

## **BCS series**

0.5 HP @ 1750 RPM

0.75-3 HP @ 3500 RPM

## **BCSF series**

0.5-5 HP @ 1750 RPM

3-20 HP @ 3500 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** Indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.

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


**⚠ 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 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. Do not block or restrict the discharge pipe/hose.

**⚠ WARNING** Do not pump hazardous materials (flammable, caustic, etc.) or 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.

**⚠ 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.**

**⚠ 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.

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

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

**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:**

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

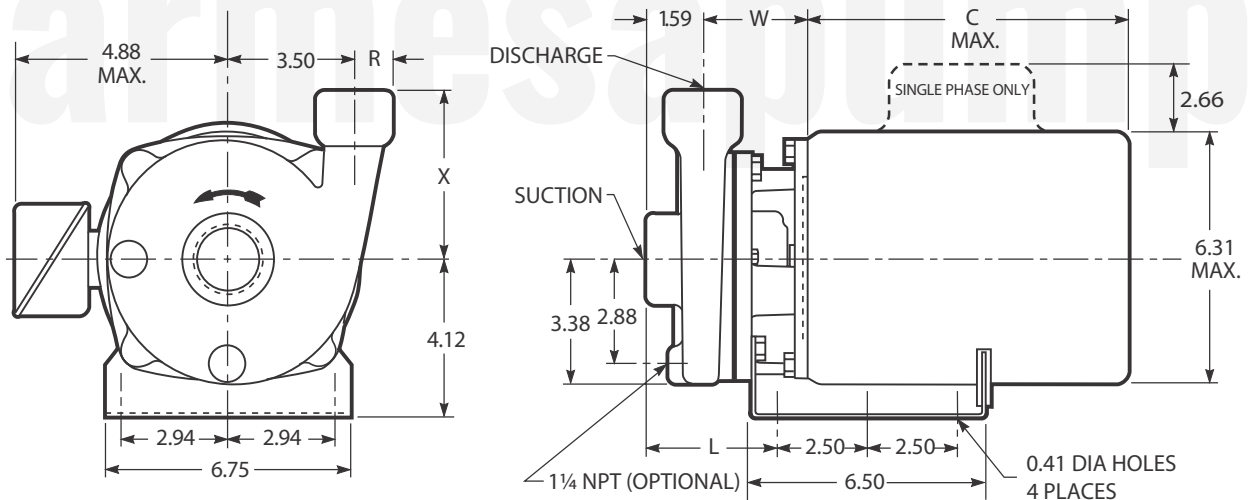
Model Number: \_\_\_\_\_

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

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

## ► BCS SERIES

|                               |  |
|-------------------------------|--|
| <b>SUCTION:</b>               | 1¼" or 1½" NPT horizontal.   |
| <b>DISCHARGE:</b>             | 1" or 1¼" NPT vertical.  |
| <b>SPHL SLD HNDLG:</b>        | Up to 3/8" diameter.   |
| <b>MAX. WORKING PRESSURE:</b> | 175 PSIG.  |
| <b>MAX TEMPERATURES:</b>      | 250 °F (121 °C).   |
| <b>BODY:</b>                  | AISI 316 stainless steel.  |
| <b>INTERMEDIATE COUPLING:</b> | Cast iron.   |
| <b>IMPELLER:</b>              | Open, AISI 316 stainless steel.  |
| <b>MECHANICAL SEAL:</b>       | Type 01. Carbon/silicon-carbide faces, Viton® elastomers and 316 stainless steel metal parts.  |
| <b>SEAL PLATE:</b>            | AISI 316 stainless steel.  |
| <b>SHAFT SLEEVE:</b>          | AISI 316 stainless steel.  |
| <b>O-RINGS:</b>               | Viton®.  |
| <b>MOTOR:</b>                 | NEMA standard 56J frame motors from 0.75 to 3 HP at 3500 RPM and 0.5 HP at 1750 RPM. Open drip-proof and totally enclosed fan-cooled. Single phase 115/230 V (3 HP model is 230 V only). Built in overload with auto reset provided. Three phase 208–230/460V. Overload protection must be provided. |
| <b>HARDWARE:</b>              | AISI 304 stainless steel.  |
| <b>PAINT:</b>                 | Solvent based enamel (only intermediate coupling).   |



### Dimensions and Weights – Determined by Pump

| MODEL         | SIZE    | DIMENSIONS |      |      |      | WEIGHT MAX. OF PUMP |
|---------------|---------|------------|------|------|------|---------------------|
|               |         | L          | R    | W    | X    |                     |
| BCS 1 x 1¼-5  | 1 x 1¼  | 3.75       | 0.94 | 3.01 | 4.62 | 17                  |
| BCS 1¼ x 1½-5 | 1¼ x 1½ | 3.62       | 1.06 | 2.88 | 4.56 | 17                  |

#### NOTES:

- Pumps will be shipped with top vertical discharge as standard, for other orientations, remove casing bolts, rotate to desired position, and tighten 3/8" bolts to 24 lbf-ft.
- Dimensions in inches, weight in pounds.
- Not to be used for construction purposes unless certified.
- Motor dimensions may vary with motor manufacturers.

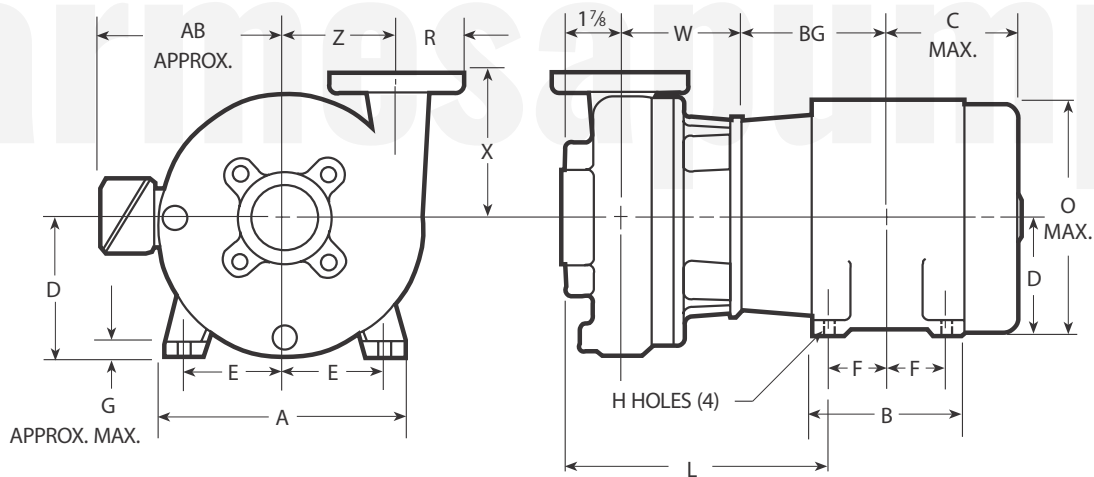
\* Weight is liquid end only. For complete pump, add weight of applicable motor.

### Available Motor Weights and Dimensions

| HP   | SINGLE PHASE |      | THREE PHASE |      | C MAX. LENGTH |
|------|--------------|------|-------------|------|---------------|
|      | ODP          | TEFC | ODP         | TEFC |               |
| 0.5  | 16           | 21   | 19          | 18   | 10.5          |
| 0.75 | 19           | 24   | 21          | 21   | 11            |
| 1    | 22           | 26   | 23          | 21   | 11.38         |
| 1.5  | 28           | 35   | 27          | 27   | 12.06         |
| 2    | 33           | 39   | 32          | 33   | 13            |
| 3    | 38           | 47   | 36          | 42   | 14            |

► BCSF SERIES

- SUCTION:** 2" or 3" NPT horizontal.
- DISCHARGE:** 1½" or 2" NPT vertical.
- MAX. WORKING PRESSURE:** 130 PSIG.
- MAX TEMPERATURES:** 250 °F (121 °C).
- BODY:** AISI 316 stainless steel.
- INTERMEDIATE COUPLING:** Cast iron.
- IMPELLER:** Closed, AISI 316 stainless steel.
- MECHANICAL SEAL:** Type 12. Carbon/silicon-carbide faces, Viton® elastomers and 316 stainless steel metal parts.
- SEAL PLATE:** AISI 316 stainless steel.
- SHAFT SLEEVE:** AISI 316 stainless steel.
- O-RINGS:** Viton®.
- MOTOR:** NEMA standard JM shaft extension from 3 to 20 HP at 3500 RPM and 0.5 to 5 HP at 1750 RPM. Single phase motors are 115/208–230 V. Three phase motors are 208–230/460V. Overload protection must be provided.
- HARDWARE:** AISI 304 stainless steel.
- PAINT:** Solvent based enamel (only intermediate coupling).



