

# ARMSTRONG



## Motor Mounted Centrifugal Pumps

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**CASING**

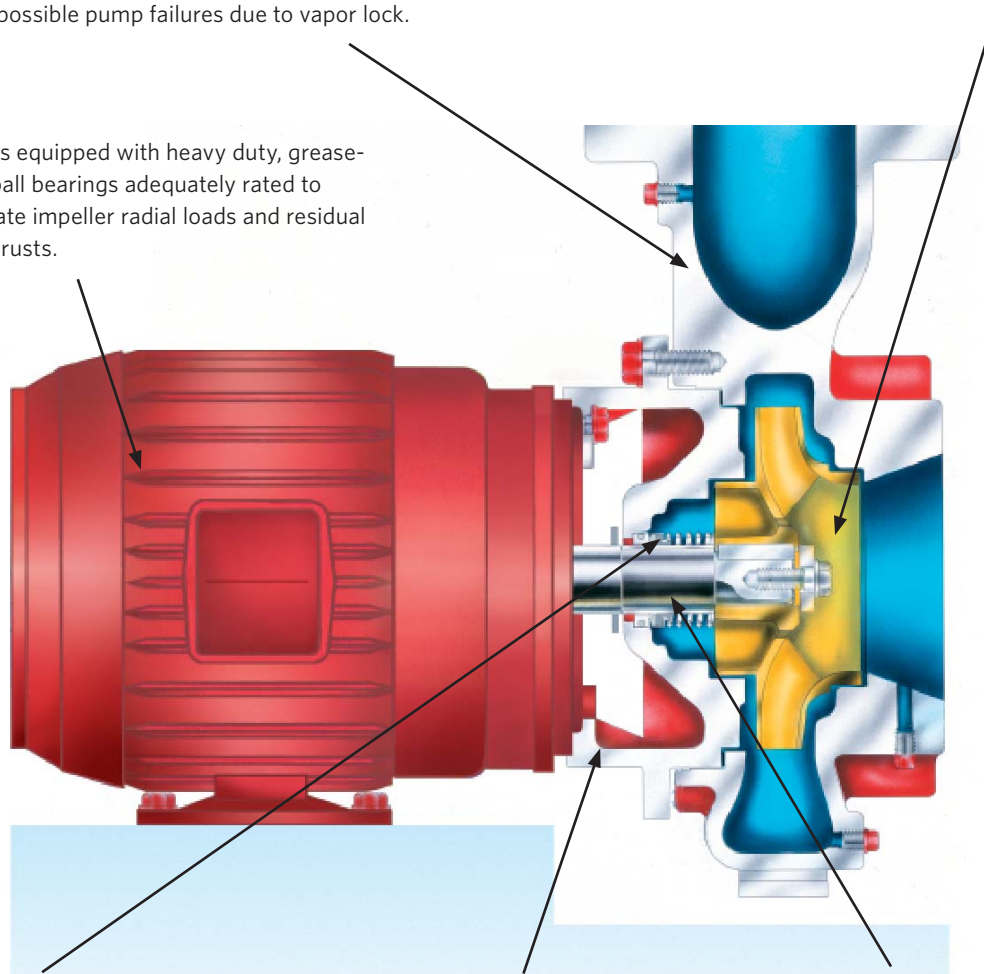
Radially-split casing with center-line discharge can be left in the line while servicing the pump, eliminating needless disconnecting of pipes. Tapped openings are provided for draining and gauge connections. Double volute design where radial loads demand. Center-line discharge allows self venting preventing possible pump failures due to vapor lock.

**IMPELLER**

Balanced impeller designed with balancing chamber and pressure relief holes in the impeller reduce axial thrusts to a minimum, ensuring smooth performance and long life.

**MOTOR**

The motor is equipped with heavy duty, grease-lubricated ball bearings adequately rated to accommodate impeller radial loads and residual hydraulic thrusts.

**MECHANICAL SEAL**

Self-lubricating mechanical seal prevents liquid seepage. A carbon\* face rotating against a stationary silicone carbide seat provides positive sealing up to full design pressure.

**BRACKET**

A heavy cylindrical bracket with 360 degree register on both flanges provides a rigid union of pump and motor and establishes perfect alignment.

**SHAFT**

The impeller is mounted on an extension of the motor shaft with minimum overhang. A shaft sleeve affords protection in the wetted area.

