



Hydronic  
solutions

CATALOG

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DATE: MARCH 2019

DESIGN ENVELOPE  
COMPASS



S&H WITH  
ECM MOTORS



CBV



E.2  
CIRCULATORS

# A LEGACY OF INNOVATION

**A**rmstrong Fluid Technology is a designer, manufacturer, and marketer of fluid flow and control equipment applied in HVAC and water-based process industries.

With more than 1000 employees worldwide, operating seven manufacturing facilities on three continents, Armstrong is known around the world as a leader and innovator in design, engineering and manufacturing within the fluid-flow equipment industry. Armstrong products are internationally recognized for design quality, long service life, and operating economy.

Armstrong was incorporated in 1934 under the leadership of Samuel A. Armstrong. In 1952, under the direction of James A. Armstrong, the company launched a series of bold initiatives across the entire spectrum of the organization's activities that set the corporate direction and led to impressive growth. In the decades that followed, Armstrong developed industry-leading technologies, established international manufacturing operations, and expanded sales into global markets. Armstrong remains a privately-owned company with products installed in some of the world's premier facilities.

ESTABLISHED

1934

>1000  
EMPLOYEES  
WORLDWIDE

7  
MANUFACTURING  
FACILITIES

3  
CONTINENTS

## SOLUTION RANGE

- \* Pumping products for commercial, light commercial and residential applications
- \* Complete heating and cooling systems
- \* Advanced control systems
- \* Heat exchangers
- \* Flow control products
- \* Fire suppression products

## SIGNATURE TECHNOLOGIES

### DESIGN ENVELOPE

Design Envelope pumping products  
Commercial pumping solutions with integrated variable speed controls

Design Envelope Integrated Plant Control (IPC)  
Chilled water plant automation

Design Envelope Integrated Plant Package (IPP)  
Complete automated, all-variable-speed packaged system for commercial or industrial cooling

E.2 Series circulators  
Energy-saving circulators for light commercial and residential heating systems

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ARMSTRONG FLUID TECHNOLOGY  
ESTABLISHED 1934

## SOLUTIONS

In addition to product solutions, Armstrong has led the industry in creating high-value services to augment our product design and manufacturing capabilities. Our unique DESIGN ASSIST service helps customers through the process of optimizing plant room space and equipment selection. The PROJECT ASSIST service allocates dedicated project managers to the design, procurement and assembly stages of a packaged system to ensure our customers are involved and informed throughout. The STARTUP ASSIST service offers customers the option of on-site expertise to oversee the startup procedure and offer advice for fine-tuning the installation.

To promote our lineup of products and services Armstrong has developed a broad network of over 300 representatives and agents. Working closely with these affiliates, we reach out to customers around the world.

## VALUES

Armstrong's day-to-day operations and growth are founded on the core principles of: COMMUNITY, SERVICE, LEARNING AND INNOVATION.

Our core message to employees, partners, and customers is MAKING ENERGY MAKE SENSE. This message articulates both our purpose and our strategy for success in an evolving marketplace. We are driven to lead the global shift in responsible, sustainable energy use, and to develop innovative, high-value, energy-saving solutions. Our solutions to customers demonstrate that choosing the most energy-efficient products makes good business sense.

## LEADERSHIP

Within the international business community, organizations comparable to Armstrong are a rarity. The company is 100% Canadian-owned, privately held, and now operates under the guidance of the third generation of family ownership. Through a combination of bold leadership and strong management, the organization has grown from a handful of employees in Toronto to a global organization with offices in Toronto, Montréal, Quebec City, Buffalo, Manchester, Birmingham, Lyons, Bangalore, Beijing and Shanghai.

Armstrong has repeatedly been named one of Canada's 50 Best Managed Companies, a national program that recognizes Canadian companies that have implemented world-class business practices and created value in innovative ways. Armstrong has been a recipient of this prestigious award six times in the past nine years (2005, 2006, 2010, 2011, 2012 and 2013).

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ARMSTRONGFLUIDTECHNOLOGY.COM

MAKING  
ENERGY  
MAKE  
SENSE™





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To place an order contact your local Armstrong representative.

To find your local Armstrong representative visit

**ARMSTRONGFLUIDTECHNOLOGY.COM**

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# DESIGN ENVELOPE COMPASS R CIRCULATORS

## VARIABLE SPEED DRY ROTOR



The Armstrong Compass R is an energy-efficient variable speed wet-rotor circulator. Designed to replace existing fixed speed circulators, with popular flange-to-flange dimensions, Compass R can be considered a universal replacement for all circulators in its capacity range.

### PUMP DESIGN DATA

Pump model: \_\_\_\_\_ Flange size: \_\_\_\_\_  
 No. of pumps: \_\_\_\_\_ Note: \_\_\_\_\_  
 Capacity: \_\_\_\_\_ USgpm (L/s) Head: \_\_\_\_\_ ft (m)  
 Temperature: \_\_\_\_\_ °F (°C) Liquid: \_\_\_\_\_  
 Companion flanges: Included

### TECHNICAL DATA

**Motor protection:** The pump requires no external motor protection.

**Maximum working temperature:** 230°F (110°C) maximum

**Maximum working pressure:** 175 psi (12 bar).

**Maximum relative air humidity (rh):** 95%.

**Enclosure class:** IP 42

**Insulation class:** F

**Certification:** ETL listed for US and Canada (conforms to UL78 certified to CSA STD. C22.2 NO.108)

\*NSF 361 & 372 (for stainless steel models)

**Sound pressure level:** The sound pressure level of the pump is lower than 43 dB(A).

**Ambient temperature:** -4°F (-20°C) — 104°F (40°C)

**Pumped liquids:** Water or up to 50% water Ethylene/Propylene Glycol mix.

**Liquid temperature:** -4°F (-20°C) — 230°F (110°C)

### MATERIALS OF CONSTRUCTION

**Pump body:** Ductile iron (closed systems)  
 Stainless steel\* (open systems)

**Impeller:** 30% glass-filled noryl GFN3

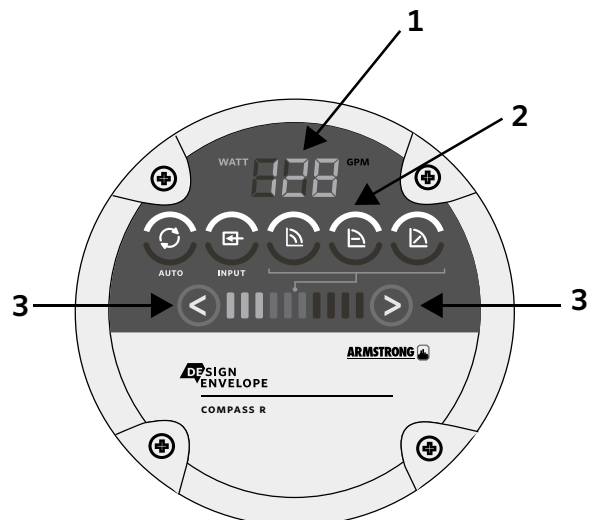
**Shaft:** s34c carbon steel, nickel plating

**O-ring material:** EPDM

**Mechanical Seal Material:** EPDM elastomeric with Silicon carbide seat

### COMPASS R CONTROL PANEL

POSITION	DESCRIPTION
1	Display showing actual power consumption and flow rate
2	Five Light fields indicating the pump setting
3	Push-button for selection of pump setting



Lights on the display indicate the Control mode selected.

# DESIGN ENVELOPE COMPASS R CIRCULATORS

VARIABLE SPEED DRY ROTOR

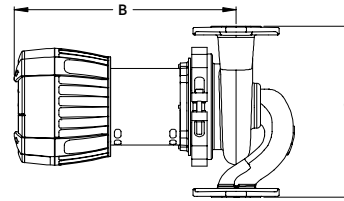
## DIMENSIONS AND WEIGHTS

MODEL	FLANGE TO FLANGE DIMENSION inch (mm)	MATERIAL	PART NUMBER	MOTOR		CONNECTION	FLANGE ORIENTATION	BOLT TO BOLT inch (mm)
				HP	PHASE AND VOLT			
Compass R 20-75	8.5 (215.9)	Ductile Iron	119181-113	1/2	1 phase 115 V 60HZ	2 bolt flange	X	3.16-3.44 (80.2-87.4)
		Stainless Steel	119182-113		1 phase 208-240V 50/60HZ			
		Ductile Iron	119181-173		1 phase 115 V 60HZ			
		Stainless Steel	119182-173		1 phase 208-240V 50/60HZ			

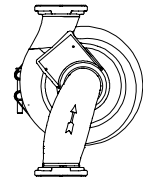
MODEL	DIMENSIONS inch (mm)			WEIGHT lbs (kg)
	A	B	C	
Compass R 20-75	6.38 (162)	11.04 (280)	8.50 (216)	17.82 (8.11)



FRONT VIEW



SIDE VIEW



BACK VIEW

**NOTE:**

All dimensions are in inches (mm) and weights in lbs (kg).

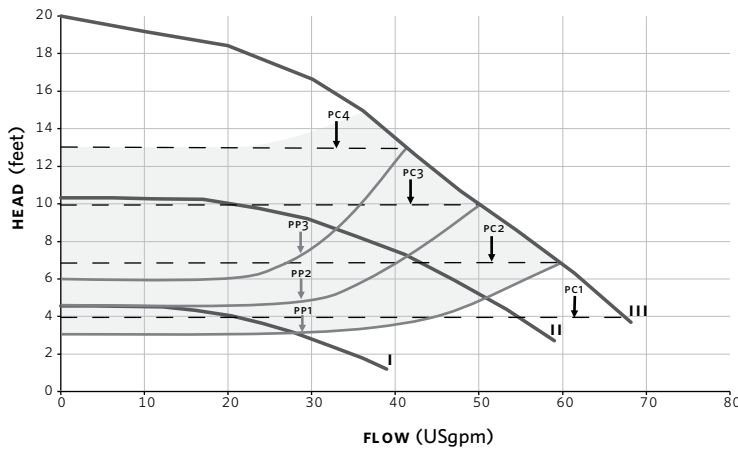
\*Certified <0.25 weighted average percent lead and complies with California Health and Safety Code Section 116875 (commonly known as AB 1953).

\*\* For open systems, it is recommended that the liquid temperature be less than 150°F (65°C) to avoid precipitation of calcium.