**Liquid End Dimensions and Weights**

| MODEL         | SIZE   | DIMENSIONS                     |    |    |    |    | WEIGHT PUMP |
|---------------|--------|--------------------------------|----|----|----|----|-------------|
|               |        | D                              | W  | X  | R  | Z  |             |
| BCSF 1½ x 2-6 | 1½ x 2 | 4 <sup>7</sup> / <sub>32</sub> | 4¼ | 5  | 2½ | 3½ | 35          |
| BCSF 1½ x 2-8 | 1½ x 2 | 5¼                             | 4¼ | 5½ | 2½ | 4¼ | 50          |
| BCSF 2 x 3-7  | 2 x 3  | 5¼                             | 4¼ | 6  | 3  | 4¼ | 50          |

(All dimensions are in inches and weight in pounds. Do not use for construction purposes.)

NOTE: Calculate total approximate weight by adding pump and motor weights.

**Motor Frames**

| FRAME   | MOTOR HORSEPOWER |      |             |       |
|---------|------------------|------|-------------|-------|
|         | SINGLE PHASE     |      | THREE PHASE |       |
|         | ODP              | TEFC | ODP         | TEFC  |
| 145 JM  | --               | --   | 3           | --    |
| 182 JM  | 3                | --   | 5           | 3     |
| 184 JM  | 5                | 3    | 7½          | 5     |
| 213 JM  | --               | 5    | 10          | 7½    |
| 215 JM  | --               | --   | 15          | 10/15 |
| 254 JM* | --               | --   | 20          | 20    |
| 256 JM* | --               | --   | 25          | 20    |

\* With 215 JM shaft extension.

(ODP = Open Drip Proof)

(TEFC = Totally Enclosed Fan Cooled)

► BCSF SERIES

Motor Dimensions and Weights

| FRAME JM | A                              | AB                               | B                              | BG                            | C<br>MAX.                      | D                             | E                             | F                             | G    | H     | L                              | O<br>MAX.                       | SINGLE PHASE |      | THREE PHASE |      |
|----------|--------------------------------|----------------------------------|--------------------------------|-------------------------------|--------------------------------|-------------------------------|-------------------------------|-------------------------------|------|-------|--------------------------------|---------------------------------|--------------|------|-------------|------|
|          |                                |                                  |                                |                               |                                |                               |                               |                               |      |       |                                |                                 | ODP          | TEFC | ODP         | TEFC |
| 145      | 7                              | 5 <sup>7</sup> / <sub>8</sub>    | 6                              | 5 <sup>3</sup> / <sub>8</sub> | 6 <sup>1</sup> / <sub>8</sub>  | 3 <sup>1</sup> / <sub>2</sub> | 2 <sup>3</sup> / <sub>4</sub> | 2 <sup>1</sup> / <sub>2</sub> | 7/16 | 11/32 | 9                              | 7 <sup>1</sup> / <sub>4</sub>   | --           | --   | 39          | --   |
| 182      | 9                              | 8 <sup>1</sup> / <sub>8</sub>    | 5 <sup>3</sup> / <sub>4</sub>  | 5 <sup>7</sup> / <sub>8</sub> | 6 <sup>3</sup> / <sub>4</sub>  | 4 <sup>1</sup> / <sub>2</sub> | 3 <sup>3</sup> / <sub>4</sub> | 2 <sup>1</sup> / <sub>4</sub> | 9/16 | 13/32 | 9 <sup>5</sup> / <sub>8</sub>  | 9 <sup>1</sup> / <sub>4</sub>   | 75           | --   | 69          | 62   |
| 184      |                                |                                  | 6 <sup>3</sup> / <sub>4</sub>  | 6 <sup>3</sup> / <sub>8</sub> | 7 <sup>1</sup> / <sub>4</sub>  |                               |                               | 2 <sup>3</sup> / <sub>4</sub> |      |       |                                |                                 | 90           | 82   | 78          | 74   |
| 213      | 10 <sup>1</sup> / <sub>2</sub> | 9 <sup>1</sup> / <sub>16</sub>   | 7                              | 7 <sup>1</sup> / <sub>4</sub> | 8                              | 5 <sup>1</sup> / <sub>4</sub> | 4 <sup>1</sup> / <sub>4</sub> | 2 <sup>3</sup> / <sub>4</sub> | 5/8  | 13/32 | 10 <sup>5</sup> / <sub>8</sub> | 11 <sup>1</sup> / <sub>4</sub>  | --           | 124  | 114         | 117  |
| 215      |                                |                                  | 8 <sup>1</sup> / <sub>2</sub>  | 8                             | 8 <sup>3</sup> / <sub>4</sub>  |                               |                               | 3 <sup>1</sup> / <sub>2</sub> |      |       |                                |                                 | --           | --   | 136         | 147  |
| 254      | 12 <sup>3</sup> / <sub>8</sub> | 10 <sup>11</sup> / <sub>16</sub> | 10 <sup>1</sup> / <sub>2</sub> | 9 <sup>1</sup> / <sub>8</sub> | 10                             | 6 <sup>1</sup> / <sub>4</sub> | 5                             | 4 <sup>1</sup> / <sub>8</sub> | 5/8  | 17/32 | 10 <sup>7</sup> / <sub>8</sub> | 13 <sup>5</sup> / <sub>32</sub> | --           | --   | 205         | 256  |
| 256      |                                |                                  | 12                             | 10                            | 10 <sup>3</sup> / <sub>4</sub> |                               |                               | 5                             |      |       |                                |                                 | --           | --   | 221         | --   |

(All dimensions are in inches and weight in pounds. Do not use for construction purposes.)

Pumps will be shipped with top vertical discharge position as standard. For other orientations remove casing bolts, rotate discharge to desired position, replace and tighten bolts to 35 lbf-ft. Discharge may extend below motor mounting surface when using bottom horizontal position; adequate clearance must be provided. Standard casing will not be drilled and tapped for drain plugs; if tappings for 1/4" NPT drain plugs are required, order as options.

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.

At any time exceeding six (6) months, but no more than twenty four (24), the equipment must be stored in a controlled area, keeping it away from contact with rain, dust, etc., and the temperature is maintained between 43-104 °F. If there is a possibility of high humidity (coastlines, etc.), the entire unit must be sprayed with antioxidant liquid.

## ► Service Stations

To find the nearest Barmesa Pumps authorized service shop, please directly contact your distributor or the factory.

## ► Installation

(See Figure 1 for better reference). The pump should be as close as possible to the liquid to be pumped, with a minimum number of couplings, adapters, etc., in order to reduce friction on the suction side.

The suction and discharge piping must be perfectly aligned in the pump volute and supported independently using support or anchors, this to prevent excessive load on the volute.

The anchors of the motor are to be anchor, on a raised base, approximately 4", this to prevent accumulated water from entering the motor.

*\*\*See friction table in pipes and fittings to determine the dimensions of the suction and discharge. (Page 7)*

## ► Suction

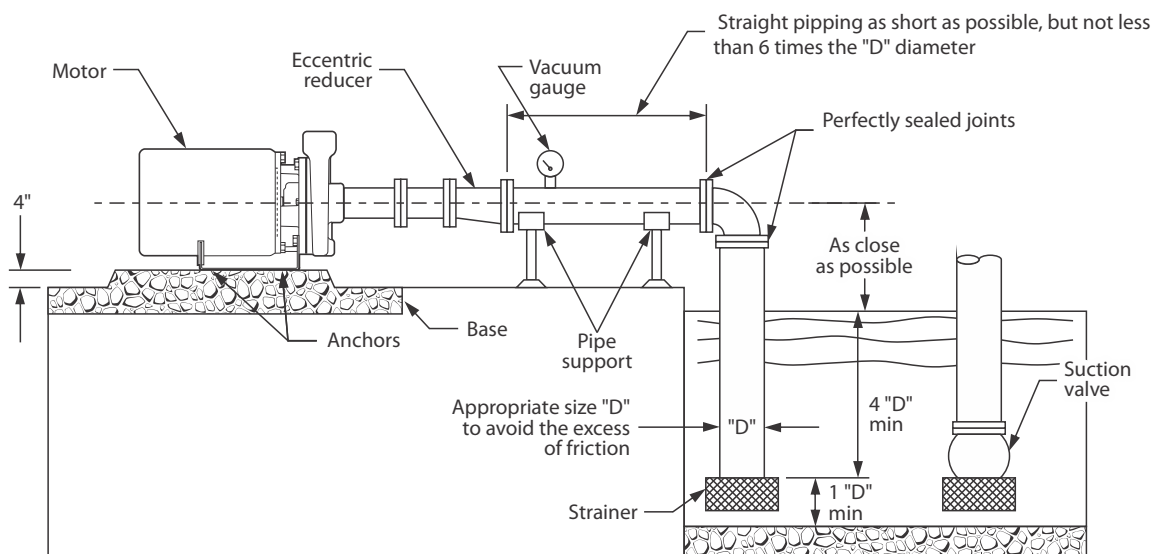
Use pipe or hose reinforced sufficiently robust to prevent collapsing by the difference in atmospheric pressure. Check for leaks at all joints.

