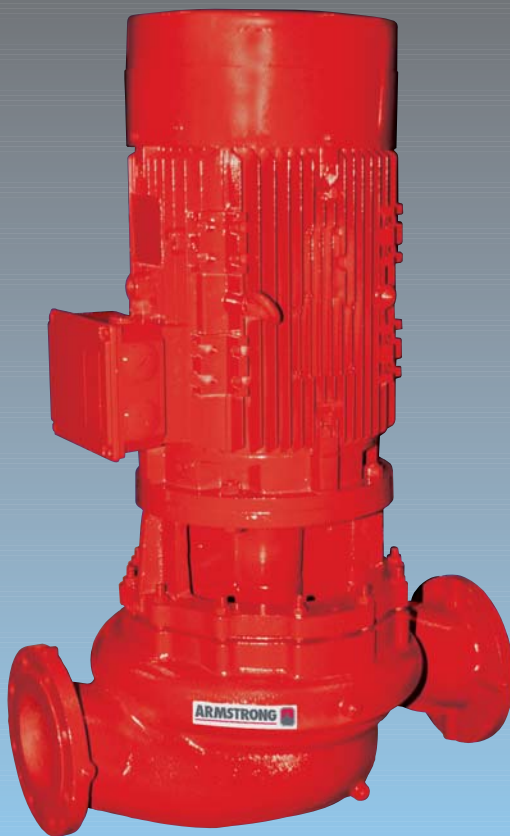


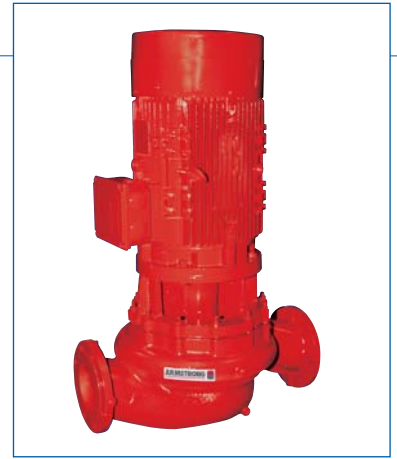
ARMSTRONG



Vertical In-Line Pumps

FILE NO:	2-2
DATE:	July 2010
SUPERSEDES:	2-2
DATE:	January 2009

Close Coupled Vertical in-line Pumps

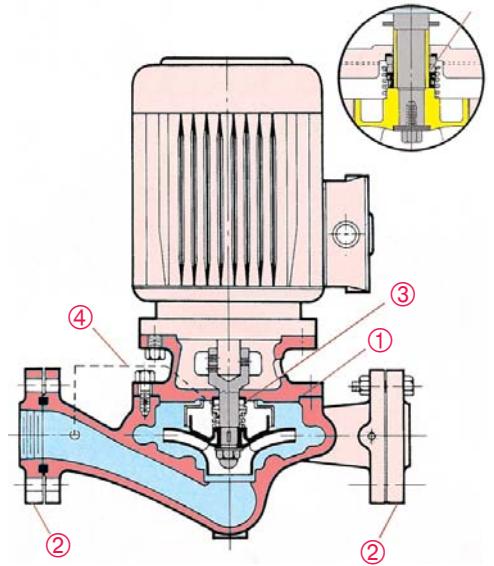


Typical Applications

- Cooling and heating systems
- Industrial applications requiring a compact pump
- Pressure boosting systems
- OEM (Cooling tower, spray washer, fountain, etc.)

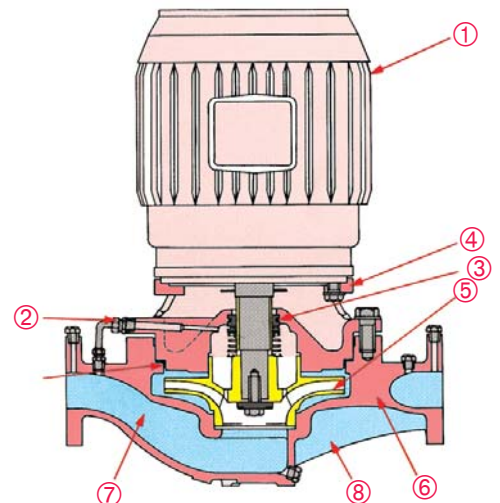
► Series 4360 Design Features

1. Easy servicing. A radially split casing permits removal of the motor and pump rotating assembly, without removing the pump casing from the line.
2. Easy removal of complete pump from the line when necessary, due to coplanar flanges, supplied with the pump.
3. Inside type mechanical seal serviceable without breaking pipe connections.
4. Flush and vent connection removes entrained air and ensures liquid at seal face at all times.
5. Equal suction and discharge connections result in simplified piping design and installation.
6. Fewer maintenance and servicing problems due to bearing-free pump design.