\* Silicon carbide for glycols over 30% by weight

**Design Features**

- Easy maintenance due to back pull-out design
- Extensive interchangeability of parts
- Manufactured and inspected to rigid standards
- Quiet operation
- Self venting center-line discharge
- Confined casing gasket
- Drilled and tapped gauge connections are standard on suction and discharge ports
- Mount with motor feet, or motor and pump feet for convenience

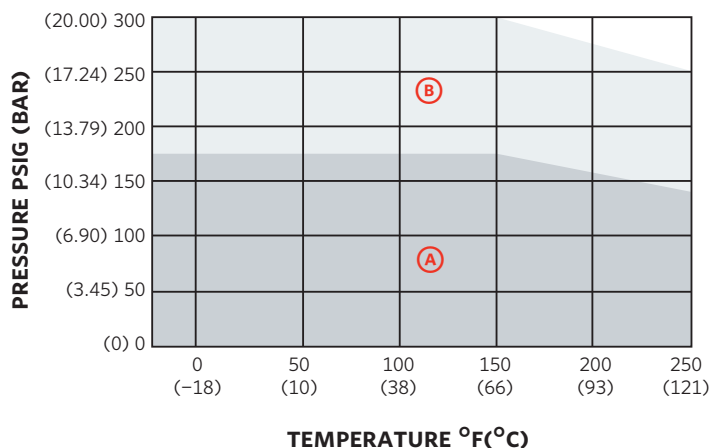
# Motor Mounted Centrifugal Pumps

## Materials of Construction

| PUMP | FLANGE RATING (PSIG) | MOTOR FRAME | CONSTRUCTION | CASING | IMPELLER | CAPSCREW (IMPELLER) | WASHER (IMPELLER) | GASKET (CASING) | ADAPTER BRACKET | MOTOR SHAFT | SHAFT SLEEVE | WATER SLINGER | SEAL WASHER | SEAL SEAT | SEAL HARDWARE | SEAL ELASTOMER | SEAL SPRING |
|------|----------------------|-------------|--------------|--------|----------|---------------------|-------------------|-----------------|-----------------|-------------|--------------|---------------|-------------|-----------|---------------|----------------|-------------|
| 4280 | 125                  | JM/JP       | BF           | CI     | BZ       | SS-5                | SS-2              | F               | CI              | S           | BR           | N             | C           | SiC       | SS-2          | EP             | SS-5        |
|      | 125                  | JM/JP       | AI           | CI     | CI       | SS-5                | SS-2              | F               | CI              | S           | SS-5         | N             | C           | SiC       | SS-2          | EP             | SS-5        |
|      | 125                  | JM/JP       | AB           | BZ     | BZ       | SS-5                | SS-2              | F               | BZ              | S           | BR           | N             | C           | SiC       | SS-2          | EP             | SS-5        |
|      | 250                  | JM/JP       | DBF          | DI     | BZ       | SS-5                | SS-2              | F               | DI              | S           | BR           | N             | C           | SiC       | SS-2          | EP             | SS-5        |

| MATERIALS OF CONSTRUCTION CODE                           | MATERIALS SPECIFICATION  |
|--|--|
| BF - Bronze fitted                                       | BR - Hard brass tubing ASTM B111.687                               |
| AI - All iron  | BZ - Cast bronze ASTM B584 grade c84400                            |
| AB - All bronze  | CI - Cast iron ASTM a48 class 30                                   |
| DBF - Bronze fitted , ductile casing and adapter bracket | F - Fiber  |
|  | C - Resin bonded carbon (above 200°F/93°C: antimony loaded carbon) |
|  | - Silicon carbide (for Glycols above 30% by weight)                |
|  | DI - Cast ductile iron ASTM A536 grade 65-45-12                    |
|  | EP - EPDM elastomer  |
|  | S - Carbon steel   |
|  | SiC - Silicone carbide   |
|  | SS-2 - ASTM A564 type 18-8   |
|  | SS-5 - AISI 1010-1018 type 316                                     |
|  | TC - Tungsten carbide  |

## Pressure/Temperature Chart Series 4280



- (A) Cast iron - ANSI 125 flanges
- (B) Ductile iron - ANSI 250 flanges

### NOTES:

- Hydrostatic test pressure at ambient temperature is 150% maximum working pressure
- All values are based on clear, clean water. Values may change with other liquids

## Typical Specifications

### Pumps - Horizontal - Motor Mounted

1.0 Provide Armstrong single stage, single end suction, motor mounted centrifugal pumps, with rising head characteristics to pump shut off.