A successful operation depends on the calculation of the friction loss in the suction, considering acceptable limits. The minimum suction pipe size to use can be determined by comparing the NPSH available at the pump suction against the NPSH required by the impeller, as shown in the performance curves.

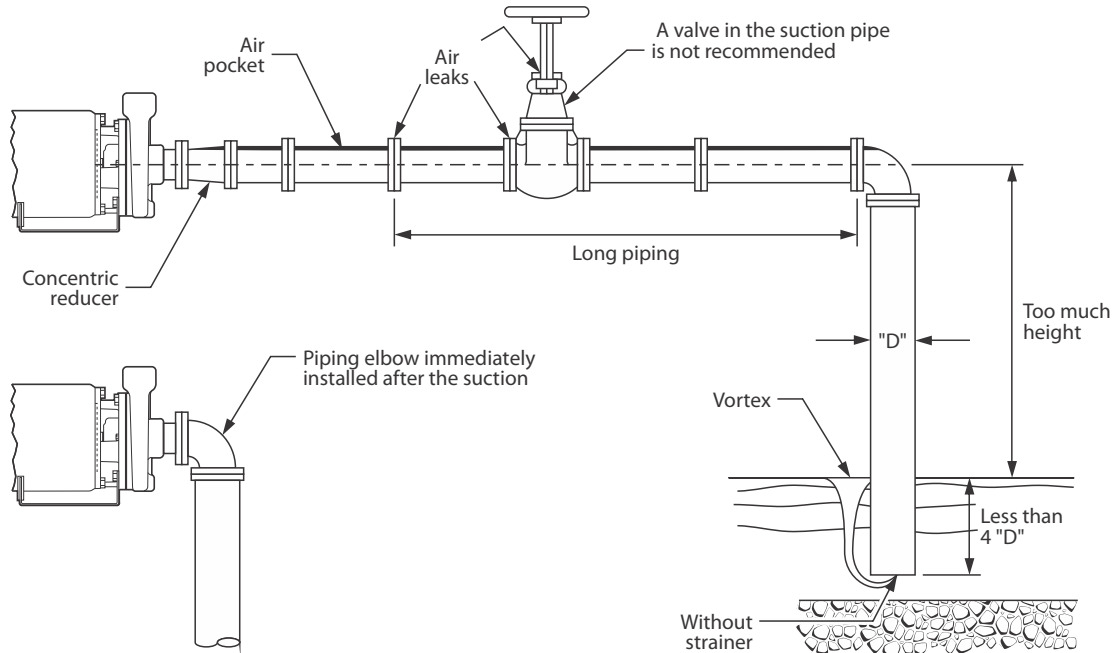
Usually, we recommend using a pipe diameter of 1/2" to 1" greater as that of the suction volute or body.

A strainer or sieve should be installed in the suction to prevent the entry of objects. The strainer must have a free entry area at least three times the pipe diameter. Usually a suction valve is combined with a strainer Figure 1.

**Figure 1** Proper installation.

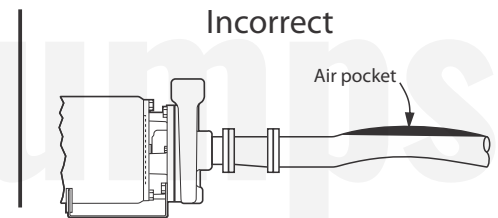
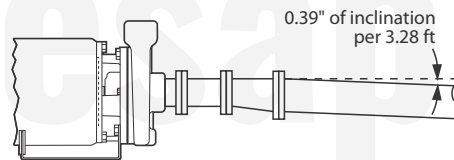


**Figure 2** Wrong installation.



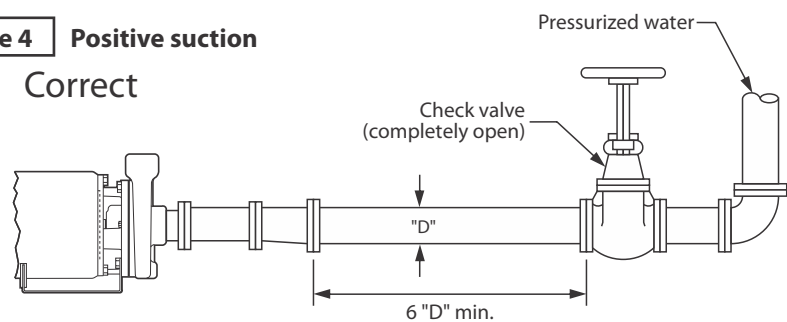
**Figure 3** Inclination Correct

**Suction height** - Suction pipe should have a slope of 0.39" per 3.3 ft of suction. Never exceed 16.4 ft suction, considering friction. (Figure 3)



**Figure 4** Positive suction Correct

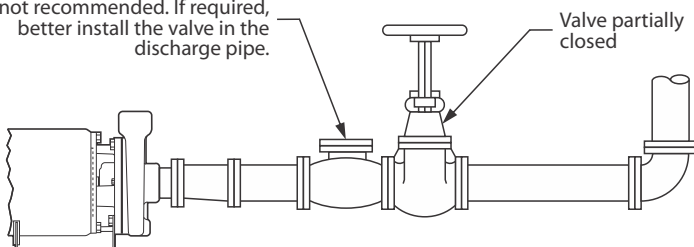
**Positive/Drowned Suction** - A gate valve is installed in the suction pipe to service the pump (Figure 4). Volute or body have plugs, and these must be removed to allow trapped air to escape.



**Figure 5** Positive suction

Incorrect

A retention valve in the suction pipe is not recommended. If required, better install the valve in the discharge pipe.

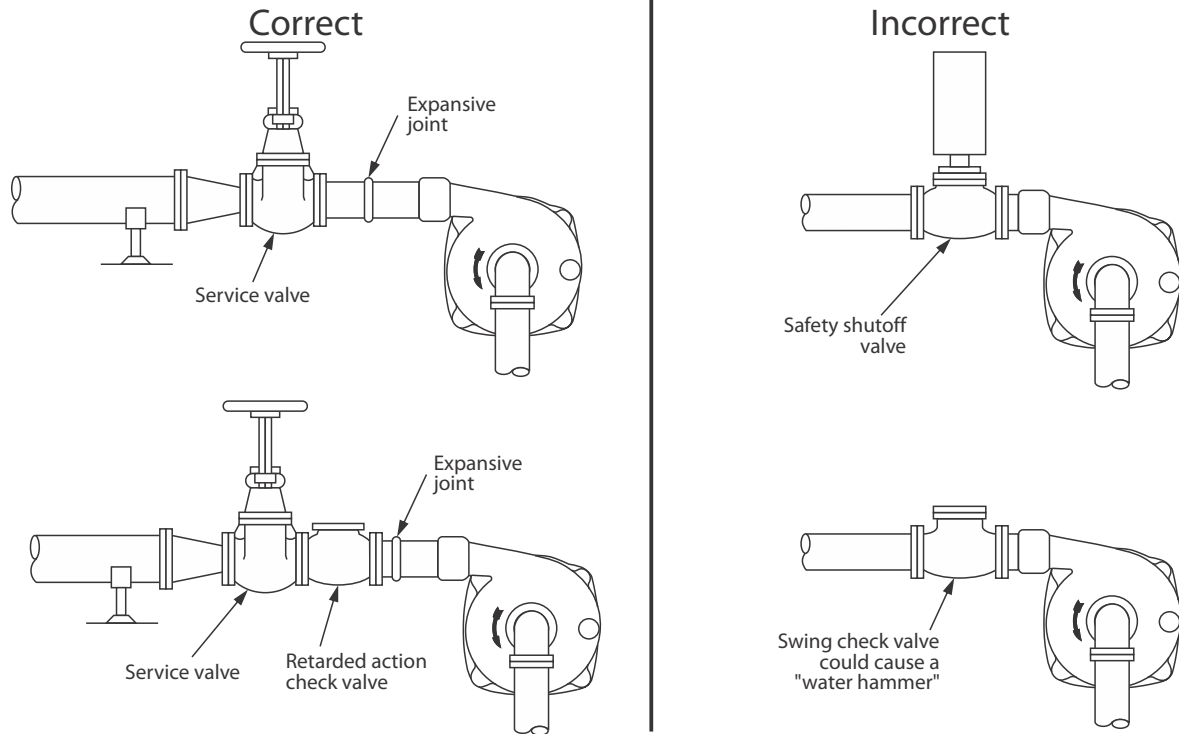


► **Discharge pipe**

Use pipe or hose reinforced sufficiently robust to prevent destruction due to high pressure.

