

4ATS SERIES



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 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.



⚠ WARNING Do not use these pumps in water over 104 °F. Do not exceed manufacturers recommended maximum performance, as this could cause overheating.



⚠ 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 Pump speed and operating conditions must be within performance range.



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



⚠ WARNING Use proper lifting equipment with adequate capacity to prevent personnel injuries or equipment damage.



⚠ WARNING Before servicing close the suction and discharge valves, vent pump slowly and drain.



⚠ CAUTION Never operate these pumps unless there is liquid in the pump casing. The pump will not prime when dry. Extended operation of a dry pump will destroy the seal.

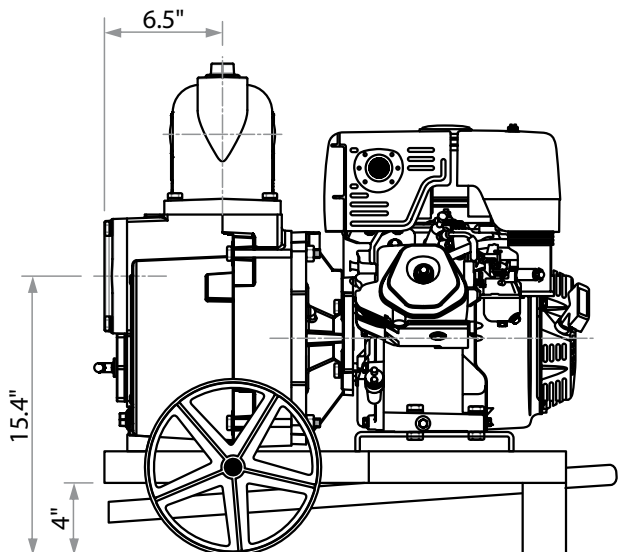
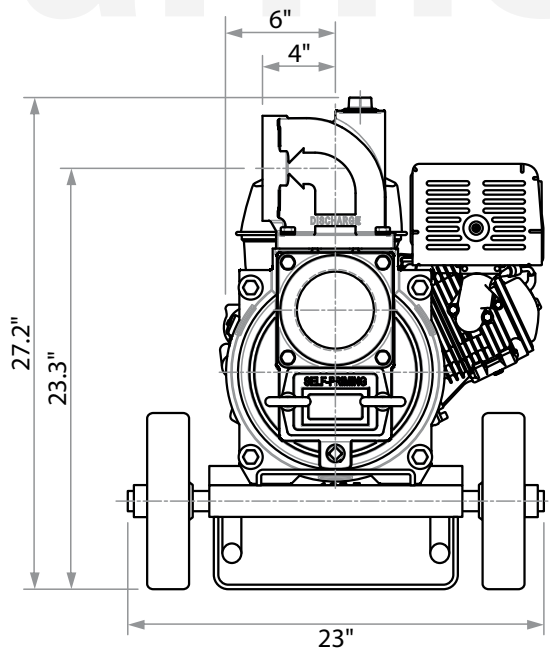
IMPORTANT! - Prior to installation, record Model Number & Serial from pump name plate for the future reference.

Model Number: _____

Serial: _____

SUCTION:	4" NPT, horizontal flange.
DISCHARGE:	4" NPT, horizontal with elbow.
SPHERICAL SLD HNDLG:	2"
VOLUTE:	Cast iron ASTM A-48 class 30, replaceable.
BODY:	Cast iron ASTM A-48 class 30.
BODY CASING:	Cast iron ASTM A-48 class 30, with two thumbs screws.
IMPELLER:	2 vane, semi-open type, statically balanced. Cast iron ASTM A-48 class 30.
O-RINGS:	Buna-N.
SHAFT SLEEVE:	Stainless steel.
CHECKVALVE:	Buna-N.
SEAL:	Mechanical, water lubricated. Ceramic stationary part, carbon ring seal and exclusion in the rotating part. Buna-N elastomer and stainless steel spring.
HARDWARE:	Stainless steel.
PAINT:	Air dry enamel, water based.
MOTOR:	Assembled to a gasoline or diesel engine, single-cylinder, 4-stroke, air cooled, OHV.
MOUNTING:	Base mounted, skid with iron, rubber wheels or pneumatic 5.6" x 15" tires.

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► 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

These instructions cover general installations requirements of the pump. The pump is designed to handle mild industrial corrosives, mud or slurries containing large entrained solids.

► Suction

- All horizontal suction lines should slope up to the pump to avoid trapped air pockets.
- When horizontal suction line exceeds 30 feet, please consult the factory to provide the operating limits.
- Install a suction line attachment support in order to support the suction pipe.
- The suction line must be hermetically sealed.
- A better performance is obtained when suction line and pump size are matched.
- Pumped liquid speed of 8 up to 11 feet per second are obtained when the suction line is sized to the pump suction. This tends to keep solids in suspension and suction line cleaner.