## COMPASS R CIRCULATOR PREFERRED SELECTION AREA

### COMPASS R20-75

AUTO, FIXED HEAD, FIXED SPEED AND PROPORTIONAL PRESSURE CURVES



**CONTROL OPTIONS**

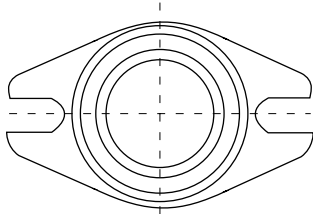
- AUTO Control Options
- Fixed speed curve I, II, III
- Fixed head curve PC1, PC2, PC3, PC4
- Proportional pressure curve PP1, PP2, PP3

# DESIGN ENVELOPE COMPASS R CIRCULATORS

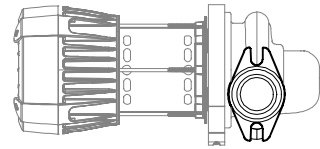
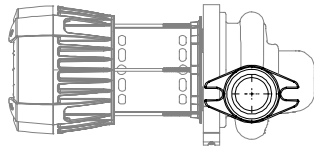
VARIABLE SPEED DRY ROTOR

## COMPASS R FLANGE AND ORIENTATION

**2-BOLT FLANGE**



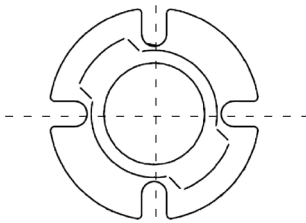
**2-BOLT FLANGE ORIENTATION**



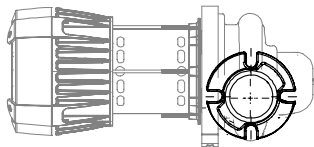
**FLANGE ORIENTATION X**

**FLANGE ORIENTATION Y**

**4-BOLT FLANGE**



**4-BOLT FLANGE ORIENTATION**



## COMPASS R NAMING CONVENTION

**COMPASS R 2075 DI 8.5x2-115/1**

COMPASS R MODEL 20-75 ←

- Represents a maximum head pressure of 20ft and a maximum flow rate at 75USgpm

COLOUR OF CASING ←

- **DI** represents a red Ductile Iron casing
- **SS** represents a Stainless Steel casing

→ 115/1 REPRESENTS

115v/1ph/60Hz (115/1/60, 208-240/1/60 is available)

→ **8.5 REPRESENTS THE FLANGE TO FLANGE DIMENSION**

- X represents the X orientation of the pump ( X or Y will be available)
- 2 represents the 2-bolt flange (4 and 2 bolt will be available)





# DESIGN ENVELOPE COMPASS H CIRCULATORS

## VARIABLE SPEED WET ROTOR



The Armstrong Compass H is an energy-efficient variable speed wet-rotor circulator. Designed to replace existing fixed speed circulators, with popular flange-to-flange dimensions, Compass H can be considered a universal replacement for all circulators in its capacity range.

### TECHNICAL DATA

**Supply voltage:** 1 × 115 V – 10%/+ 6%

	MINIMUM	MAXIMUM
<b>Amp</b>	0.05	0.72
<b>Watt</b>	5	45

**Motor protection:** The pump requires no external motor protection.

**Maximum working temperature:** 230°F (110°C) maximum

**Maximum working pressure:** 150 psi (10 bar).

**Maximum relative air humidity (rh):** 95%.

**Flow range:** 0 – 20 USgpm (0 to 1.26 L/s)

**Head range:** 0 – 20.0 feet (0 to 6.09 m)

**Enclosure class:** Type 2

**Insulation class:** H

**Certification:** ETL listed for US and Canada (conforms to ULSTD.778 certified to CSA STD. C22.2 NO.108-01)

\*NSF 372 (for stainless steel models)

### INLET PRESSURE

**Minimum inlet pressure in relation to liquid temperature:**

LIQUID TEMPERATURE	MINIMUM INLET PRESSURE
150°F (65°C)	3.0 ft (0.91 m)
167°F (75°C)	4.4 ft (1.34 m)
194°F (90°C)	9.2 ft (2.8 m)
230°F (110°C)	36.1 ft (11.0 m)

**Sound pressure level:** The sound pressure level of the pump is lower than 43 dB(A).

**Ambient temperature:** 32°F (0°C) – 104°F (40°C)

**Pumped liquids:** Water or water Glycol mix.

**Liquid temperature:** 36°F (2°C) – 230°F (110°C)\*\*

To avoid condensation in the control box and stator, the liquid temperature must always be higher than the ambient temperature.

AMBIENT TEMPERATURE	LIQUID TEMPERATURE	
	MIN.	MAX.
32°F (0°C)	35.6°F (2°C)	230°F (110°C)
50°F (10°C)	10°C (50°F)	230°F (110°C)
68°F (20°C)	68°F (20°C)	230°F (110°C)
86°F (30°C)	86°F (30°C)	230°F (110°C)
95°F (35°C)	95°F (35°C)	194°F (90°C)
104°F (40°C)	104°F (40°C)	176°F (80°C)

### MATERIALS OF CONSTRUCTION

**Pump body:** Cast iron (closed systems)

Stainless steel\*\* (open systems)

**Impeller:** Noryl

**Shaft:** Ceramic

**Bearings:** Ceramic

**Gasket material:** EPDM

### HARDWARE KIT

Companion flange kit (contains two (2) flanges, hardware and gaskets) (for flange models)

Union kit (contains two (2) union nuts, connection (sweat or nut) and gaskets)

**Cast iron:** 0.75", 1", 1.25", 1.5"

**Bronze:** 0.75", 1", 1.25", 1.5"

# DESIGN ENVELOPE COMPASS H CIRCULATORS

## VARIABLE SPEED WET ROTOR

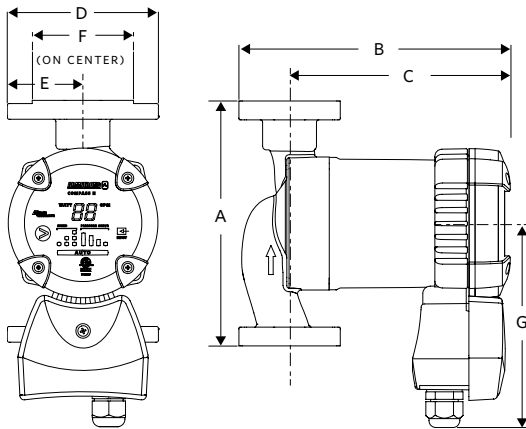
### DIMENSIONS AND WEIGHTS

STAINLESS STEEL*	PART NUMBER	A	B	C	D	E	F	G	CONNECTION TYPE & SIZE	WEIGHT
Compass H 20-20 ss flange	180203-687	6.50 (165)	7.08 (180)	5.75 (146)	4.00 (102)	2.00 (50)	3.25 (80)	5.31 (135)	Flange - (2) ½" dia. bolt holes	8.0 (3.6)
Compass H 20-20 ssu	180203-684	6.00 (152)	7.08 (180)	5.75 (146)	4.00 (102)	2.00 (50)	1.25 (32)	5.31 (135)	1¼" Union	
CAST IRON	PART NUMBER	A	B	C	D	E	F	G	CONNECTION TYPE & SIZE	WEIGHT
Compass H 20-20 CI flange	180203-606	6.50 (165)	7.08 (180)	5.75 (146)	4.00 (102)	2.00 (50)	3.25 (80)	5.31 (135)	Flange - (2) ½" dia. bolt holes	8.0 (3.6)

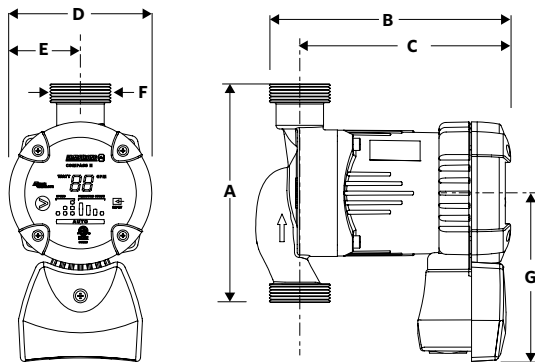
**NOTE:**

All dimensions are in inches (mm) and weights in lbs (kg).  
 \*Certified <0.25 weighted average percent lead and complies with California Health and Safety Code Section 116875 (commonly known as AB 1953).  
 \*\* For open systems, it is recommended that the liquid temperature be less than 150°F (65°C) to avoid precipitation of calcium.

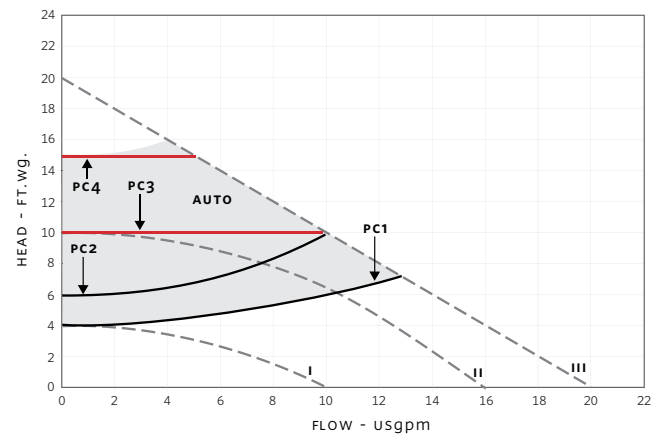
### COMPASS H FLANGE



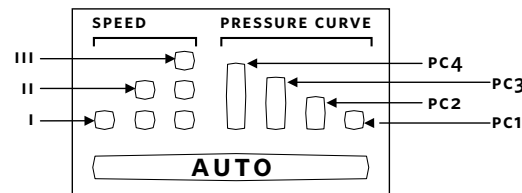
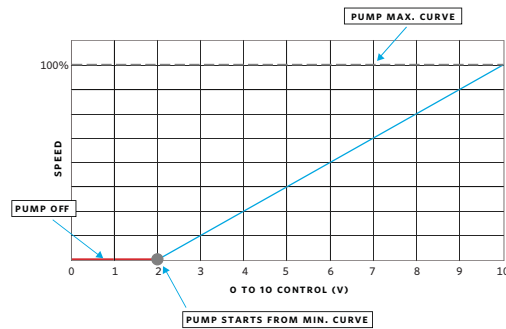
### COMPASS H UNION



### COMPASS H PERFORMANCE CURVES



### 0 - 10VDC OPERATION



Lights on the display indicate the Control mode selected.

# ASTRO 2 CIRCULATORS | THREE SPEED



The Armstrong Astro 2 circulators are designed for quiet operation and zero maintenance. In combination with cast iron volutes the Astro 2 line is intended to circulate water or ethylene-glycol solutions in closed hydronic or solar heating systems. The Astro 2 line is available in three volute materials for residential, small industrial, and commercial applications.

## TECHNICAL DATA

**Flow range:** 0 to 64 USgpm (0 to 4.04 L/s)

**Head range:** 0 to 42.0 feet (0 to 12.8 m)

**Maximum fluid temperature:** 185°F / 85°C (ASTRO 286 UP TO 1.35A)  
 150°F / 65°C (ASTRO 286 OVER 1.35A)  
 230°F / 110°C† (ALL OTHERS)

**Maximum working pressure:** 150 psi (1034 kPa)

**Approvals:**  listed NSF-372 certified

† For open systems, it is recommended that the fluid temperature be less than 150°F (66°C) to avoid precipitation of calcium.

## MATERIALS OF CONSTRUCTION

**Pump body:** Cast iron (closed systems)  
 Lead free bronze\* (open systems)  
 Stainless steel\* (open systems)

**Impeller:** Noryl                      **Shaft:** Ceramic  
**Bearings:** Ceramic                **Gasket material:** EPDM

\* Certified <0.25 weighted average percent lead and complies with California Health and Safety Code Section 116875 (commonly known as AB 1953).