Due to the cost of energy or BHP necessary to overcome the friction generated by using a smaller diameter pipe, a larger diameter discharge pipe is commonly used than the required by the volute or body.

**Figure 6** Discharge piping



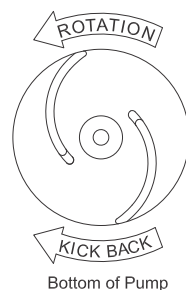
In order to determine the optimal size of the piping, compare the total cost of the equipment's operation (cost of the pump, control equipment, piping and energy consumption). By increasing the discharge diameter reasonably, it reduces the required BHP due to the low friction. Perform different tests using several piping diameters until you find the more convenient.

The pipe, valves, etc. should be perfectly align with the volutes suction and discharge centerlines, this to avoid any excessive loads on the pumps volute. If needed, install new expansive joints to protect the pump from excessive thermal or pressure forces.

► **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. Check rotation on three phase units by momentarily applying power and observe the "kickback".




Kickback should always be in a counter-clockwise direction as viewed from motor end or opposite to impeller rotation. Impeller rotation is counter-clockwise as viewed from bottom of pump.

- 3. Name Plate** - Record the information from the pump name plate to drawing in front of manual for future reference.

- 4. Priming** - Every centrifugal pump must be primed (suction pipe and pump's body should have liquid), before operating.

Install the foot valve at the suction pipe and fill with liquid the superior part of the pump's body. Sometimes air is trapped inside the body, to remove it you should uncap the male plug until the liquids spills out. Re-install the male plug using a sealant.

 **IMPORTANT! - SEVERE DAMAGE MAY RESULT IF THE PUMP WORKS IN WRONG SENSE.**

 **IMPORTANT! - Do not operate pump without priming first. Operating dry will damage seal.**

When you start your equipment for the first time, check that the valve in the discharge is 90% closed. Open the valve gradually until the engine works at full load (plate amperage). Never allow the amperage consumed by the pump to exceed the maximum allowed by the motor.



**IMPORTANT!** - *When the pump starts and once the rotation has been verified, if it detects under water flow or pressure it will be necessary to calibrate the space between the impeller and its pump housing.*

Perform this step by removing spacer shims that are installed between the housing and the coupling. The shims work to maintain the required nominal spacing of 0.015" to 0.020" between the impeller and the inner wall of the housing due to the natural wear and tear that occurs. The pump has 4 factory installed spacer shims and four more parts. The 0.005" shim is transparent and without a perforation mark, the 0.010" shims has a perforation mark, the 0.015" shims has two perforation marks and the 0.020" shims has three perforation marks. If necessary, start by removing the 20 and 15 thousandth shims and check if the flow and pressure of your pump is as desired.

### ► Mechanical seal

The mechanical seals installed in the pumps are lubricated by water, therefore the pump should not be operated dry. You will find the appropriate seal for each use and liquid to be pumped, consult your BARMESA distributor for more information.



**IMPORTANT!** - *Always disconnect the pump before applying maintenance, service or repair to avoid electric shock.*

### ► Maintenance

If the mechanical seal does not leak and there is a need to open the pump for inspection or cleaning, DO NOT remove the seal, only remove the spring if the impeller had to be removed. Once a seal has been in operation it is very difficult that when removing and reassembling it does not show leaks.

### ► Disassembly

Drain and rinse the system. Remove the 4 screws from the case and remove the case. Check the conditions of the shims and replace them if necessary. Remove the impeller; the impeller compresses the spring of the mechanical seal and is prepared for the impeller to jump off the shaft when unscrewed; to remove it, you must turn it counterclockwise while holding the shaft with a screwdriver at the rear of the engine. Remove the rotating part of the mechanical seal by sliding it through the sleeve, be careful with the faces of the mechanical seal as it is fragile when handling. Remove the screws that secure the seal plate to the adapter and the screws that hold the coupling to the motor.



**IMPORTANT!** - *Handle seal parts with extreme care. DO NOT DAMAGE polished surfaces.*

### ► Reassembly

Assemble the adapter assembly, seal plate, sleeve, mechanical seal and housing in reverse order of disassembly. Always check that O-ring gaskets are in good condition, or if necessary, replace them.

The adapter must be screwed to the motor with the identification plate facing up, then screw the seal plate to the adapter, replace the sleeve, applying liquid screw fastener on the end that goes to the motor and sliding it along the arrow. Verify that the faces of the mechanical seal do not show cracks or bumps, that if so, you will need to replace it. Position it carefully by sliding it through the sleeve, place the spring on the mechanical seal and screw the impeller clockwise. Screw the casing and pump base.