Refer to the schedule for pump flows and heads and motor speed, efficiency, enclosure and power requirements.

2.0 The pumps shall be Armstrong Series 4280 motor mounted horizontal end suction pump.

3.0 Pump Construction:

3.1 Pump casing shall be cast iron, suitable for 175 psig working pressure at 140°F. (Ductile iron for pressures to 250 psig). The casing shall be hydrostatically tested to 150% maximum working pressure.

The casing shall be radially split to allow removal of the rotating element without disturbing the pipe connections.

The casing shall be equipped with a drilled and tapped drain connection. Suction and discharge connections shall be provided with drilled and tapped pressure gauge connections.

3.2 Pump impeller shall be fully enclosed type. Dynamically balanced.

3.3 Provide a shaft sleeve, extending the full length of the mechanical seal area.

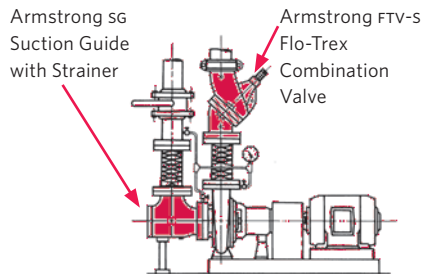
3.4 Mechanical Seal shall be single spring inside type with resin bonded carbon\* face rotating against a silicone carbide seat. EPDM elastomer with stainless steel spring and hardware shall be provided.

4.0 Motor power requirements shown on the pump schedule are the minimum acceptable and have been sized for continuous operation without exceeding the full load nameplate rating over the entire pump curve, exclusive of service factor.

\* For liquids above 200°F / 93°C use: antimony loaded carbon.  
For glycols above 30% by weight: use silicon carbide.

## Need to reduce space requirements and installation costs?

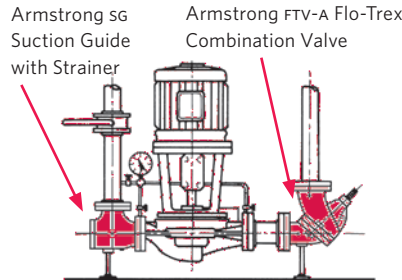
### BASE MOUNTED



Base mounted pump with Suction Guide and Flo-Trex valve eliminates cost and space of:

- Suction:
- Y-strainer
  - Long radius elbow
  - Min. straight pipe run.
- Discharge:
- Check valve
  - Isolating valve
  - Throttling valve

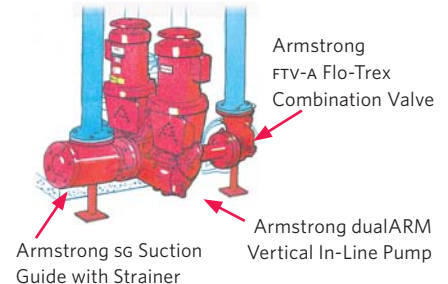
### VERTICAL IN-LINE



Vertical In-Line with Suction Guide and Flo-Trex valve eliminates cost and space of all the items listed under base mounted pump, plus the following:

- Inertia base with spring mounts
- Long radius elbow
- Flexible pipe connectors
- Grouting
- Field alignment
- Split couplings available for ease of mechanical seal replacement

### DUALARM



dualARM Vertical In-Line incorporates two pumps in a casing with single inlet and outlet connections. Enables standby or parallel operation with only one set of piping. Casing design and port valves allow one pump to be removed for service with the second pump still operating. When installed with a Suction Guide and Flo-Trex valve the dualARM represents the greatest Life Cycle Value in today's commercial HVAC market.

#### S. A. ARMSTRONG LIMITED

23 Bertrand Avenue  
Toronto, Ontario  
Canada, M1L 2P3  
T 416 755 2291  
F 416 759 9101

#### ARMSTRONG PUMPS INC.

93 East Avenue  
North Tonawanda, New York  
U.S.A., 14120-6594  
T 716 693 8813  
F 716 693 8970

#### ARMSTRONG INTEGRATED LIMITED

Wenlock Way  
Manchester  
United Kingdom, M12 5JL  
T +44 (0) 8444 145 145  
F +44 (0) 8444 145 146



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