► Series 4380 Design Features

1. Industry standard face mounted motor.
2. Flush and vent connection removes entrained air and ensures liquid at seal face at all times.
3. Inside type mechanical seal serviceable without breaking pipe connections.
4. Heavy cylindrical bracket with 360° register on both flanges provides a rigid union of pump and motor.
5. Dynamically balanced impeller assures smooth vibration-free operation.
6. Radially split casing with equal suction and discharge flange sizes. Separate tapped openings for gauge, flush and drain connections.
7. Liberal inlet passageways and straightening vanes provide optimum suction performance and quiet operation.
8. Ribs cast integral with casing. Machined surface to accept floor support when specified.
9. Confined casing gasket to meet stringent industrial temperature and pressure applications.



Materials of Construction

Pump Series	Flange Rating (psig)	Motor Frame	Construction	Casing	Impeller	Capscrew (Impeller)	Washer (Impeller)	Acom Nut (Impeller)	Gasket (Casing)	Adapter Bracket	Motor Shaft	Shaft Sleeve	Stub Shaft	Shaft Spacer	Water Slinger	Seal Washer	Seal Seat	Seal Hardware	Seal Elastomer	Seal Spring	Companion Flanges
4360 B	125		BF	CI	BR-2	-	-	SS-2	F	CI	S	-	SS-6	-	-	C	CE	BR-1	BU	SS-4	CI
	125	56c	AI	CI	ST	-	-	SS-2	F	CI	S	-	SS-6	-	-	C	CE	ST	BU	SS-4	CI
	125		AB	BZ	BR-2	-	-	SS-2	F	BZ	S	-	SS-6	-	-	C	CE	BR-1	BU	SS-4	BZ
4360 D	125		BF	CI	BZ	SS-5	SS-3	-	F	CI	S	-	SS-3	SS-4	N	C	CE	SS-2	EP	SS-5	CI
	125	56c	AI	CI	CI	SS-5	SS-3	-	F	CI	S	-	SS-3	SS-4	N	C	CE	SS-2	EP	SS-5	CI
	125		AB	BZ	BZ	SS-5	SS-3	-	F	BZ	S	-	SS-3	SS-4	N	C	CE	SS-2	EP	SS-5	BZ
	125		BF	CI	BZ	SS-5	SS-3	-	F	CI	S	BR-1	-	SS-4	N	C	CE	SS-2	EP	SS-5	CI
	125	JM	AI	CI	CI	SS-5	SS-3	-	F	CI	S	SS-4	-	SS-4	N	C	CE	SS-2	EP	SS-5	CI
	125		AB	BZ	BZ	SS-5	SS-3	-	F	BZ	S	BR-1	-	SS-4	N	C	CE	SS-2	EP	SS-5	BZ
4380	125		BF	CI	BZ	SS-5	SS-3	-	F	CI	S	-	SS-3	SS-4	N	C	CE	SS-2	EP	SS-5	-
	125	56c	AI	CI	CI	SS-5	SS-3	-	F	CI	S	-	SS-3	SS-4	N	C	CE	SS-2	EP	SS-5	-
	125		AB	BZ	BZ	SS-5	SS-3	-	F	BZ	S	-	SS-3	SS-4	N	C	CE	SS-2	EP	SS-5	-
	125		BF	CI	BZ	SS-5	SS-3	-	F	CI	S	BR-1	-	SS-4	N	C	CE	SS-2	EP	SS-5	-
	125	JM/JP	AI	CI	CI	SS-5	SS-3	-	F	CI	S	SS-4	-	SS-4	N	C	CE	SS-2	EP	SS-5	-
	125		AB	BZ	BZ	SS-5	SS-3	-	F	BZ	S	BR-1	-	SS-4	N	C	CE	SS-2	EP	SS-5	-
	250	JM/JP	DBF	DI	BZ	SS-5	SS-3	-	F	DI	S	BR-1	-	SS-4	N	C	TC	SS-2	EP	SS-5	-
250		DI	DI	CI	SS-5	SS-3	-	F	DI	S	SS-4	-	SS-4	N	C	TC	SS-2	EP	SS-5	-	