## MOTOR DATA

MODEL	ELECTRICAL INPUT	SPEED	FULL LOAD AMP DRAW (A)	NOMINAL POWER (W)
Astro 210CI/SS	115V, 60HZ Single phase	3	1.06	200
		2	1.50	
		1	1.72	
Astro 220SSU		3	0.29	33
		2	0.27	
		1	0.20	
Astro 225BS		3	0.64	75
		2	0.49	
		1	0.38	
Astro 225SSU	3	0.69	83	
	2	0.55		
	1	0.43		
Astro 230SS/CI/CI-R	3	0.81	97	
	2	0.58		
	1	0.45		
Astro 250SS/CI/CI-R	3	0.98	117	
	2	0.79		
	1	0.65		
Astro 280CI/SS	3	1.90	218	
	2	1.80		
	1	1.50		
Astro 290CI/SS	3	1.90	218	
	2	1.60		
	1	1.40		
Astro 280CI/SS 230V	230V, 60HZ Single phase	3	0.90	210
		2	0.86	
		1	0.80	
Astro 286CI/SS		1	1.60	370

# ASTRO 2 CIRCULATORS | THREE SPEED

## PART NUMBERS

MODEL	PART NUMBER	MODEL	PART NUMBER	MODEL	PART NUMBER
Astro 220SSU w 1/2" SWT	110223-301	Astro 250CI	110223-307	Astro 210CI	110223-326
Astro 220SSU w 3/4" SWT	110223-302	Astro 250CI-R	110223-317	Astro 210SS	110223-327
Astro 220SSU	110223-309	Astro 250SS	110223-308	Astro 290CI	110223-328
Astro 225BS 1/2" SWT	110223-303	Astro 280CI	110223-320	Astro 290SS	110223-329
Astro 225BS 3/4" SWT	110223-304	Astro 280SS	110223-321		
Astro 225SSU	110223-310	Astro 280CI (230V)	110223-322		
Astro 230CI	110223-305	Astro 280SS (230V)	110223-323		
Astro 230CI-R	110223-315	Astro 286CI (230V)	110223-324		
Astro 230SS	110223-306	Astro 286SS (230V)	110223-325		

## ACCESSORIES

### LEAD FREE\* UNION FITTING SETS

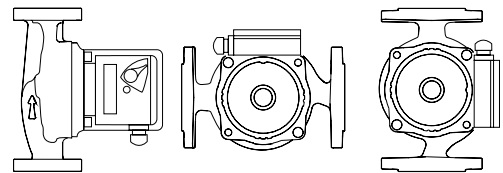
(contains two (2) half unions and gaskets)

MODEL	PART NUMBER	CONNECTION
Astro 220SSU/225SSU	810120-320	1.25" NPSM x 0.5" sweat lead free
	810120-322	1.25" NPSM x 0.75" sweat lead free
	810120-324	1.25" NPSM x 0.75" FNPT lead free

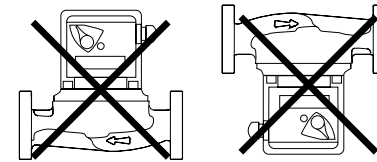
MODEL	FLANGE KITS		
	SIZE	ITEM NUMBER	
		LEAD FREE BRONZE*	CAST IRON
Astro 210/230/250 /280/286 Compass	0.75"	816013-841	816013-111
	1"	816012-841	816012-111
	1.25"	816011-841	816011-111
	1.5"	816009-841	816009-111
Astro 290	1"	806073-841	806073-111
	1.25"	804300-841	804300-111
	1.5"	804301-841	804301-111

MODEL	CIF			FLEX FLANGES		
	MODEL	SIZE	ITEM NUMBER	MODEL	SIZE	ITEM NUMBER
All Astro flange models	CIF-050T	1/2"	110124-100	FF-050T	1/2"	110124-200
	CIF-075T	3/4"	110124-000	FF-075T	3/4"	110124-201
	CIF-100T	1"	110124-001	FF-100T	1"	110124-202
	CIF-125T	1 1/4"	110124-002	FF-125T	1 1/4"	110124-203
	CIF-150T	1 1/2"	110124-003	FF-150T	1 1/2"	110124-204
	CIF-050S	1/2"	110124-150	FF-050S	1/2"	110124-250
	CIF-075S	3/4"	110124-050	FF-075S	3/4"	110124-251
	CIF-100S	1"	110124-051	FF-100S	1"	110124-252
	CIF-125S	1 1/4"	110124-052	FF-125S	1 1/4"	110124-253
CIF-150S	1 1/2"	110124-053	FF-150S	1 1/2"	110124-254	

## MOUNTING ORIENTATION



### RIGHT



### WRONG



# ASTRO 2 CIRCULATORS | THREE SPEED

## DIMENSION DATA - INCHES (MM)

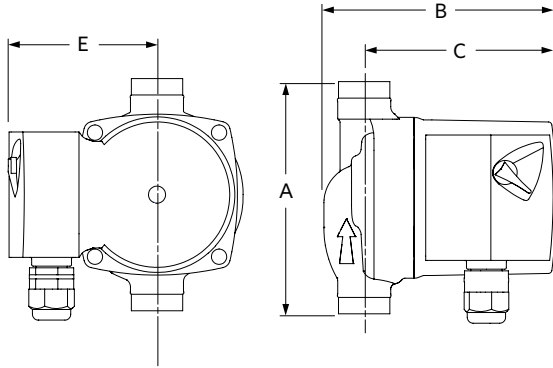
LEAD FREE BRONZE*	A	B	C	D	E	F	CONNECTION TYPE & SIZE	WEIGHT
Astro 225BS ½" SWT	5.00 (127)	5.00 (127)	4.13 (105)	—	3.00 (76)	—	Sweat - ½"	6.0 (2.7)
Astro 225BS ¾" SWT	5.00 (127)	5.00 (127)	4.13 (105)	—	3.00 (76)	—	Sweat - ¾"	6.0 (2.7)
STAINLESS STEEL*	A	B	C	D	E	F	CONNECTION TYPE & SIZE	WEIGHT
Astro 220ssu**	6.00 (152)	5.00 (127)	4.00 (102)	—	3.00 (76)	—	Union - 1¼" NPSM	6.5 (2.9)
Astro 225ssu**	6.00 (152)	5.00 (127)	4.00 (102)	—	3.00 (76)	—	Union - 1¼" NPSM	6.5 (2.9)
Astro 230ss**	6.38 (162)	6.00 (150)	4.00 (102)	4.00 (102)	3.00 (76)	3.25 (80)	Flange - (2) ½" dia. bolt holes	8.0 (3.6)
Astro 250ss**	6.38 (162)	6.00 (150)	4.00 (102)	4.00 (102)	3.00 (76)	3.25 (80)	Flange - (2) ½" dia. bolt holes	8.0 (3.6)
Astro 210ss**	6.50 (165)	7.25 (184)	4.87 (124)	4.00 (102)	3.50 (90)	3.13 (80)	Flange - (2) ½" dia. bolt holes	10.1 (4.6)
Astro 280ss (230V)**	6.50 (165)	6.75 (171)	4.87 (124)	4.00 (102)	3.50 (90)	3.13 (80)	Flange - (2) ½" dia. bolt holes	10.1 (4.6)
Astro 286ss**	6.50 (165)	6.38 (162)	4.87 (124)	4.00 (102)	3.50 (90)	3.13 (80)	Flange - (2) ½" dia. bolt holes	10.1 (4.6)
Astro 290ss**	8.50 (216)	6.65 (169)	5.20 (132)	4.00 (102)	3.50 (90)	3.45 (88)	Flange - (2) ½" dia. bolt holes	13.2 (6.0)
CAST IRON	A	B	C	D	E	F	CONNECTION TYPE & SIZE	WEIGHT
Astro 230ci**	6.38 (162)	6.00 (150)	4.00 (102)	4.00 (102)	3.00 (76)	3.25 (80)	Flange - (2) ½" dia. bolt holes	8.0 (3.6)
Astro 230ci-R**	6.38 (162)	5.63 (137)	4.00 (102)	4.00 (102)	3.00 (76)	3.25 (80)	Flange - (2) ½" dia. bolt holes	8.0 (3.6)
Astro 250ci**	6.38 (162)	6.00 (150)	4.00 (102)	4.00 (102)	3.00 (76)	3.25 (80)	Flange - (2) ½" dia. bolt holes	8.0 (3.6)
Astro 250ci-R**	6.38 (162)	5.63 (137)	4.00 (102)	4.00 (102)	3.00 (76)	3.25 (80)	Flange - (2) ½" dia. bolt holes	8.0 (3.6)
Astro 210ci**	6.50 (165)	7.25 (184)	4.87 (124)	4.00 (102)	3.50 (90)	3.13 (80)	Flange - (2) ½" dia. bolt holes	10.1 (4.6)
Astro 280ci (230V)**	6.50 (165)	6.38 (162)	4.87 (124)	4.00 (102)	3.50 (90)	3.13 (80)	Flange - (2) ½" dia. bolt holes	10.1 (4.6)
Astro 286ci**	6.50 (165)	6.38 (162)	4.87 (124)	4.00 (102)	3.50 (90)	3.13 (80)	Flange - (2) ½" dia. bolt holes	10.1 (4.6)
Astro 290ci**	8.50 (216)	6.65 (169)	5.20 (132)	4.00 (102)	3.50 (90)	3.45 (88)	Flange - (2) ½" dia. bolt holes	13.2 (6.0)

**NOTE:** All dimensions are in inches (mm) and weights in lbs (kg).

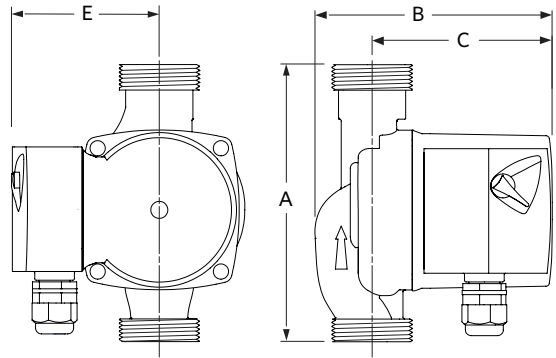
\*\* Removable check valve installed at pump outlet.

