none"> <li>2a. Float movement restricted</li> <li>2b. Switch will not activate pump or is defective</li> <li>2c. Defective motor</li> </ol> </li> <li>3. Insufficient liquid level</li> </ol>	<ol style="list-style-type: none"> <li>1. Check all electrical connections for security. Have electrician measure current in motor leads, if current is within <math>\pm 20\%</math> of locked rotor Amps, impeller is probably locked. If current is 0, overload may be tripped. Remove power, allow pump to cool, then re-check current.</li> <li>2a. Reposition pump or clean basin as required to provide adequate clearance for float</li> <li>2b. Disconnect level control. Set ohmmeter for a low range, such as 100 ohms full scale and connect to level control leads. Actuate level control manually and check to see that ohmmeter shows zero ohms for closed switch and full scale for open switch. (Float Switch)</li> <li>2c. Check winding insulation (Megger Test) and winding resistance. If check is outside of range, dry and re-check. If still defective, replace per service instructions.</li> </ol>
Pump will not turn off	<ol style="list-style-type: none"> <li>2a. Float movement restricted</li> <li>2b. Switch will not activate pump or is defective</li> <li>4. Excessive inflow or pump not properly sized for application</li> <li>9. Pump may be air locked causing pump not to flow</li> <li>14. H-O-A switch on panel is in "HAND" position</li> </ol>	<ol style="list-style-type: none"> <li>3. Make sure liquid level is above the pump</li> <li>4. Re-check all sizing calculations to determine proper pump size.</li> <li>5. Check discharge line for restrictions, including ice if line passes through or into cold areas.</li> <li>6. Remove and examine check valve for proper installation and freedom of operation</li> <li>7. Open valve</li> <li>8. Check impeller for freedom of operation, security and condition. Clean impeller cavity and inlet of any obstruction</li> <li>9. Loosen union slightly to allow trapped air to escape. Verify that turn-off level of switch is set so that the suction is always flooded. Clean vent hole</li> </ol>
Pump hums but doesn't run	<ol style="list-style-type: none"> <li>1. Incorrect low voltage</li> <li>8. Impeller jammed or loose on shaft, or inlet plugged</li> </ol>	<ol style="list-style-type: none"> <li>10. Check rotation. If power supply is three phase, reverse any two of three power supply leads to ensure proper impeller rotation</li> <li>11. Repair fixtures as required to eliminate leakage</li> <li>12. Check pump temperature limits and fluid temperature</li> <li>13. Replace portion of discharge pipe with flexible connector or tighten existing piping.</li> </ol>
Pump delivers insufficient capacity	<ol style="list-style-type: none"> <li>1. Incorrect low voltage</li> <li>4. Excessive inflow or pump not properly sized for application</li> <li>5. Discharge restricted</li> <li>6. Check valve partially closed or installed backwards</li> <li>7. Shut-off valve closed</li> <li>8. Impeller jammed or loose on shaft, or inlet plugged</li> <li>9. Pump may be air locked causing pump not to flow</li> <li>10. Piping fixtures leaking or discharge before the nozzle</li> </ol>	<ol style="list-style-type: none"> <li>14. Turn to automatic position</li> <li>15. Check for leaks around basin inlet and outlets</li> </ol>
Pump cycles too frequently or runs periodically when fixtures are not in use	<ol style="list-style-type: none"> <li>6. Check valve partially closed or installed backwards</li> <li>11. Fixtures are leaking</li> <li>15. Ground water entering basin</li> </ol>	
Pump shuts off and turns on independent of switch, (trips thermal overload protector). <b>CAUTION!</b> Pump may start unexpectedly. Disconnect power supply.	<ol style="list-style-type: none"> <li>1. Incorrect low voltage</li> <li>4. Excessive inflow or pump not properly sized for application</li> <li>8. Impeller jammed or loose on shaft, or inlet plugged</li> <li>12. Excessive water temperature (internal protection only)</li> </ol>	
Pump operates noisily or vibrates excessively	<ol style="list-style-type: none"> <li>2c. Worn bearings, motor shaft bent</li> <li>5. Debris in impeller cavity or broken impeller</li> <li>10. Pump running backwards</li> <li>13. Piping attachments to building structure too loose or rigid</li> </ol>	

**NOTE:** Barmesa Pumps assumes no responsibility for damage or injury due to disassembly in the field. Disassembly of the pumps or supplied accessories other than at Barmesa Pumps or its authorized service centers, automatically voids warranty.



# 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  
www.barmesapumps.com



**Barmesa®**  
Pumps