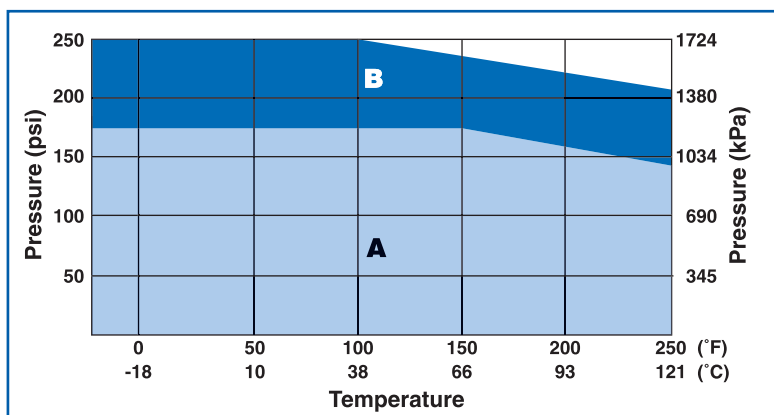
Materials of Construction Code

BF - Bronze Fitted
 AI - All Iron
 AB - All Bronze
 DBF - Bronze Fitted, Ductile Casing and Adapter Bracket
 DI - All Iron, Ductile Casing and Adapter Bracket

Material Specification

BZ - Cast Bronze ASTM B584 Grade C84400
 BR-1 - Hard Brass Tubing ASTM B111.687
 BR-2 - Brass Plate
 BU - Buna - N Rubber
 CI - Cast Iron ASTM A48 Class 30
 C - Carbon
 CE - Ceramic
 DI - Cast Ductile Iron ASTM A536 Grade 65-45-12
 EP - EPDM elastomer
 F - Fiber
 N - Neoprene
 S - Carbon Steel
 ST - Plated Steel
 SS-2 - ASTM A564 Type 18-8
 SS-3 - ASTM A314 Type 303
 SS-4 - ASTM A276 Type 304
 SS-5 - AISI 1010-1018 Type 316
 SS-6 - ASTM A314 Type 416
 TC - Tungsten Carbide

► Pressure / Temperature chart Series 4360 and 4380



A. CAST IRON - 125 psi (862 kPa) flanges Standard Seal - Series 4360 & 4380

B. DUCTILE IRON - 250 psi (1724 kPa) flanges Tungsten Carbide seal - Series 4380 only Seal Hardware

- 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

4360 and 4380 Series Close Coupled Vertical In-Line Pumps

► Pumps - Close Coupled Vertical in-Line

- Provide Armstrong single stage, single suction Vertical In-Line type pumps, with rising head to shut off pump characteristics.
Refer to the schedule for pump flows and heads and motor speed, efficiency, enclosure and power requirements.
- The pumps shall be Armstrong Series 4360 or Series 4380 motor mounted Vertical In-Line.
- 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.

► Pump Construction: Series 4360:

- Pump casing shall be cast iron, suitable for 175 psi (1206 kPa) working pressure at 140°F (60°C). The casing shall be hydro-statically 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 provided with NPT threaded companion flanges, for the appropriate pump size, with gaskets and hardware.
- Pump impeller shall be fully enclosed type. The impeller shall be keyed and secured to the pump shaft by stainless steel fittings.
- The pump shaft shall be a stainless steel stub shaft for frame 56 motors. The steel motor shaft shall be enclosed by a bronze shaft sleeve, on other motor frame sizes.
- Mechanical Seal shall be single spring inside type with Carbon and Ceramic faces, EPDM elastomer, stainless steel spring and hardware. Provide factory installed seal vent line, piped from the seal area to the pump suction connection.

► Pump Construction: Series 4380:

- Pump casing shall be cast iron, suitable for 175 psi (1206 kPa) working pressure at 140°F (60°C). Ductile iron pump casings are suitable for pressures to 250 psi (1724 kPa). 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 suction and discharge connections shall be the same size and shall be provided with drilled and tapped seal vent and pressure gauge connections.
- Pump impeller shall be bronze, fully enclosed type. Impeller shall be dynamically balanced.
- A bronze shaft sleeve, extending the full length of the mechanical seal area, shall be provided.
- Mechanical Seal shall be single spring inside type with carbon against Ceramic faces. EPDM elastomer with stainless steel spring and hardware shall be provided. Seal vent line shall be factory installed and shall be piped from the seal area to the pump suction connection.

Our policy is one of continuous improvement and we reserve the right to alter our dimensions and specifications without notice

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