# ASTRO 2 CIRCULATORS | THREE SPEED

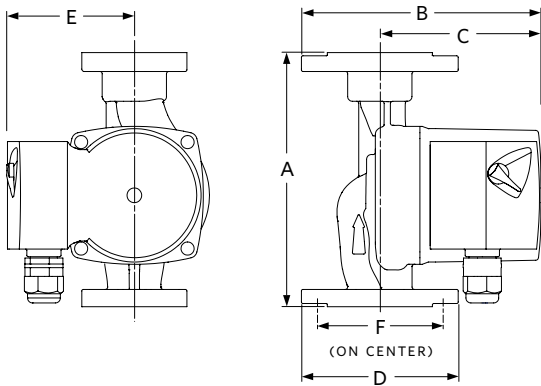
ASTRO 225BS



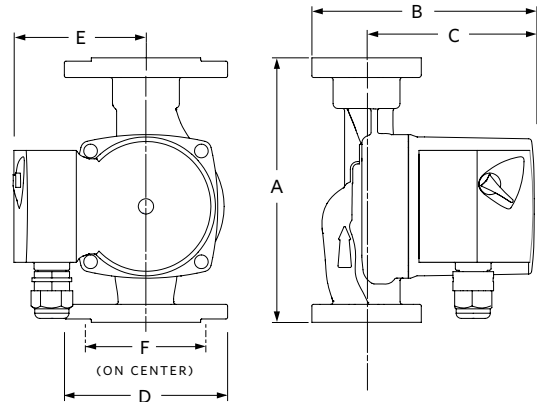
ASTRO 220SSU, 225SSU



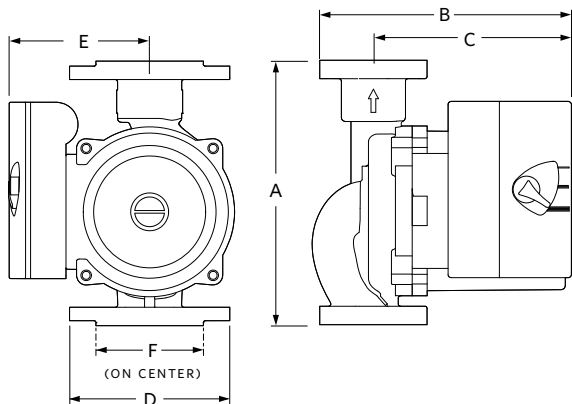
ASTRO 230SS/CI, 250SS/CI



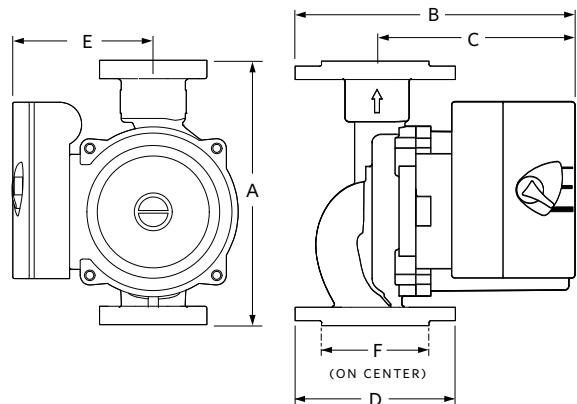
ASTRO 230CI-R, 250CI-R



ASTRO 280CI, 290CI/SS, 286CI/SS



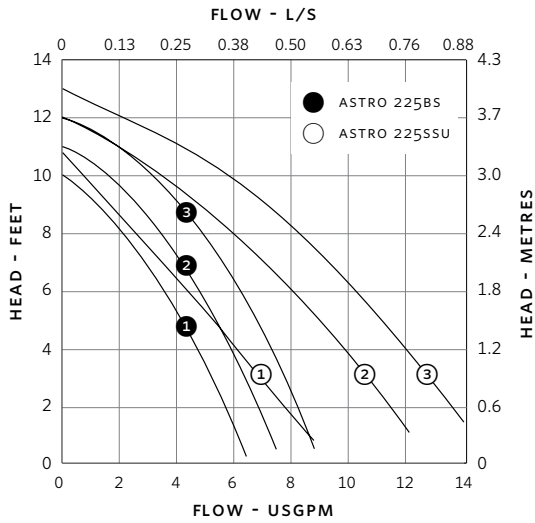
ASTRO 280SS, 210CI/SS



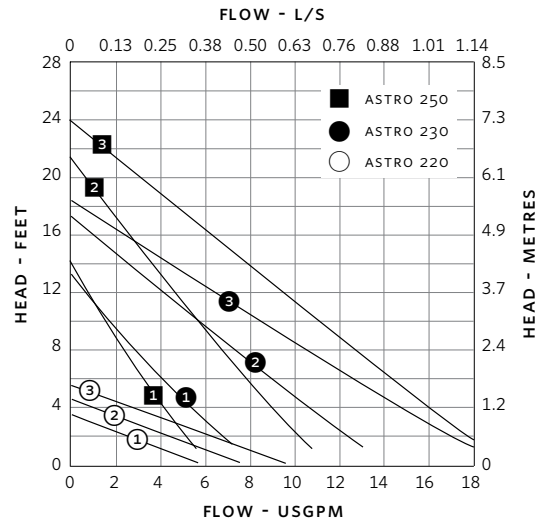
# ASTRO 2 CIRCULATORS | THREE SPEED

## PERFORMANCE CURVE

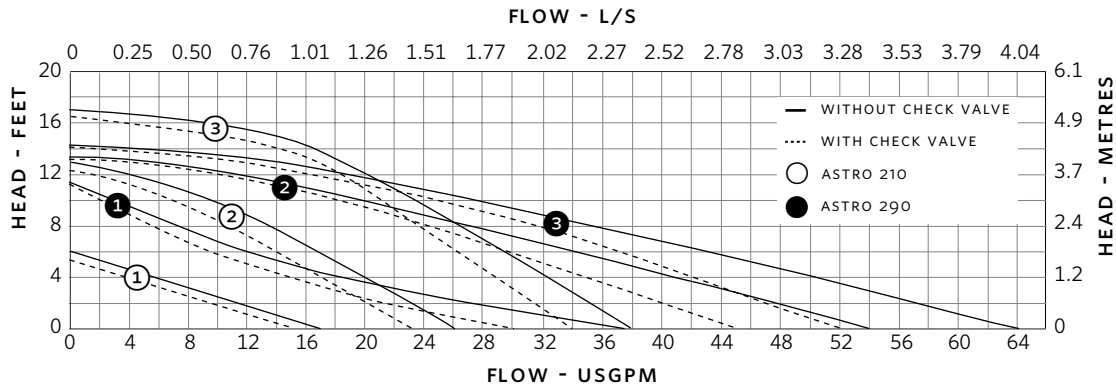
ASTRO 225BS, 225SSU



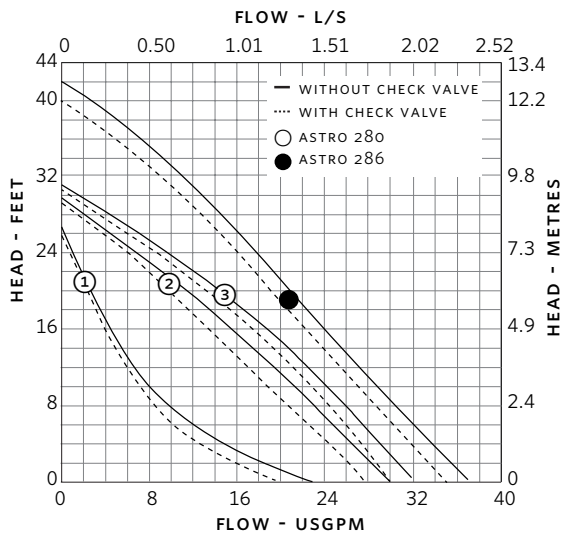
ASTRO 250, 230, 220



ASTRO 210, 290



ASTRO 280, 286





# ASTRO 2 | HOT WATER RE-CIRCULATION SYSTEMS



The Armstrong Astro 2 hot water re-circulation system automatically circulates water through domestic water pipes. This ensures that hot water is available instantly at every tap throughout a residence. From a cost and environmental point of view, far less water is wasted each time a hot water faucet is opened – saving an average of 12,000 gallons of water annually for a typical four-person household. Ideal for retrofit applications.

### PUMP DESIGN DATA

Pump model: \_\_\_\_\_ Flange size: \_\_\_\_\_  
 No. of pumps: \_\_\_\_\_ Note: \_\_\_\_\_  
 Capacity: \_\_\_\_\_ USgpm (L/s) Temperature: \_\_\_\_\_ °F (°C)  
 Head: \_\_\_\_\_ ft (m) Liquid: \_\_\_\_\_  
 Companion flanges: \_\_\_\_\_ Included: \_\_\_\_\_

### TECHNICAL DATA

**Power connection:** 6.0 ft. (1.8 m) power cord, molded duplex plug with ground

**Environment:** Indoor use only

**Flow range:** 0 to 64 USgpm (0 to 4.04 L/s)

**Head range:** 0 to 42.0 feet (0 to 12.8 m)

**Max. working pressure:** 150 PSI (1034 kPa)

**Max. water temperature:** 230°F (110°C)<sup>†</sup>

**Ambient temperature:** 39°F (4°C) to 104°F (40°C)

**Low temperature switchpoint<sup>1</sup>:** 85°F (29°C) ± 10%

**High temperature switchpoint<sup>1</sup>:** 105°F (40°C) ± 10%

**Clock/timer:** 12 hour analog clock with AM/PM indication

**Timer settings:** Individual mechanical toggles for each 15 minute interval over 24 hours

**Manual override:** Three position slide switch; ON/AUTO/OFF

**Approvals:**  US listed NSF-372 certified

<sup>1</sup> High/low temperature switchpoints are as measured on pipe surface with the Aquastat (TA models only).

<sup>†</sup> For open systems, it is recommended that the fluid temperature be less than 150°F (66°C) to avoid precipitation of calcium.

### MATERIALS OF CONSTRUCTION

**Pump body:** Lead free bronze\* (BS models)  
 Stainless steel\* (SS models)

**Impeller:** Noryl

**Shaft:** Ceramic

**Bearings:** Ceramic

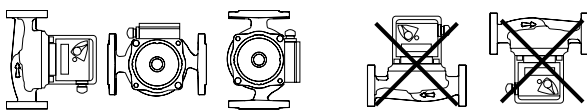
**Gasket material:** EPDM

\* Certified <0.25 weighted average percent lead and complies with California Health and Safety Code Section 116875 (commonly known as AB 1953).

### MOTOR DATA

MODEL	ELECTRICAL INPUT	SPEED	FULL LOAD AMP DRAW (A)	NOMINAL POWER (W)
ASTRO 220SSU	115V, 60HZ Single phase	3	0.29	33
		2	0.27	
		1	0.20	
ASTRO 225BS		3	0.64	75
		2	0.49	
		1	0.38	
ASTRO 225SSU		3	0.69	83
		2	0.55	
		1	0.43	
ASTRO 230SS		3	0.81	97
	2	0.58		
	1	0.45		
ASTRO 250SS	3	0.98	117	
	2	0.79		
	1	0.65		

### MOUNTING ORIENTATION



RIGHT

WRONG

# ASTRO 2 | HOT WATER RE-CIRCULATION SYSTEMS

## ACCESSORIES

### 24 HOUR TIMER

MODEL	PART NUMBER
24 HOUR TIMER	810223B-130

See page 17 for the details on 24-Hour Timer

### AQUASTAT

MODEL	PART NUMBER
½"	110123-120
¾"	110123-121

See Page 19 for the details on Aquastat models.