**IMPORTANT!** - *All parts must be clean before reassembly.*

**Table 1** Friction in meters x 100 m of piping.

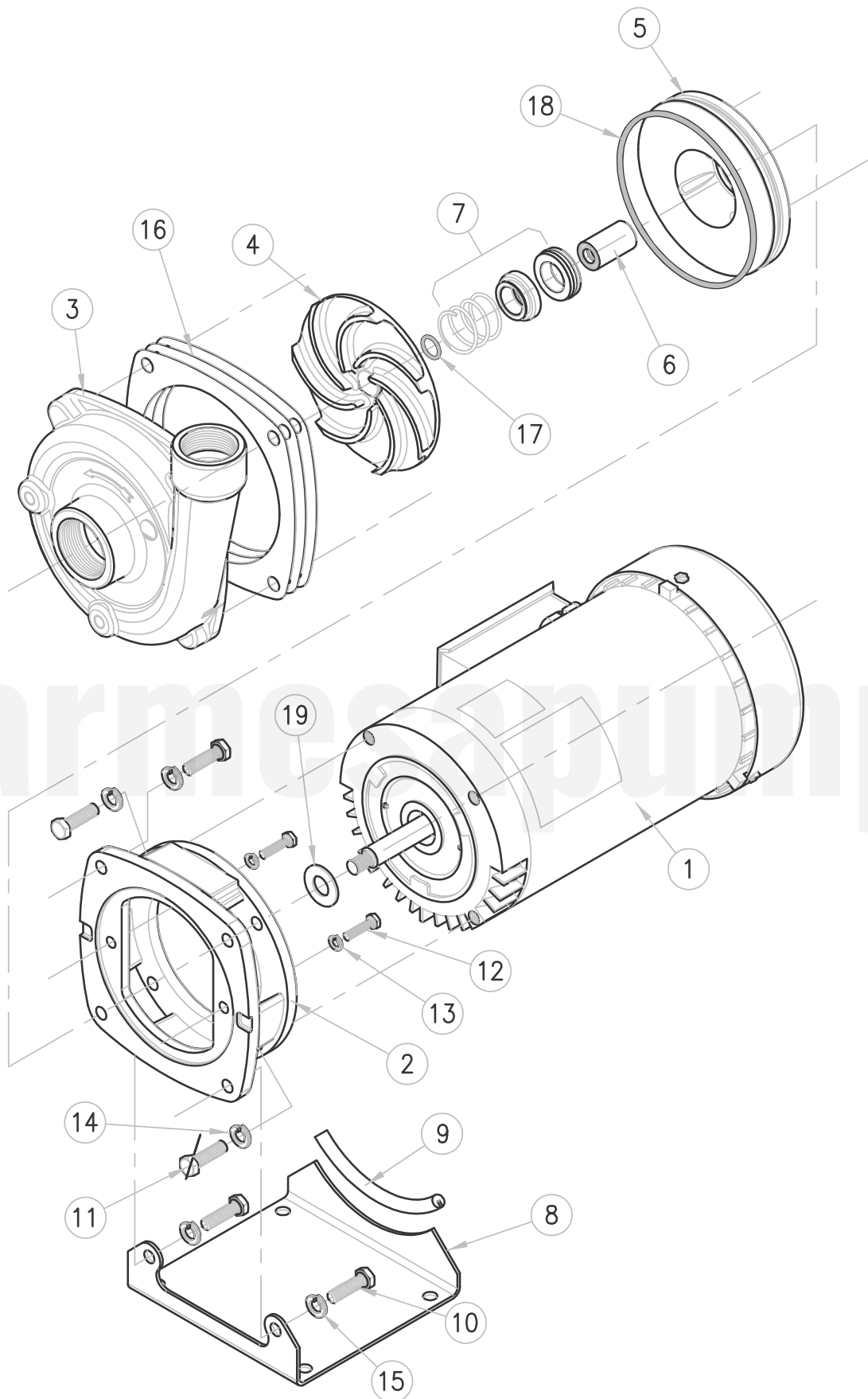
| LITERS<br>PER<br>MINUTE | PIPING DIAMETER |        |        |       |        |       |      |       |      |      |      | GALLONS<br>PER<br>MINUTE |
|-------------------------|-----------------|--------|--------|-------|--------|-------|------|-------|------|------|------|--------------------------|
|                         | 1"              | 1 1/4" | 1 1/2" | 2"    | 2 1/2" | 3"    | 4"   | 5"    | 6"   | 8"   | 10"  |                          |
| 30                      | 4.54            |        |        |       |        |       |      |       |      |      |      | 8                        |
| 37                      | 6.86            | 1.77   |        |       |        |       |      |       |      |      |      | 10                       |
| 45                      | 9.62            | 2.48   |        |       |        |       |      |       |      |      |      | 12                       |
| 57                      | 16.2            | 4      | 1.53   |       |        |       |      |       |      |      |      | 15                       |
| 68                      | 20.6            | 5.22   | 2.42   |       |        |       |      |       |      |      |      | 18                       |
| 76                      | 25.1            | 6.34   | 2.94   |       |        |       |      |       |      |      |      | 20                       |
| 95                      | 38.7            | 9.6    | 4.48   | 1.2   | 0.54   |       |      |       |      |      |      | 25                       |
| 113                     | 54.6            | 13.6   | 6.26   | 1.82  | 0.75   |       |      |       |      |      |      | 30                       |
| 151                     | 95              | 23.5   | 10.79  | 3.1   | 1.28   |       |      |       |      |      |      | 40                       |
| 170                     | 119             | 29.4   | 13.45  | 3.85  | 1.6    |       |      |       |      |      |      | 45                       |
| 189                     | 146             | 36     | 16.4   | 4.67  | 1.94   | 0.66  |      |       |      |      |      | 50                       |
| 208                     |                 | 43.2   | 19.7   | 5.51  | 2.33   | 0.79  |      |       |      |      |      | 55                       |
| 227                     |                 | 51     | 23.2   | 6.59  | 2.72   | 0.92  |      |       |      |      |      | 60                       |
| 246                     |                 | 59.6   | 27.1   | 7.7   | 3.17   | 1.07  |      |       |      |      |      | 65                       |
| 265                     |                 | 68.8   | 31.3   | 8.86  | 3.63   | 1.22  |      |       |      |      |      | 70                       |
| 284                     |                 | 78.7   | 35.8   | 10.15 | 4.14   | 1.39  |      |       |      |      |      | 75                       |
| 303                     |                 | 89.2   | 40.5   | 11.4  | 4.66   | 1.57  |      |       |      |      |      | 80                       |
| 322                     |                 | 100    | 45.6   | 12.6  | 5.27   | 1.77  |      |       |      |      |      | 85                       |
| 360                     |                 | 125    | 56.5   | 15.8  | 6.49   | 2.18  | 0.57 |       |      |      |      | 95                       |
| 378                     |                 | 138    | 62.2   | 17.4  | 7.11   | 2.39  | 0.62 |       |      |      |      | 100                      |
| 416                     |                 |        | 75.25  | 21.05 | 8.55   | 2.88  | 0.75 |       |      |      |      | 110                      |
| 454                     |                 |        | 88.3   | 24.7  | 10     | 3.37  | 0.88 |       |      |      |      | 120                      |
| 530                     |                 |        | 119    | 33.2  | 13.5   | 4.51  | 1.17 | 0.38  |      |      |      | 140                      |
| 568                     |                 |        | 137.5  | 38.1  | 15.45  | 5.16  | 1.33 | 0.43  |      |      |      | 150                      |
| 605                     |                 |        | 156    | 43    | 17.4   | 5.81  | 1.49 | 0.48  |      |      |      | 160                      |
| 643                     |                 |        |        | 48.55 | 19.65  | 6.54  | 1.67 | 0.54  |      |      |      | 170                      |
| 681                     |                 |        |        | 54.1  | 21.9   | 7.28  | 1.86 | 0.6   |      |      |      | 180                      |
| 757                     |                 |        |        | 66.3  | 26.7   | 8.9   | 2.27 | 0.73  | 0.3  |      |      | 200                      |
| 833                     |                 |        |        | 80    | 32.2   | 10.07 | 2.72 | 0.87  | 0.35 |      |      | 220                      |
| 908                     |                 |        |        | 95    | 38.1   | 12.6  | 3.21 | 1.03  | 0.41 |      |      | 240                      |
| 984                     |                 |        |        | 111   | 44.5   | 14.7  | 3.74 | 1.2   | 0.48 |      |      | 260                      |
| 1060                    |                 |        |        | 128   | 51.3   | 16.9  | 4.3  | 1.38  | 0.56 |      |      | 280                      |
| 1135                    |                 |        |        | 146   | 58.5   | 19.2  | 4.89 | 1.58  | 0.63 |      |      | 300                      |
| 1324                    |                 |        |        |       | 79.2   | 26.1  | 6.55 | 2.11  | 0.85 |      |      | 350                      |
| 1514                    |                 |        |        |       | 103    | 33.9  | 8.47 | 2.72  | 1.09 | 0.27 |      | 400                      |
| 1892                    |                 |        |        |       |        | 52.5  | 13   | 4.16  | 1.66 | 0.42 |      | 500                      |
| 2082                    |                 |        |        |       |        | 63.2  | 15.7 | 4.94  | 2    | 0.5  |      | 550                      |
| 2271                    |                 |        |        |       |        | 74.8  | 18.6 | 5.88  | 2.34 | 0.59 | 0.19 | 600                      |
| 2649                    |                 |        |        |       |        | 101   | 25   | 7.93  | 3.13 | 0.79 | 0.25 | 700                      |
| 2838                    |                 |        |        |       |        |       | 28.7 | 9.07  | 3.59 | 0.91 | 0.29 | 750                      |
| 3028                    |                 |        |        |       |        |       | 32.4 | 10.22 | 4.04 | 1.02 | 0.32 | 800                      |
| 3217                    |                 |        |        |       |        |       | 36.6 | 11.56 | 4.5  | 1.13 | 0.36 | 850                      |
| 3406                    |                 |        |        |       |        |       | 40.8 | 12.9  | 5.05 | 1.27 | 0.41 | 900                      |
| 3595                    |                 |        |        |       |        |       | 45.5 | 14.35 | 5.61 | 1.42 | 0.45 | 950                      |
| 3785                    |                 |        |        |       |        |       | 50.2 | 15.8  | 6.17 | 1.56 | 0.5  | 1000                     |
| 4163                    |                 |        |        |       |        |       |      | 19.15 | 7.41 | 1.87 | 0.6  | 1100                     |
| 4542                    |                 |        |        |       |        |       |      | 22.5  | 8.76 | 2.2  | 0.7  | 1200                     |
| 4920                    |                 |        |        |       |        |       |      | 26.45 | 10.2 | 2.56 | 0.81 | 1300                     |

NOTE: The values in this table refer to frictions and clean water pipes and hoses smooth walls. As used pipe and / or hose rough walls increase the values about 50% to 100%.