- The use of oversized suction line will increase priming time and could cause clogging at the reducers.
- Do not use a strainer on the end of the suction line. The self-priming pumps are designed to pump solids commonly found in wet sumps. If there is an extreme case (as a paper content undissolved), you might consider installing a strainer in the suction.
- Using a pipe or a reinforced hose robust enough will help to prevent it from collapsing by the differential atmospheric pressure. Check for leaks.
- A successful operation will depend on the calculation of the friction loss in the suction, considering acceptable limits. The minimum size of the pipe to be used can be determined by comparing the NPSH available at the pump suction against the NPSH required by the impeller.
- We recommend using a pipe diameter of 1/2" up to 1" greater than the demands of the suction volute or body.
- A suction bell is required only when there is a need for a minimum submergence of the pump and a speed demand. Allow at least 6" separation between the floor of the sump and the suction bell. To prevent the "vortex" effect leave free about 12" between the bottom of the suction bell and the low level liquid.

► Mounting

All pumps operated through flexible coupling or by pulleys and belts must be anchored on a firm foundation of concrete. In addition, the pumps must be perfectly aligned to ensure trouble-free operation. Under no circumstances presented problems with flexible couplings if the alignment of the pump-engine is correct.

► Lubrication

Engine: Check that engine oil has the appropriate level in the crankcase. Read the manual operation of the motor.

Pump: The rotary pump components coupled directly to the engine are lubricated with the same water pumping, so do not require attention.

► Discharge

- To reduce priming time to a minimum, the vent line must be of 1".
- To eliminate recirculation, a flow controller device can be used.

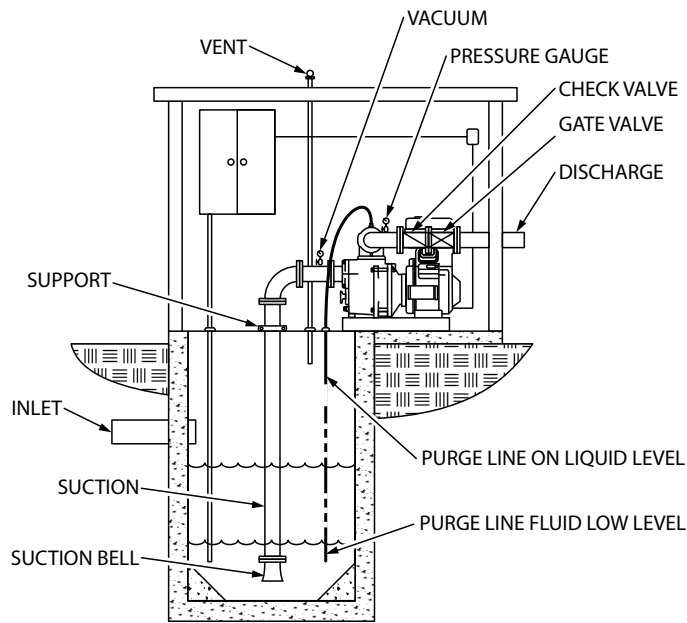
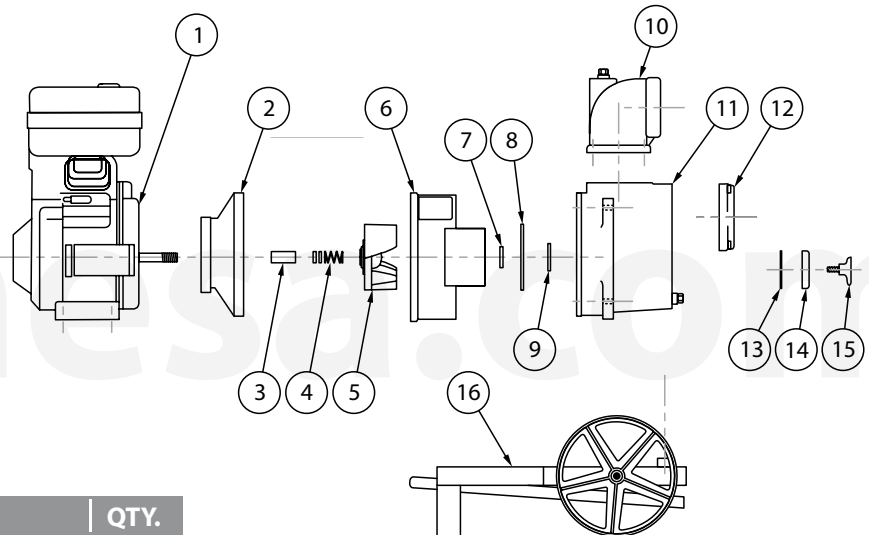


Figure 1 Typical instalation.