### LEAD FREE\* UNION FITTING SETS (contains two (2) half unions and gaskets)

MODEL	PART NUMBER	CONNECTION
Astro 220SSU/225SSU	810120-320	1.25" NPSM × 0.5" sweat lead free
	810120-322	1.25" NPSM × 0.75" sweat lead free
	810120-324	1.25" NPSM × 0.75" FNPT lead free

MODEL	FLANGE KITS		
	SIZE	ITEM NUMBER	
		LEAD FREE BRONZE*	CAST IRON
Astro 210/230/250 /280/286 Compass	0.75"	816013-841	816013-111
	1"	816012-841	816012-111
	1.25"	816011-841	816011-111
	1.5"	816009-841	816009-111
Astro 290	1"	806073-841	806073-111
	1.25"	804300-841	804300-111
	1.5"	804301-841	804301-111

MODEL	CIF			FLEX FLANGES		
	MODEL	SIZE	ITEM NUMBER	MODEL	SIZE	ITEM NUMBER
All Astro flange models	CIF-050T	½"	110124-100	FF-050T	½"	110124-200
	CIF-075T	¾"	110124-000	FF-075T	¾"	110124-201
	CIF-100T	1"	110124-001	FF-100T	1"	110124-202
	CIF-125T	1¼"	110124-002	FF-125T	1¼"	110124-203
	CIF-150T	1½"	110124-003	FF-150T	1½"	110124-204
	CIF-050S	½"	110124-150	FF-050S	½"	110124-250
	CIF-075S	¾"	110124-050	FF-075S	¾"	110124-251
	CIF-100S	1"	110124-051	FF-100S	1"	110124-252
	CIF-125S	1¼"	110124-052	FF-125S	1¼"	110124-253
CIF-150S	1½"	110124-053	FF-150S	1½"	110124-254	

# ASTRO 2 | HOT WATER RE-CIRCULATION SYSTEMS

MODEL	CONNECTION	SIZE	CORD	TIMER	AQUASTAT	ELECTRICAL DATA @ 115 Vac, 60 Hz	WEIGHT	PART NUMBER
ASTRO 220SSU050S-TA*	Sweat	½"	✓	✓	✓	0.29 A, 33W	7.50 (3.40)	110223B-140
ASTRO 220SSU075S-TA*	Sweat	¾"	✓	✓	✓	0.29 A, 33W	7.50 (3.40)	110223B-141
ASTRO 225BS050S-TA	Sweat	½"	✓	✓	✓	0.64 A, 75W	7.00 (3.18)	110223B-142
ASTRO 225BS075S-TA	Sweat	¾"	✓	✓	✓	0.64 A, 75W	7.00 (3.18)	110223B-143
ASTRO 220SSU-TA	NPSM union	1¼"	✓	✓	✓	0.29 A, 33W	7.50 (3.40)	110223B-144
ASTRO 225SSU-TA	NPSM union	1¼"	✓	✓	✓	0.69 A, 83W	7.50 (3.40)	110223B-145
ASTRO 230SS-TA	2 bolt flange	2 bolt flange	✓	✓	✓	0.81 A, 97W	10.00 (4.54)	110223B-148
ASTRO 250SS-TA	2 bolt flange	2 bolt flange	✓	✓	✓	0.98 A, 117W	10.00 (4.54)	110223B-149
ASTRO 220SSU050S-T*	Sweat	½"	✓	✓	—	0.29 A, 33W	7.50 (3.40)	110223B-240
ASTRO 220SSU075S-T*	Sweat	¾"	✓	✓	—	0.29 A, 33W	7.50 (3.40)	110223B-241
ASTRO 225BS050S-T	Sweat	½"	✓	✓	—	0.64 A, 75W	7.00 (3.18)	110223B-242
ASTRO 225BS075S-T	Sweat	¾"	✓	✓	—	0.64 A, 75W	7.00 (3.18)	110223B-243
ASTRO 220SSU-T	NPSM union	1¼"	✓	✓	—	0.29 A, 33W	7.50 (3.40)	110223B-244
ASTRO 225SSU-T	NPSM union	1¼"	✓	✓	—	0.69 A, 83W	7.50 (3.40)	110223B-245
ASTRO 230SS-T	2 bolt flange	2 bolt flange	✓	✓	—	0.81 A, 97W	10.00 (4.54)	110223B-248
ASTRO 250SS-T	2 bolt flange	2 bolt flange	✓	✓	—	0.98 A, 117W	10.00 (4.54)	110223B-249
ASTRO 220SSU050S-LC*	Sweat	½"	✓	—	—	0.29 A, 33W	7.00 (3.18)	110223-340
ASTRO 220SSU075S-LC*	Sweat	¾"	✓	—	—	0.29 A, 33W	7.00 (3.18)	110223-341
ASTRO 225BS050S-LC	Sweat	½"	✓	—	—	0.64 A, 75W	6.50 (2.95)	110223-342
ASTRO 225BS075S-LC	Sweat	¾"	✓	—	—	0.64 A, 75W	6.50 (2.95)	110223-343
ASTRO 220SSU-LC	NPSM union	1¼"	✓	—	—	0.29 A, 33W	7.00 (3.18)	110223-344
ASTRO 225SSU-LC	NPSM union	1¼"	✓	—	—	0.69 A, 83W	7.00 (3.18)	110223-345
ASTRO 230SS-LC	2 bolt flange	2 bolt flange	✓	—	—	0.81 A, 97W	9.00 (4.08)	110223-348
ASTRO 250SS-LC	2 bolt flange	2 bolt flange	✓	—	—	0.98 A, 117W	9.00 (4.08)	110223-349

**NOTE:** All weights are in lbs. (kg) \*Union model with sweat hardware kit.

LC - Line cord

TA - Timer and Aquastat with line cord

T - Timer and line cord

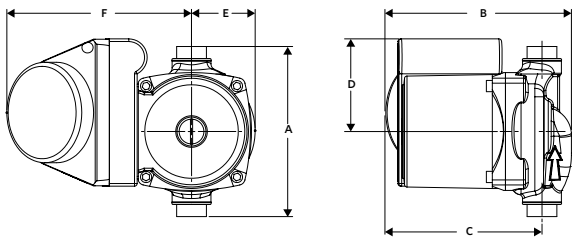
# ASTRO 2 | HOT WATER RE-CIRCULATION SYSTEMS

## DIMENSION DATA - INCHES (MM)

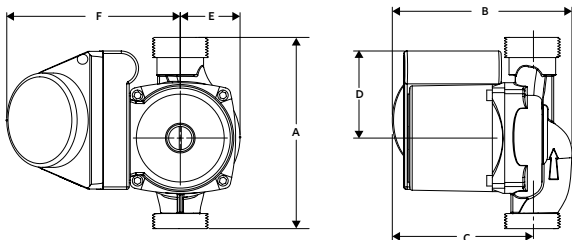
MODEL	A	B	C	D	E	F
	ASTRO 225BS	5.00 (127)	5.46 (139)			
ASTRO 220/225SSU	5.98 (152)	5.62 (143)	4.38 (111)	2.72 (69)	1.87 (48)	5.43 (138)
ASTRO 230/250SS	6.38 (162)	6.49 (165)	4.52 (115)	2.72 (69)	1.82 (46)	5.43 (138)

NOTE: All dimensions are in inches (mm)

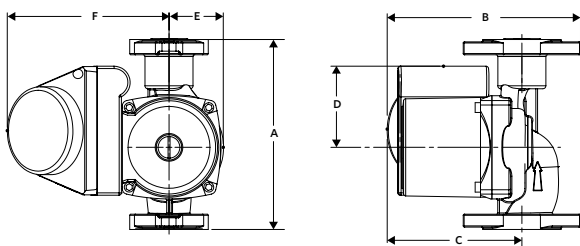
### ASTRO 225BS



### ASTRO 220/225SSU

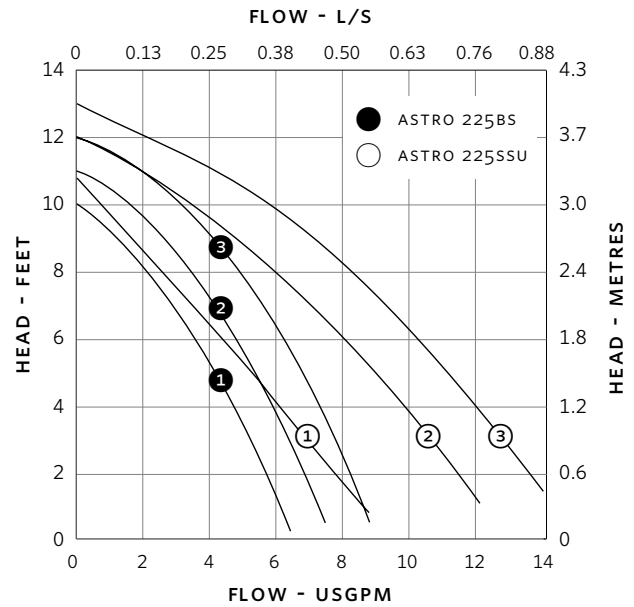


### ASTRO 230/250SS

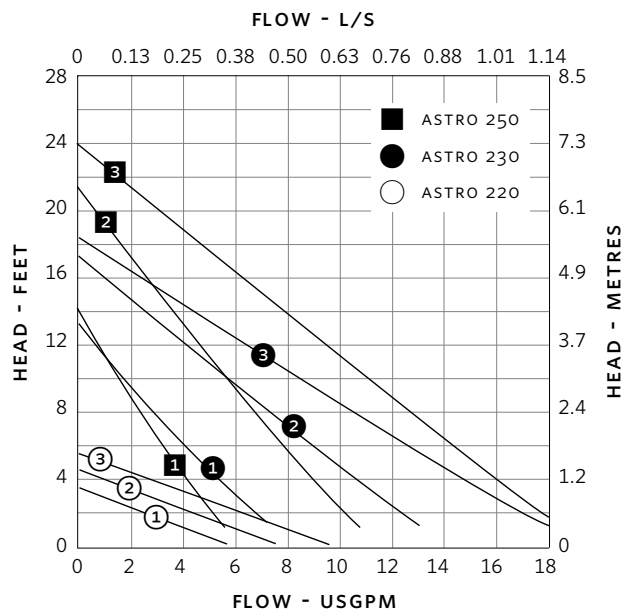


## PERFORMANCE CURVE

### ASTRO 225BS, 225SSU



### ASTRO 250, 230, 220





# ASTRO 2 | 24 HOUR TIMER



The 24-hour timers are designed for use with Armstrong circulators installed in indoor hot water re-circulation applications. The Armstrong 24-hour timers provide On/Off pump control according to preset operating times in order to increase comfort and improve the overall efficiency of domestic hot water re-circulation systems.