**Table 2** Equivalent length in meters of straight pipe and valve connections for calculating friction.

| PART  | DESCRIPTION              | DIAMETER |      |      |      |      |      |      |      |      |  |
|---|--------------------------|----------|------|------|------|------|------|------|------|------|--|
|   |                          | 1"       | 1¼"  | 1½"  | 2"   | 2½"  | 3"   | 4"   | 5"   | 6"   |  |
|    | STANDARD 90° ELBOW       | 0.84     | 1.07 | 1.22 | 1.68 | 1.98 | 2.44 | 3.35 | 4.12 | 4.88 |  |
|    | MEDIUM RADIUS ELBOW 90°  | 0.69     | 0.92 | 1.07 | 1.37 | 1.68 | 2.14 | 2.75 | 3.51 | 4.27 |  |
|    | LONG RADIUS ELBOW 90°    | 0.54     | 0.69 | 0.84 | 1.07 | 1.37 | 1.6  | 2.14 | 2.75 | 3.36 |  |
|    | STANDARD 45° ELBOW       | 0.38     | 0.54 | 0.61 | 0.77 | 0.92 | 1.15 | 1.53 | 1.83 | 2.29 |  |
|    | STANDARD TEE             | 1.68     | 2.29 | 2.75 | 3.36 | 4.28 | 5.19 | 6.71 | 8.23 | 10.1 |  |
|   | ANGLE GLOBE VALVE (OPEN) | 3.97     | 5.49 | 6.71 | 8.23 | 10.7 | 12.2 | 16.8 | 21.3 | 25.9 |  |
|  | GLOBE VALVE (OPEN)       | 7.93     | 10.7 | 13   | 16.8 | 21.3 | 24.4 | 35.1 | 42.7 | 48.8 |  |
|  | GATE VALVE (OPEN)        | 0.19     | 0.25 | 0.29 | 0.38 | 0.43 | 0.54 | 0.69 | 0.84 | 1.07 |  |
|  | INCREASER                | 1.21     | 1.52 | 1.82 | 2.74 | 3.35 | 4.26 | 6.09 | 7.92 | 10.1 |  |
|  | REDUCER                  | 0.3      | 0.3  | 0.3  | 0.61 | 0.61 | 0.9  | 1.21 | 1.21 | 2.13 |  |
|  | SUCTION VALVE            | 0.91     | 1.21 | 1.52 | 2.13 | 2.74 | 3.35 | 4.87 | 6.4  | 7.92 |  |

## ► BCS



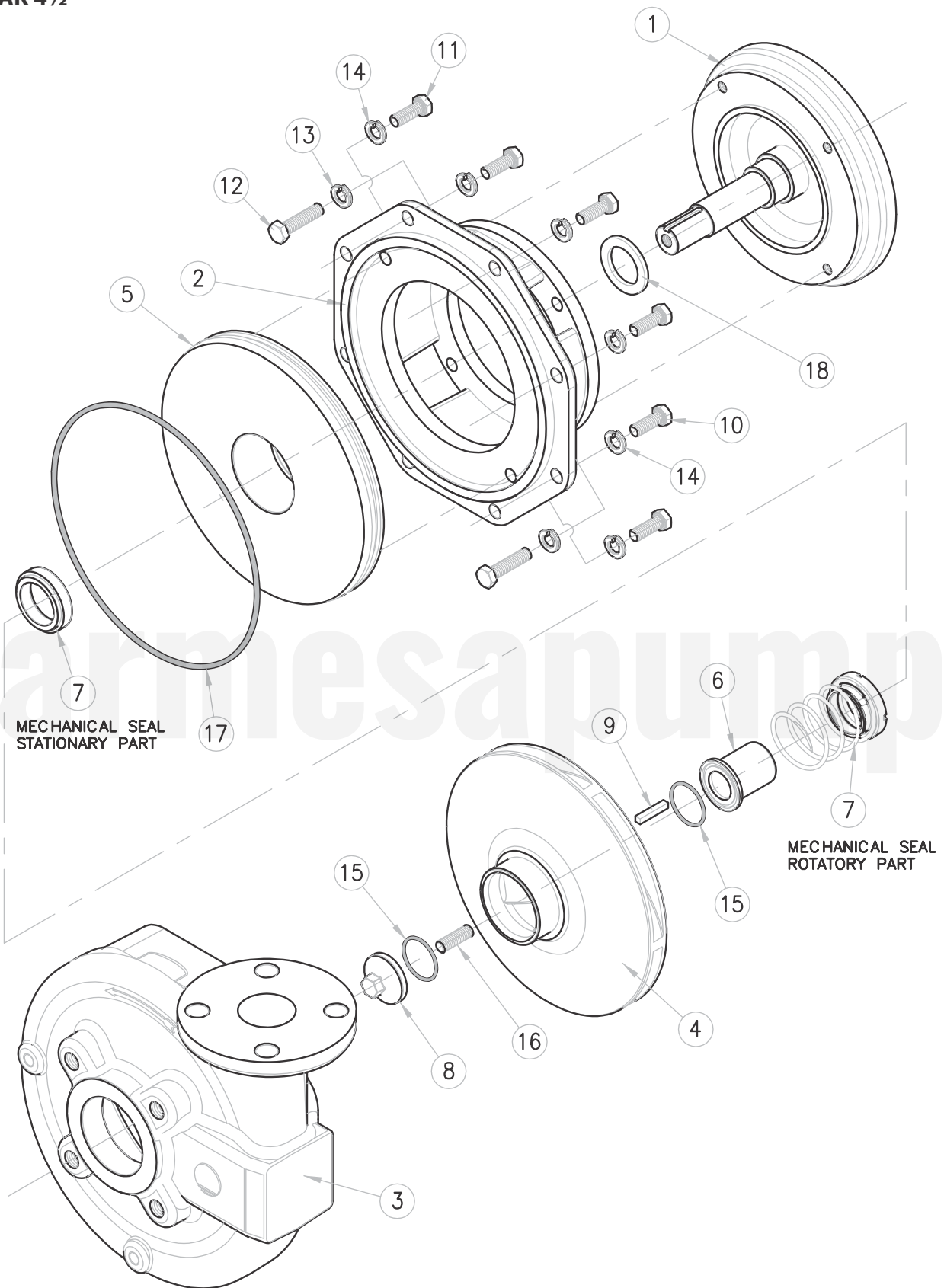
To request a replacement please provide the model and serial number as shown on the nameplate, and the description and part number as shown in the parts list.

## ► BCS

| ITEM | PART #    | DESCRIPTION               | QTY. | MATERIAL        |
|------|-----------|---------------------------|------|-----------------|
| 1    |           | Electric motor, frame 56  | 1    | Not included    |
| 2    | 03020038  | Adapter 5" (frame 56J)    | 1    | Cast iron       |
| 3    | 03090101  | Housing 1 x 1¼ - 5        | 1    | CF8M            |
|      | 03090102  | Housing 1¼ x 1½ - 5       |      |                 |
| 4    | 03140237  | Impeller BCS (Ø 5.38")    | 1    | CF8M            |
|      | 03140237B | Impeller BCS (Ø 5.13")    |      |                 |
|      | 03140237C | Impeller BCS (Ø 5.00")    |      |                 |
|      | 03140237D | Impeller BCS (Ø 3.38")    |      |                 |
|      | 03140237E | Impeller BCS (Ø 4.50")    |      |                 |
|      | 03140237G | Impeller BCS (Ø 4.25")    |      |                 |
|      | 03140237H | Impeller BCS (Ø 3.94")    |      |                 |
|      | 03140237I | Impeller BCS (Ø 3.75")    |      |                 |
|      | 03140237J | Impeller BCS (Ø 3.50")    |      |                 |
| 5    | 03180031  | Seal plate BCS            | 1    | CF8M            |
| 6    | 30400840B | Shaft sleeve BCS          | 1    | 316 SS          |
| 7    | 31030287  | Mechanical seal Ø 7/8"    | 1    | 0114SVP6SS      |
| 8    | 30400530  | Base BCS                  | 1    | Steel           |
| 9    | 92010030H | Edge trim                 | 1    | Buna            |
| 10   | 91010345C | Hex. screw 3/8" x 1¼"     | 4    | 304 SS          |
| 11   | 91010242  | Hex. screw 3/8" x 1"      | 4    | Steel           |
| 12   | 91010342B | Hex. screw 1/4" x 3/4"    | 2    | 304 SS          |
| 13   | 91010066  | Spring washer 1/4"        | 2    | 304 SS          |
| 14   | 91010012  | Spring washer 3/8"        | 4    | Steel           |
| 15   | 91010061  | Spring washer 3/8"        | 4    | 304 SS          |
| 16   | 92010361  | Shim set                  | 1    | Plastic         |
| 17   | 92010030F | Impeller gasket # 0-015   | 1    | Viton®          |
| 18   | 92010042B | Housing gasket # 2-251    | 1    | Viton®          |
| 19   | 92010011  | Deflector washer          | 1    | Buna N          |
| 20   | 94010061E | Identification plate BCSF | 1    | Aluminum        |
| 21   | 91010192  | Rivet #001628             | 2    | Stainless steel |

To request a replacement please provide the model and serial number as shown on the nameplate, and the description and part number as shown in the parts list.

► BCSF AK 4½"



To request a replacement please provide the model and serial number as shown on the nameplate, and the description and part number as shown in the parts list.