ITEM	DESCRIPTION	QTY.
01	MOTOR	1
02	COUPLING	1
03	SHAFT SLEEVE	1
04	MECHANICAL SEAL	1
05	IMPELLER	1
06	DIFFUSER	1
07	WEIGHT	1
08	GASKET	1
09	WEIGHT	1
10	DISCHARGE ELBOW	1
11	BODY	1
12	SUCTION FLANGE	1
13	GASKET	1
14	COVER	1
15	HAND NUT	1
16	BASE MOUNTED	1

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
Pump will not prime	<ol style="list-style-type: none"> 1. Pump body not filled with water 2. Air leak in suction line 3. Suction check valve clogged or damaged 4. Leaking or worn seal or pump gasket 5. Suction check valve or foot valve clogged or binding 6. Suction lift or discharge head too high 7. Clogged strainer or foot-valve 	<ol style="list-style-type: none"> 1. Fill pump body with water. 2. Repair or replace suction line 3. Clean or replace check valve 4. Check pump vacuum. Replace leaking or worn seal or gasket 5. Clean valve 6. Check piping installation and install bypass line if needed. See "Installation" 7. Clean or replace
Pump stops or fails to deliver rated low or pressure	<ol style="list-style-type: none"> 1. Air leak in suction line 2. Leaking or worn seal or pump gasket 3. Suction intake not submerged at proper level or sump too small 4. Impeller or other wearing parts worn or damaged 5. Clogged strainer or pump 6. Impeller clogged 7. Suction lift or discharge head too high 8. Pump speed too slow 9. Wrong direction of rotation 10. Incorrect impeller diameter 	<ol style="list-style-type: none"> 1. Repair or replace suction line 2. Check pump vacuum. Replace leaking or worn seal or gasket 3. Check installation and correct submergence as needed 4. Replace worn or damaged parts. Check that impeller is properly centered and rotates freely 5. Unclog or replace 6. Clean impeller of debris 7. Check piping installation and install bypass line if needed. See "Installation" 8. Check driver output, check belts or couplings for slippage 9. Correct rotation 10. Check system requirements
Pump requires too much power	<ol style="list-style-type: none"> 1. Pump speed too high 2. Discharge head too low 3. Liquid specific gravity or viscosity greater than expected 4. Impeller oversized for system requirements 5. Electrical defects 6. Wrong direction of rotation 	<ol style="list-style-type: none"> 1. Check driver output, check that sheaves or couplings are sized correctly 2. Adjust discharge valve 3. Change to higher horse power motor 4. Replace with smaller impeller 5. Check power supply and motor 6. Correct rotation
Pump Clogs Frequently	<ol style="list-style-type: none"> 1. Discharge flow too slow 2. Suction check valve or foot valve clogged or binding 	<ol style="list-style-type: none"> 1. Open discharge valve fully to increase flow rate and run engine at maximum governed speed 2. Clean valve
Excessive noise	<ol style="list-style-type: none"> 1. Cavitation in pump 2. Pumping entrained air 3. Pump, drive or base not securely mounted 4. Impeller clogged or damaged 5. Suction and discharge lines not properly supported 6. Pump and motor misaligned 7. Pump bearings worn 8. Motor bearings worn or fan rubs housing 	<ol style="list-style-type: none"> 1. Reduce suction lift and/or friction losses in suction line. Record vacuum and pressure gauge readings and consult local representative or factory 2. Locate and eliminate source of air bubble 3. Secure mounting hardware 4. Clean out debris, replace damaged parts 5. Check piping installation for proper support 6. Align 7. Replace bearings 8. Repair or replace

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.

Symptom	Possible Cause (s)	Corrective Action
Bearings run too hot	<ol style="list-style-type: none"> 1. Bearing temperature is high, but within limits 2. Low or incorrect lubricant 3. Drive misaligned 4. Pump speed too high 5. Bearing (s) frozen 	<ol style="list-style-type: none"> 1. Check bearing temperature regularly to monitor any increase 2. Check for proper type and level of lubricant 3. Align drive properly 4. Reduce speed of power source 5. Disassemble pump and check bearing (s)
Excessive pump vibration	<ol style="list-style-type: none"> 1. Cavitation at pump suction due to insufficient NPSHA 2. Impeller imbalance due to wear or corrosion 3. Pump shaft bent 4. Base plate loose on foundation or insufficient strength to support the load 	<ol style="list-style-type: none"> 1. Alter installation to reduce NPSHR 2. Check for Impeller balance or replace 3. Replace 4. Secure mounting hardware or reinforce
Pump works for a while then quits	<ol style="list-style-type: none"> 1. Obstruction in pump or piping 2. Air or gas in liquid 3. Incomplete priming 	<ol style="list-style-type: none"> 1. Clean out pump or piping 2. Locate and eliminate source of air bubble 3. Fill pump body with water, See "Priming"

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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