## TECHNICAL DATA

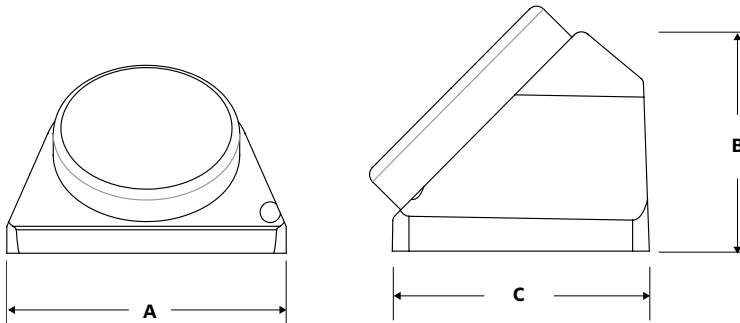
- Description:** 24 hour timer
- Application:** Time actuated ON/OFF pump control
- Shortest switching interval:** ¼ hour (15 minutes)
- Manual switch modes:** Timer, ON override, OFF override
- Ambient temperature range:** -40°F to 180°F (-40°C to 82°C)
- Power consumption:** 120 V, 0.5 W
- Supply voltage:** 110-120 VAC, 60 Hz
- Terminals:** ¼" spade terminals
- Switch rating:** Type: Spot
  - Resistive: 21A
  - Tungsten: 1350 W
  - Inductive: 1 hp @ 120 VAC; 2 hp @ 240 VAC

## PART NUMBERS

24 hour timer: 810223B-130

## DIMENSION DATA - INCHES (MM)

MODEL	DIMENSIONS INCHES (mm)			WEIGHT lbs (oz.)
	A	B	C	
24 hour timer	2.74 (70)	1.50 (38)	4.23 (107)	0.19 (3.0)





# AQUASTAT CONTROLS | 1/2" & 3/4"



The Armstrong aquastat control accessory is designed for use with Astro Series wet rotor circulators in potable hot water re-circulation installations.

## TECHNICAL DATA

**Description:** Aquastat (thermostatic) switch

**Application:** Clip-on thermostatic control for Astro circulators

**Type:** Bi-metallic disc, snap-acting

**Enclosure:** Environmentally sealed

**Mounting:** Clip-on mount for 1/2" (12.7 mm) I.D. copper tube [5/8" (15.8 mm) O.D.]  
Clip on mount for 3/4" (19.0 mm) I.D. copper tube [7/8" (22.2 mm) O.D.]

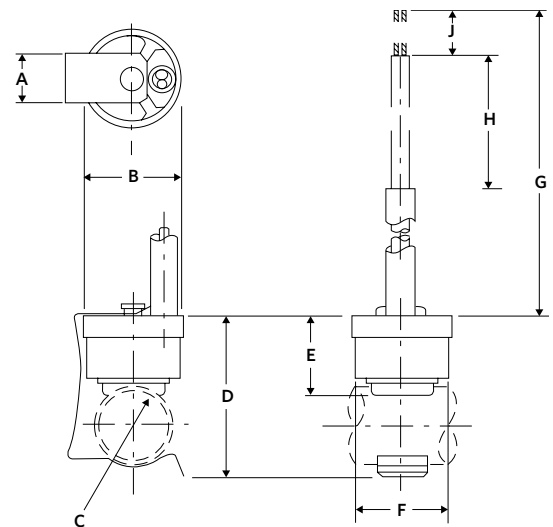
**Contact rating:** 10 A @ 120 V, 60 Hz resistive; 5 A @ 240 V, 60 Hz resistive

**Temperature Rating\* :** 105±5°F (40±2°C) pump switches OFF  
85±6°F (29±3°C) pump switches ON

**Leads:** • 2 Leads, AWG 18, 14" (356 mm)

- 12" (305 mm), black insulation, silicon or epoxy overmold
- 1/2" (12.7 mm) strip length

\* Temperatures indicated are at pipe surface



## DIMENSION DATA - INCHES (MM)

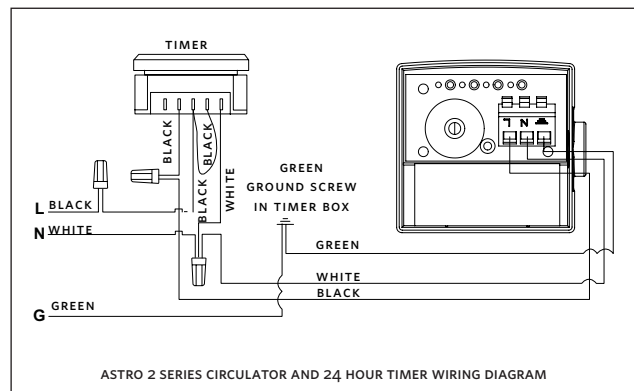
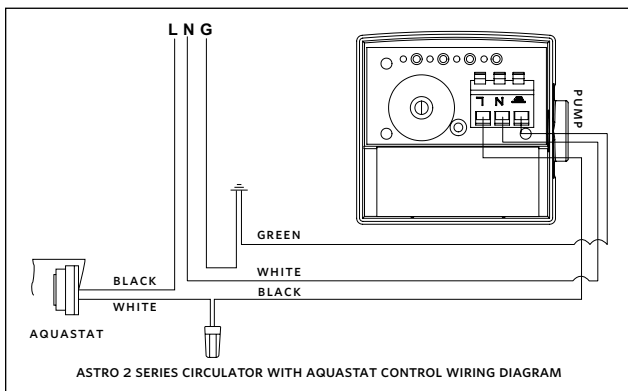
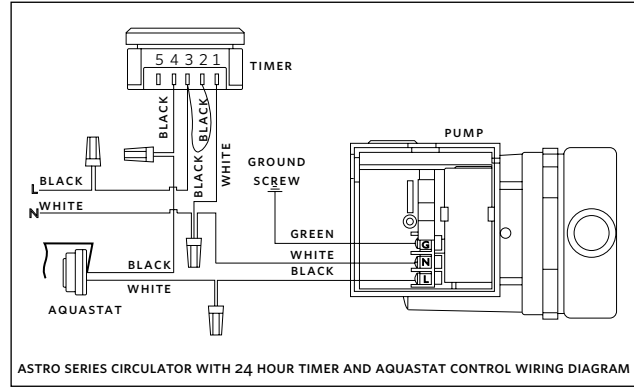
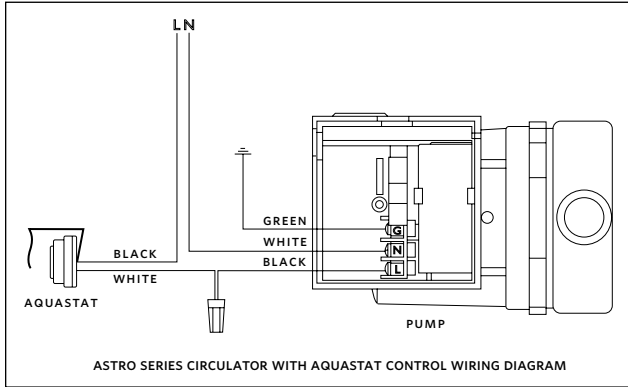
MODEL	DIMENSIONS INCHES (mm)								
	A	B	C	D	E	F	G	H	J
1/2" Aquastat	0.56 (14.2)	1.12 (28.4)	0.625 (15.8) nominal pipe o.d.	1.7 (43.2)	0.96 (24.4)	1.04 (26.4)	14.0 (355.6)	2.0 (50.8)	0.5 (12.7)
3/4" Aquastat	0.56 (14.2)	1.12 (28.4)	0.875 (22.2) nominal pipe o.d.	1.8 (45.7)	0.96 (24.4)	1.04 (26.4)	14.0 (355.6)	2.0 (50.8)	0.5 (12.7)

## PART NUMBERS

MODEL	PART NUMBER
1/2" Aquastat	110123-120
3/4" Aquastat	110123-121

# AQUASTAT CONTROLS | 1/2" & 3/4"

## WIRING DIAGRAM



# ASTRO EXPRESS 2 | HOT WATER RECIRCULATION



The Armstrong Astro Express 2 hot water recirculation system is a combination of circulator and low-flow (LF) valve that provides instant hot water in a residential plumbing system. The LF valve shifts cooled hot water into the cold water supply line instead of into the drain. This means far less cooled water is wasted each time the hot water faucet is opened – saving an average of 12,000 gallons of water annually for a typical four-person household. Ideal for retrofit applications.

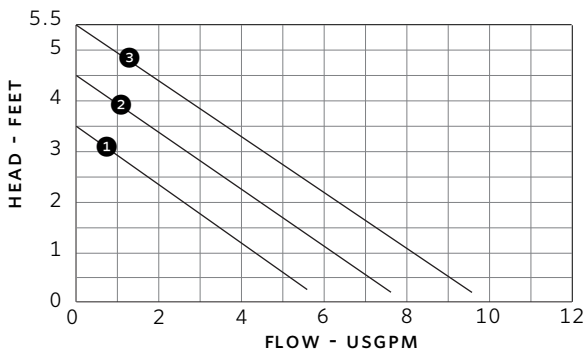
QUANTITY	DESCRIPTION
	*Astro Express 2 system (Wet rotor circulator with timer, line cord, union hardware, and one Astro Express LF valve)
	*Astro Express LF valve (only) for lengthy branches to additional faucets off main distribution pipe

## MATERIALS OF CONSTRUCTION

### ASTRO EXPRESS 2 CIRCULATOR

- Pump casing:** Astro 220SSU with 1¼" NPSM union threads
- Power connection:** 6.0 ft (1.8 m) power cord, molded duplex plug with ground
- Impeller:** PA66
- Shaft:** Ceramic
- Bearings/seal:** Ceramic/EPDM
- Union tailpieces:** Brass, ¾" FPT (two) and ¾" MPT (one)
- Union gaskets:** EPDM (two)

## PERFORMANCE CURVE



## TECHNICAL DATA

### ASTRO EXPRESS 2 CIRCULATOR

- Power requirements:** 115 VAC, 60 Hz, 33 W, 0.29 A max.
- Max. head (Astro 220SSU):** 5.3 ft (1.6 m)
- Max. flow (Astro 220SSU):** 10.0 gpm (0.63 L/s)
- Ambient temperature:** 39°F (4°C) to 104°F (40°C)
- Clock timer:** 12 hour analog clock with AM/PM indication
- Timer settings:** Individual toggles for each 15 minute interval over 24 hours
- Manual override:** 3 position slide switch, ON/OFF/AUTO

### ASTRO EXPRESS LF VALVE

- Housing:** Forged ECO brass\* with noryl cap
- Internal components:** Stainless steel and plastic with EPDM O-rings
- Connections:** Threaded, ½" hot & cold inlets, ¾" hot & cold outlets
- Flowrate adjustment:** 0 – 100%, multi-turn slotted screw
- Mounting:** Plastic wall anchor with screw

**Environment:** Indoor use only

**Max. working pressure:** 100 PSI (689 kPa)

**Max. water temperature:** 140°F (60°C)

**Approvals:**  listed NSF-372 certified

\*Complies with Section 116875 of the California Health and Safety Code and Vermont Act 193. (Lead content of all wetted surface is 0.25% or less.)

## MOUNTING ORIENTATION

Connect the hot and cold water supply to the Astro Express LF valve ½" threaded inlets. (Stainless steel flex hose recommended.)

Connect the hot and cold Astro Express LF valve ¾" threaded outlets to the faucet. (Stainless steel flex hose recommended.)

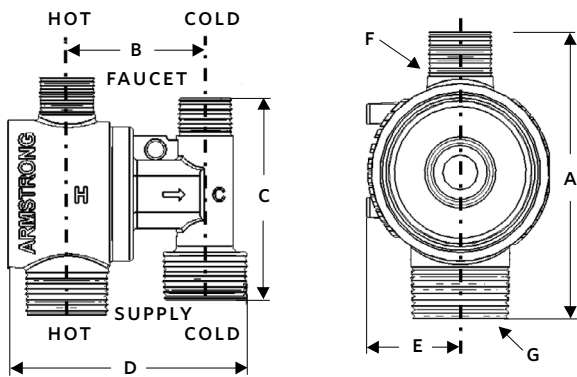
Secure the valve to the wall under the sink, using the plastic wall anchor and screw.