## ▶ BCSF 1½ x 2-6, with flange 4½"

| ITEM | PART #    | DESCRIPTION                           | QTY. | MATERIAL        |
|------|-----------|---------------------------------------|------|-----------------|
| 1    |           | Electric motor, shaft JM & flange 4½" | 1    | Not included    |
| 2    | 03020039  | Adapter 143-184JM                     | 1    | Cast iron       |
| 3    | 03090103  | Housing 1½ x 2 - 6                    | 1    | CF8M            |
| 4    | 03140238  | Impeller Ø 6"                         | 1    | CF8M            |
| 5    | 03180032  | Seal plate 6"                         | 1    | CF8M            |
| 6    | 30400827  | Shaft sleeve BCSF                     | 1    | 316 SS          |
| 7    | 31030288  | Mechanical seal Ø 1¼", C/S/V/316      | 1    | 0120SVP6SS      |
| 8    | 30400910  | Impeller nut                          | 1    | CF8M            |
| 9    | 30400631  | Key 3/16" x 3/16" x 1¼" lg.           | 1    | AISI 1018 CS    |
| 10   | 91010345B | Hex. screw 3/8" x 1"                  | 4    | 304 SS          |
| 11   | 91010345C | Hex. screw 3/8" x 1¼"                 | 2    | 304 SS          |
| 12   | 91010413  | Hex. screw 3/8" x 1¼"                 | 4    | Steel           |
| 13   | 91010012  | Spring washer 3/8"                    | 4    | Steel           |
| 14   | 91010061  | Spring washer 3/8"                    | 6    | 304 SS          |
| 15   | 92010030G | Impeller gasket # 0-025               | 2    | Viton®          |
| 16   | 91010305B | Screw 3/8" UNC x 1.19" lg.            | 1    | Galv. steel     |
| 17   | 92010040H | Housing gasket # 2-257                | 1    | Viton®          |
| 18   | 92010014  | Deflector washer                      | 1    | Buna N          |
| 19   | 94010061E | Identification plate BCSF             | 1    | Aluminum        |
| 20   | 91010192  | Rivet #001628 SS                      | 2    | Stainless steel |

## ▶ BCSF 1½ x 2-8, with flange 4½"

| ITEM | PART #    | DESCRIPTION                           | QTY. | MATERIAL        |
|------|-----------|---------------------------------------|------|-----------------|
| 1    |           | Electric motor, shaft JM & flange 4½" | 1    | Not included    |
| 2    | 03020042  | Adapter 143-184JM                     | 1    | Cast iron       |
| 3    | 03090105  | Housing 1½ x 2 - 8                    | 1    | CF8M            |
| 4    | 03140240  | Impeller Ø 8"                         | 1    | CF8M            |
| 5    | 03180034  | Seal plate 8"                         | 1    | CF8M            |
| 6    | 30400827  | Shaft sleeve BCSF                     | 1    | 316 SS          |
| 7    | 31030288  | Mechanical seal Ø 1¼", C/S/V/316      | 1    | 0120SVP6SS      |
| 8    | 30400910  | Impeller nut                          | 1    | CF8M            |
| 9    | 30400631  | Key 3/16" x 3/16" x 1¼" lg.           | 1    | AISI 1018 CS    |
| 10   | 91010345B | Hex. screw 3/8" x 1"                  | 8    | 304 SS          |
| 11   | 91010345C | Hex. screw 3/8" x 1¼"                 | 2    | 304 SS          |
| 12   | 91010413  | Hex. screw 3/8" x 1¼"                 | 4    | Steel           |
| 13   | 91010012  | Spring washer 3/8"                    | 4    | Steel           |
| 14   | 91010061  | Spring washer 3/8"                    | 10   | 304 SS          |
| 15   | 92010030G | Impeller gasket # 0-025               | 2    | Viton®          |
| 16   | 91010305B | Screw 3/8" UNC x 1.19" lg.            | 1    | Galv. Steel     |
| 17   | 92010041B | Housing gasket # 2-265                | 1    | Viton®          |
| 18   | 92010014  | Deflector washer                      | 1    | Buna N          |
| 19   | 94010061E | Identification plate BCSF             | 1    | Aluminum        |
| 20   | 91010192  | Rivet #001628                         | 2    | Stainless steel |

To request a replacement please provide the model and serial number as shown on the nameplate, and the description and part number as shown in the parts list.

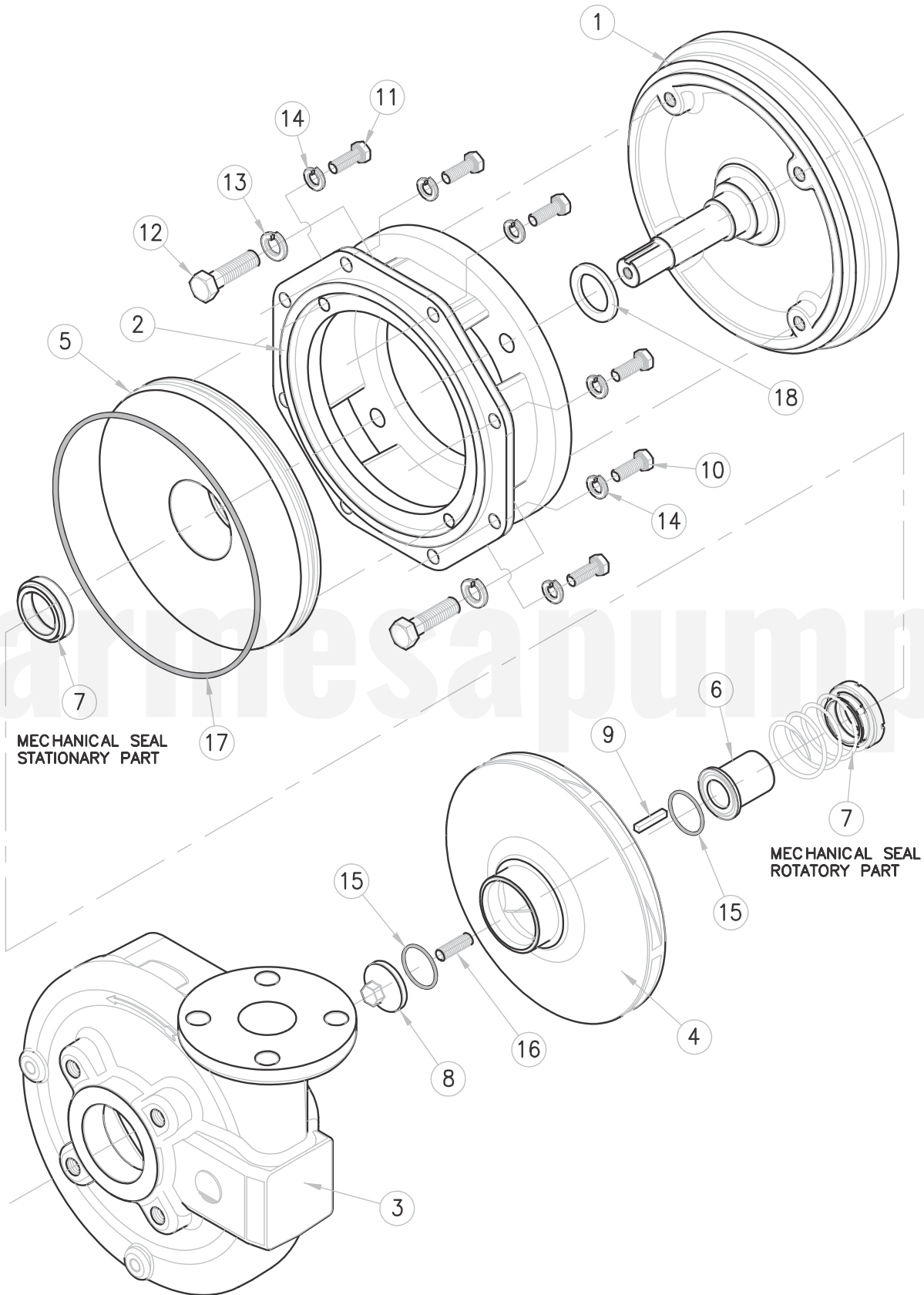
## ▶ BCSF 2 x 3-7, with flange 4½"

| ITEM | PART #    | DESCRIPTION                           | QTY. | MATERIAL        |
|------|-----------|---------------------------------------|------|-----------------|
| 1    |           | Electric motor, shaft JM & flange 4½" | 1    | Not included    |
| 2    | 03020040  | Adapter 143-184JM                     | 1    | Cast iron       |
| 3    | 03090104  | Housing 2x3-7                         | 1    | CF8M            |
| 4    | 03140239  | Impeller Ø 7"                         | 1    | CF8M            |
| 5    | 03180033  | Seal plate 7"                         | 1    | CF8M            |
| 6    | 30400827  | Shaft sleeve BCSF                     | 1    | 316 SS          |
| 7    | 31030288  | Mechanical seal Ø1¼", C/S/V/316       | 1    | 0120SVP6SS      |
| 8    | 30400910  | Impeller nut                          | 1    | CF8M            |
| 9    | 30400631  | Key 3/16" x 3/16" x 1¼" lg.           | 1    | AISI 1018 CS    |
| 10   | 91010345B | Hex. screw 3/8" x 1"                  | 8    | 304 SS          |
| 11   | 91010345C | Hex. screw 3/8" x 1¼"                 | 2    | 304 SS          |
| 12   | 91010413  | Hex. screw 3/8" x 1¼"                 | 4    | Steel           |
| 13   | 91010012  | Spring washer 3/8"                    | 4    | Steel           |
| 14   | 91010061  | Spring washer 3/8"                    | 10   | 304 SS          |
| 15   | 92010030G | Impeller gasket # 0-025               | 2    | Viton®          |
| 16   | 91010305B | Screw 3/8" UNC x 1.19" lg.            | 1    | Galv. Steel     |
| 17   | 92010041A | Housing gasket # 2-261                | 1    | Viton®          |
| 18   | 92010014  | Deflector washer                      | 1    | Buna N          |
| 19   | 94010061E | Identification plate BCSF             | 1    | Aluminum        |
| 20   | 91010192  | Rivet #001628 SS                      | 2    | Stainless steel |

barmesapumps

To request a replacement please provide the model and serial number as shown on the nameplate, and the description and part number as shown in the parts list.

► BCSF AK 8½"



To request a replacement please provide the model and serial number as shown on the nameplate, and the description and part number as shown in the parts list.

## ▶ BCSF 1½ x 2-8, with flange 8½"

| ITEM | PART #    | DESCRIPTION                           | QTY. | MATERIAL        |
|------|-----------|---------------------------------------|------|-----------------|
| 1    |           | Electric motor, shaft JM & flange 8½" | 1    | Not included    |
| 2    | 03020043  | Adapter 213-256JM                     | 1    | Cast iron       |
| 3    | 03090105  | Housing 1½ x 2-8                      | 1    | CF8M            |
| 4    | 03140240  | Impeller Ø 8"                         | 1    | CF8M            |
| 5    | 03180034  | Seal plate 8"                         | 1    | CF8M            |
| 6    | 30400827  | Shaft sleeve BCSF                     | 1    | 316 SS          |
| 7    | 31030288  | Mechanical seal Ø 1¼", C/S/V/316      | 1    | 0120SVP6SS      |
| 8    | 30400910  | Impeller nut                          | 1    | CF8M            |
| 9    | 30400631  | Key 3/16" x 3/16" x 1¼" lg.           | 1    | AISI 1018 CS    |
| 10   | 91010345B | Hex. screw 3/8" x 1"                  | 8    | 304 SS          |
| 11   | 91010345C | Hex. screw 3/8" x 1¼"                 | 2    | 304 SS          |
| 12   | 91010262B | Hex. screw 1/2" x 1¼"                 | 4    | Steel           |
| 13   | 91010014  | Spring washer 1/2"                    | 4    | Steel           |
| 14   | 91010061  | Spring washer 3/8"                    | 10   | 304 SS          |
| 15   | 92010030G | Impeller gasket # 0-025               | 2    | Viton®          |
| 16   | 91010305B | Screw 3/8" UNC x 1.19" lg.            | 1    | Galv. steel     |
| 17   | 92010041B | Housing gasket # 2-265                | 1    | Viton®          |
| 18   | 92010014  | Deflector washer                      | 1    | Buna N          |
| 19   | 94010061E | Identification plate BCSF             | 1    | Aluminum        |
| 20   | 91010192  | Rivet #001628 SS                      | 2    | Stainless steel |

## ▶ BCSF 2 x 3-7, with flange 8½"

| ITEM | PART #    | DESCRIPTION                           | QTY. | MATERIAL        |
|------|-----------|---------------------------------------|------|-----------------|
| 1    |           | Electric motor, shaft JM & flange 8½" | 1    | Not included    |
| 2    | 03020041  | Adapter 213-215JM                     | 1    | Cast iron       |
| 3    | 03090104  | Housing 2x3-7                         | 1    | CF8M            |
| 4    | 03140239  | Impeller Ø 7"                         | 1    | CF8M            |
| 5    | 03180033  | Seal plate 7"                         | 1    | CF8M            |
| 6    | 30400827  | Shaft sleeve BCSF                     | 1    | 316 SS          |
| 7    | 31030288  | Mechanical seal Ø 1¼", C/S/V/316      | 1    | 0120SVP6SS      |
| 8    | 30400910  | Impeller nut                          | 1    | CF8M            |
| 9    | 30400631  | Key 3/16" x 3/16" x 1¼" lg.           | 1    | AISI 1018 CS    |
| 10   | 91010345B | Hex. screw 3/8" x 1"                  | 8    | 304 SS          |
| 11   | 91010345C | Hex. screw 3/8" x 1¼"                 | 2    | 304 SS          |
| 12   | 91010262B | Hex. screw 1/2" x 1¼"                 | 4    | Steel           |
| 13   | 91010014  | Spring washer 1/2"                    | 4    | Steel           |
| 14   | 91010061  | Spring washer 3/8"                    | 10   | 304 SS          |
| 15   | 92010030G | Impeller gasket # 0-025               | 2    | Viton®          |
| 16   | 91010305B | Screw 3/8" UNC x 1.19" lg.            | 1    | Galv. steel     |
| 17   | 92010041A | Housing gasket # 2-261                | 1    | Viton®          |
| 18   | 92010014  | Deflector washer                      | 1    | Buna N          |
| 19   | 94010061E | Identification plate BCSF             | 1    | Aluminum        |
| 20   | 91010192  | Rivet #001628 SS                      | 2    | Stainless steel |

To request a replacement please provide the model and serial number as shown on the nameplate, and the description and part number as shown in the parts list.



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

| PROBLEM  | PROBABLE CAUSE                             | CHECK   |
|--|--|---|
| A) The pump does not prime, the vacuum gauge indicates a lower reading than normal.                            | 1. Air leak in the suction system.         | - Threaded joints in the suction tightness.<br>- Gaskets for no wear.<br>- The mechanical seal for leaks.<br>- The drain plug has leaks.<br>- The vacuum gauge may be leaking.  |
|  | 2. Insufficient liquid in the pump casing. | - That the pump's body is filled with water.  |
|  | 3. Low operating speed.                    | - The motor speed (RPM).  |
|  | 4. Bound pump.                             | - Impeller rotates freely.<br>- Internal parts are clean.   |
|  | 5. Mechanical defect.                      | - That the internal parts are not worn.   |
| B) The pump does not prime, the vacuum gauge reading indicates higher than normal.                             | 1. Pipe clogged suction.                   | - The suction line is clean.  |
| C) The pump priming good vacuum gauge reading is normal, the manometer indicates a lower pressure than normal. | 1. The pump speed is very low.             | - The voltage is correct.   |
|  | 2. Mechanical defects.                     | - The internal parts for wear.  |
| D) The pump priming good vacuum gauge reading is almost normal, reading the manometer is greater.              | 1. Discharge obstructed.                   | - The discharge is clear of obstructions.<br>- That the discharge valves operate correctly.   |
| E) The pump loses its priming during operation, vacuum gauge reading drops to zero.                            | 1. suction dynamic level too high.         | - When the pump is operating, never lacks water in the suction.   |
|  | 2. The pump is sucking air.                | - For leaks in suction piping, flanges and gaskets.<br>- That there is no vortex effect at the end of the suction, this lack of water.  |
| F) The pump priming pumps well and satisfactorily but noisy.   | 1. Pump base is loose.                     | - That screws are tight at the base.<br>- There are no cracks in the base.  |
|  | 2. Cavitation.                             | - The dynamic level is not too high<br>- That the pumping capacity is not too much.<br>- The pump is operating in the range of NPSHR<br>- If reducing flow makes the noise gone, then the problem is in the point above; partially close the discharge valve. |
|  | 3. Bearings.                               | - The bearings for wear.<br>- That there is oil in the deposit.   |
|  | 4. Vibration.                              | - The impeller does not have any foreign material.<br>- The pump is operating in the range.<br>- That the alignment is correct.   |
| G) Motor overload.   | 1. Low voltage.                            | - The voltage is correct.   |
|  | 2. Overload.                               | - The amperage of the plate is not exceeded.<br>- There is no foreign material that may force the impeller.<br>- That the motor is suitable for the pump.   |

**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](mailto:warranty@barmesapumps.com)  
[www.barmesapumps.com/US](http://www.barmesapumps.com/US)



**Barmesa<sup>®</sup>**  
**Pumps**