# ASTRO EXPRESS 2 | HOT WATER RECIRCULATION

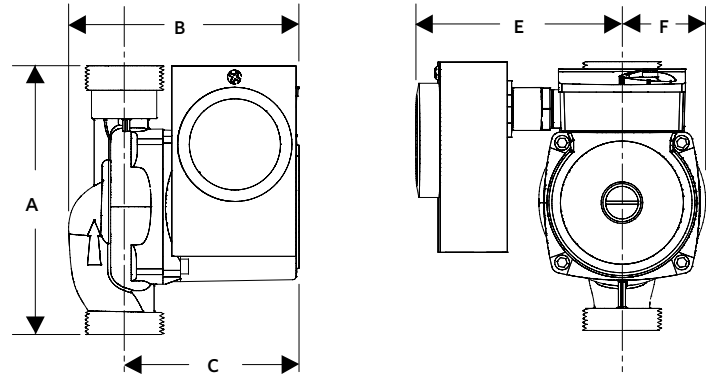
## DIMENSION DATA - INCHES (MM)

PRODUCT	DIMENSIONS INCHES (mm)							WEIGHT lbs (kg)
	A	B	C	D	E	F	G	
Astro Express 2 circulator	6.00 (152)	5.00 (127)	4.00 (102)	—	5.00 (127)	1.80 (46)	—	10.00 (4.45)
Astro Express LF valve	2.50 (63)	1.50 (38)	2.10 (53)	2.60 (66)	0.80 (20)	3/8" IPS	1/2" IPS	0.50 (0.23)

### ASTRO EXPRESS LF VALVE



### ASTRO EXPRESS 2 CIRCULATOR



## PART NUMBERS

MODEL	PART NUMBER
Astro Express 2 circulator	110223-401
Astro Express LF valve	561100LF-001

## REPLACEMENTS PARTS

PRODUCT	PART NO.	
Timer	810223B-130	See page 17 for the details on 24 hour timer
Union kits (Lead free brass*)	810120-320	See page 181 for the details on Union Fitting Sets
	810120-322	
	810120-324	

# SERIES S&H ECM | ECM CIRCULATORS



The Armstrong S&H circulators now include an ECM motor option and deploy a proven fixed-speed design, which both are cost-effective, durable and easy to maintain. Models are available in the traditional sleeve-bearing design as well as the new, permanently-lubricated, maintenance-free design.

## MATERIALS OF CONSTRUCTION

PART NAME	BRONZE FITTED	LEAD FREE BRONZE*
Pump Body	Cast iron	Lead free Bronze

**Impeller:** Non-ferrous

**Bearings:**  Sleeve - Oil lubricated for the H-63 to 67 and S-69 \*\*  
 'Maintenance free' bearings - No lubrication for the H-53, H-54, S-55 and S-57 \*\*\*

**Seal:** Mechanical

**Stationary seal face:** Sintered silicon carbide

**Companion flanges:** Included

All Bronze Circulators are NSF - 372 rated

\* Contains less than 0.25% lead, weighted average.

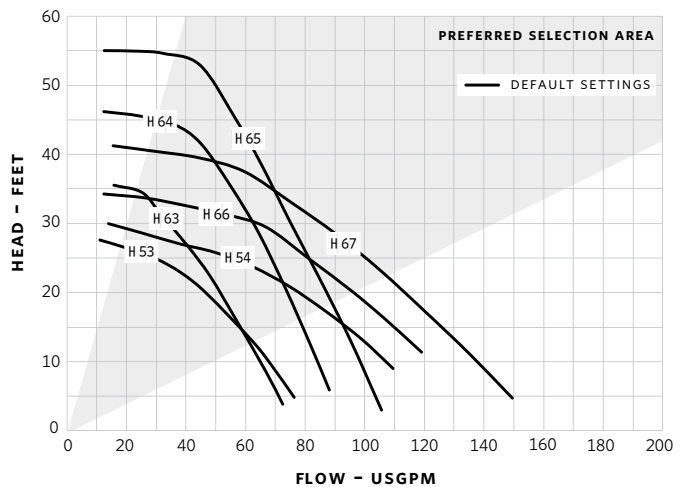
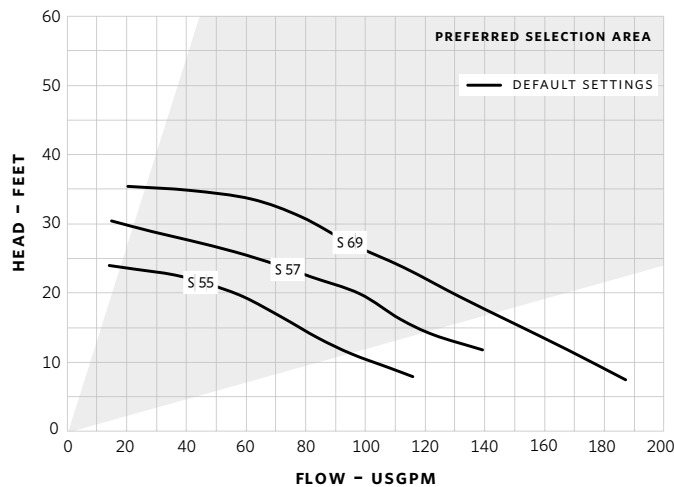
\*\* Alloy shaft with copper sleeve.

\*\*\* Stainless steel shaft.

## MAXIMUM PUMP OPERATING CONDITIONS

175 psig at 225°F (1206 kPa at 107°C)

## PERFORMANCE CURVE



Based on 1800 RPM, 60 Hz motors.  
 For 50 Hz motors write for special capacity charts.

# SERIES S&H ECM | ECM CIRCULATORS

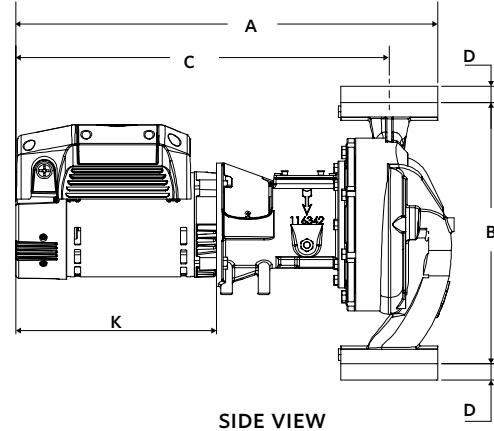
## DIMENSION DATA - INCHES (MM)

MODEL	FLANGE SIZE (N.P.T)	MOTOR <sup>†</sup>		DIMENSIONS inches (mm)				WEIGHT
		HP	PHASE AND VOLT	A	B	C	D	lbs (kg)
H-53-1	1.5	½	1 phase 115 v	20.36 (517)	11.50 (292)	16.79 (426)	0.88 (22)	59 (26.8)
			1 phase 208-230 v	20.36 (517)	11.50 (292)	16.79 (426)	0.88 (22)	59 (26.8)
H-54-1	2	¾	1 phase 115 v	20.42 (519)	11.50 (292)	19.93 (506)	0.88 (22)	66 (30.0)
			1 phase 208-230 v	20.42 (519)	11.50 (292)	19.93 (506)	0.88 (22)	66 (30.0)
H-63-1	1.5	½	1 phase 115 v	23.12 (587)	13.50 (343)	19.93 (506)	0.88 (22)	91 (41.4)
			1 phase 208-230 v	23.12 (587)	13.50 (343)	19.93 (506)	0.88 (22)	91 (41.4)
H-64-1	1.5	¾	1 phase 115 v	23.12 (587)	13.50 (343)	19.93 (506)	0.88 (22)	95 (43.2)
			1 phase 208-230 v	23.12 (587)	13.50 (343)	19.93 (506)	0.88 (22)	95 (43.2)
H-65-1	1.5	1	1 phase 208-230 v	23.12 (587)	13.50 (343)	19.93 (506)	0.88 (22)	100 (45.4)
H-66-1	2	¾	1 phase 115 v	23.53 (598)	14.02 (356)	20.04 (509)	0.88 (22)	115 (52.3)
			1 phase 208-230 v	23.53 (598)	14.02 (356)	20.04 (509)	0.88 (22)	115 (52.3)
H-67-1	2	1	1 phase 208-230 v	23.53 (598)	14.02 (356)	20.04 (509)	0.88 (22)	123 (55.9)
S-55-1	3	½	1 phase 115 v	20.24 (514)	12.00 (305)	16.93 (430)	1.00 (25)	77 (35.0)
			1 phase 208-230 v	20.24 (514)	12.00 (305)	16.93 (430)	1.00 (25)	77 (35.0)
S-57-1	3	¾	1 phase 115 v	20.42 (519)	11.50 (292)	16.93 (430)	1.00 (25)	80 (36.4)
			1 phase 208-230 v	20.42 (519)	11.50 (292)	16.93 (430)	1.00 (25)	80 (36.4)
S-69-1	3	1	1 phase 208-230 v	24.44 (621)	14.25 (362)	19.93 (506)	1.00 (25)	113 (60.5)

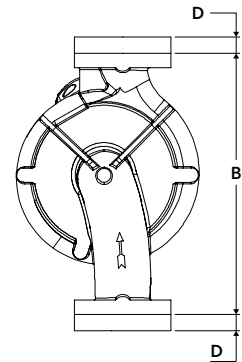
Dimensions shown are for reference only. For exact dimensional data, contact factory.  
<sup>†</sup>All single phase motors are equipped with a built-in thermal overload protection.  
 Three phase motors require external overload protection.  
 Conduit box not supplied on ½ hp or greater.

## PART NUMBERS

MODEL	BRONZE FITTED ITEM NO.	LEAD FREE BRONZE ITEM NO.
<b>H SERIES MODELS WITH ECM MOTORS</b>		
H-53 ECM 115/1/60	116439MF-742	116439MF-743
H-53 ECM 230/1/60	116439MF-842	116439MF-843
H-54 ECM 115/1/60	116451MF-742	116451MF-743
H-54 ECM 230/1/60	116451MF-842	116451MF-843
H-63 ECM 115/1/60	116463-742	116463-743
H-63 ECM 230/1/60	116463-842	116463-843
H-64 ECM 115/1/60	116475-742	116475-743
H-64 ECM 230/1/60	116475-842	116475-843
H-65 ECM 230/1/60	116487-842	116487-843
H-66 ECM 115/1/60	116499-742	116499-743
H-66 ECM 230/1/60	116499-842	116499-843
H-67 ECM 230/1/60	116511-842	116511-843
<b>S SERIES MODELS WITH ECM MOTORS</b>		
S-55 ECM 115/1/60	106284MF-742	106284MF-743
S-55 ECM 230/1/60	106284MF-842	106284MF-843
S-57 ECM 115/1/60	106285MF-742	106285MF-743
S-57 ECM 230/1/60	106285MF-842	106285MF-843
S-69 ECM 230/1/60	116531-842	116531-843



SIDE VIEW



END VIEW



# S&H 3-PIECE CIRCULATORS | H MODELS



S & H Series circulators feature the unique Armstrong shaft and bearing module for ease of serviceability and maximum interchangeability. Oversized shafts of alloy steel machined to exact tolerances. Impellers are constructed from non-ferrous material and are designed for optimal water delivery. Available in bronze-fitted and all-bronze construction.

The Armstrong S&H circulators now include an ECM motor option and deploy a proven fixed-speed design, which both are cost-effective, durable and easy to maintain. Models are available in the traditional sleeve-bearing design as well as the new, permanently-lubricated, maintenance-free design.

## MATERIALS OF CONSTRUCTION

PART NAME	H-32 TO H-54 BRONZE FITTED	H-63 TO H-68 BRONZE FITTED	H-32 TO H-54 LEAD FREE BRONZE*	H-63 TO H-68 LEAD FREE BRONZE*
Pump body	Cast iron	Cast iron	Lead free bronze	Lead free bronze
Coupler	H-32 & H-41 flexible, 4-spring H-51 to H-54 flexible, spacer type	Flexible, spacer type	H-32 & H-41 flexible, 4-spring H-51 to H-54 flexible, spacer type	Flexible, spacer type

**Impeller:** Non-ferrous

**Bearings:**  Sleeve - Oil lubricated\*\*  
 Maintenance free - Permanently lubricated\*\*\*

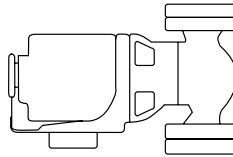
**Seal:** Mechanical

**Stationary seal face:** Sintered silicon carbide

\* Contains less than 0.25% lead, weighted average.  
 \*\* Alloy shaft with copper sleeve.  
 \*\*\* Stainless steel shaft.

## MOUNTING ORIENTATION

The pump should be installed in a position to permit proper lubrication of bearings and servicing. Motor and bearing bracket are to be kept free of insulation. Pump and motor unit are designed to be supported by the in line piping only. Do not support in any other manner. A height of approximately 4 feet above floor is recommended.

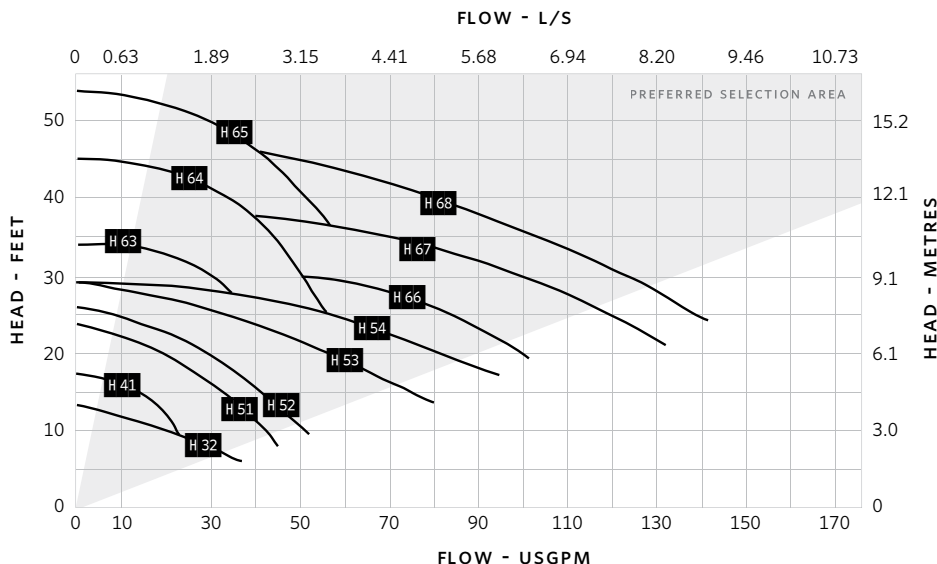


HORIZONTAL MOUNTING

## MAXIMUM PUMP OPERATING CONDITIONS

125 psig at 225°F (863 kPa at 107°C)

## PERFORMANCE CURVE



Based on 1800 RPM, 60 Hz motors. For 50 Hz motors write for special capacity charts.

# S&H 3-PIECE CIRCULATORS | H MODELS

## DIMENSION DATA - INCHES (MM)

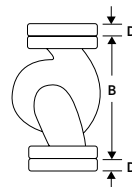
MODEL	FLANGE SIZE (N.P.T)	MOTOR**		DIMENSIONS INCHES (mm)				WEIGHT lbs (kg)
		HP	PHASE AND VOLT	A	B	C	D	
H32	1	3/8	1 PHASE 115 V	15.00 (381)	8.50 (216)	12.50 (318)	0.88 (22)	30 (13.6)
	1 1/4	3/8	1 PHASE 115 V	15.00 (381)	8.50 (216)	12.50 (318)	0.88 (22)	30 (13.6)
	1 1/2	3/8	1 PHASE 115 V	15.00 (381)	8.50 (216)	12.50 (318)	0.88 (22)	30 (13.6)
H41	1	3/8	1 PHASE 115 V	15.25 (387)	8.50 (216)	12.50 (318)	0.75 (19)	34 (15.4)
H51	1	3/4	1 PHASE 115 V	17.25 (438)	11.50 (292)	13.50 (343)	0.75 (19)	48 (21.8)
	1	3/4	3 PHASE 208-230/460 V	17.25 (438)	11.50 (292)	13.50 (343)	0.75 (19)	48 (21.8)
H52	1 1/4	1/2	1 PHASE 115 V	17.25 (438)	11.50 (292)	13.50 (343)	0.88 (22)	48 (21.8)
	1 1/4	1/2	3 PHASE 208-230/460 V	17.25 (438)	11.50 (292)	13.50 (343)	0.88 (22)	48 (21.8)
H53	1 1/2	1/2	1 phase 115/230 V	20.00 (508)	11.50 (292)	16.50 (419)	0.88 (22)	58 (26.3)
	1 1/2	1/2	3 PHASE 208-230/460 V	20.00 (508)	11.50 (292)	16.50 (419)	0.88 (22)	58 (26.3)
	1 1/2	1/2	3 PHASE 575 V	20.00 (508)	11.50 (292)	16.50 (419)	0.88 (22)	58 (26.3)
H54	2	3/4	1 phase 115/230 V	20.00 (508)	11.50 (292)	16.50 (419)	0.88 (22)	68 (30.8)
	2	3/4	3 PHASE 208-230/460 V	20.00 (508)	11.50 (292)	16.50 (419)	0.88 (22)	68 (30.8)
	2	3/4	3 PHASE 575 V	20.00 (508)	11.50 (292)	16.50 (419)	0.88 (22)	68 (30.8)
H63	1 1/2	1/2	1 phase 115/230 V	23.00 (584)	13.50 (343)	19.75 (502)	0.88 (22)	86 (39.0)
	1 1/2	1/2	3 PHASE 208-230/460 V	23.00 (584)	13.50 (343)	19.75 (502)	0.88 (22)	86 (39.0)
	1 1/2	1/2	3 PHASE 575 V	23.00 (584)	13.50 (343)	19.75 (502)	0.88 (22)	86 (39.0)
H64	1 1/2	3/4	1 phase 115/230 V	23.00 (584)	13.50 (343)	19.75(502)	0.88 (22)	89 (40.4)
	1 1/2	3/4	3 PHASE 208-230/460 V	23.00 (584)	13.50 (343)	19.75(502)	0.88 (22)	89 (40.4)
	1 1/2	3/4	3 PHASE 575 V	23.00 (584)	13.50 (343)	19.75(502)	0.88 (22)	89 (40.4)
H65	1 1/2	1	1 phase 115/230 V	23.00 (584)	13.50 (343)	19.75(502)	0.88 (22)	92 (41.7)
	1 1/2	1	3 PHASE 208-230/460 V	23.00 (584)	13.50 (343)	19.75(502)	0.88 (22)	92 (41.7)
	1 1/2	1	3 PHASE 575 V	23.00 (584)	13.50 (343)	19.75(502)	0.88 (22)	92 (41.7)
H66	2	3/4	1 PHASE 115 V	23.25 (591)	14.00 (356)	19.75 (502)	0.88 (22)	110 (49.9)
	2	3/4	3 PHASE 208-230/460 V	23.25 (591)	14.00 (356)	19.75 (502)	0.88 (22)	110 (49.9)
	2	3/4	3 PHASE 575 V	23.25 (591)	14.00 (356)	19.75 (502)	0.88 (22)	110 (49.9)
H67	2	1	1 phase 115/230 V	23.25 (591)	14.00 (356)	19.75 (502)	0.88 (22)	115 (52.1)
	2	1	3 PHASE 208-230/460 V	23.25 (591)	14.00 (356)	19.75 (502)	0.88 (22)	115 (52.1)
	2	1	3 PHASE 575 V	23.25 (591)	14.00 (356)	19.75 (502)	0.88 (22)	115 (52.1)
H68	2	1 1/2	1 phase 115/230 V	21.75 (552)	14.00 (356)	18.25 (464)	0.88 (22)	120 (54.0)
	2	1 1/2	3 PHASE 208-230/460 V	21.75 (552)	14.00 (356)	18.25 (464)	0.88 (22)	120 (54.0)
	2	1 1/2	3 PHASE 575 V	21.75 (552)	14.00 (356)	18.25 (464)	0.88 (22)	120 (54.0)

Dimensions shown are for reference only. For exact dimensional data, contact factory.

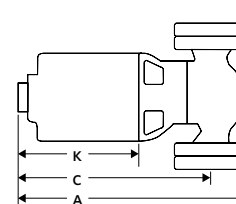
Companion flanges are not furnished as standard on s-25, s-45 and H-32. Conduit box not supplied on 1/2 hp or greater.

\*\* All single phase motors are equipped with a built-in thermal overload protection. Three phase motors require external overload protection.

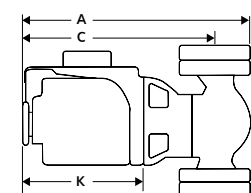
END VIEW



SIDE VIEW



RESILIENT MOUNT



# S&H 3-PIECE CIRCULATORS | H MODELS

## COMPANION SINGLE FLANGE PART NUMBERS

SIZE	CAST IRON	LF BRONZE
¾	116013-011	116013-841
1	116012-011	116012-841
1¼	116011-011	116011-841
1½	116009-011	116009-841
2	105210-011/106074-011	105210-841/106074-841
2½	105189-011	105189-841
3	105188-011/133615-010	105188-841/106466-841

## PART NUMBERS

MODEL	BRONZE FITTED ITEM NO.	LEAD FREE* BRONZE ITEM NO.
<b>MAINTENANCE FREE DESIGN</b>		
H32	174034MF-013	174034MF-043
H41	174035MF-113	174035MF-143
H51 (1 Phase)	116431MF-132	116432MF-133
H51 (3 Phase)	110119MF-100	110119MF-101
H52 (1 Phase)	116435MF-132	116436MF-133
H52 (3 Phase)	110119MF-102	110119MF-103
H53 (1 Phase)	116439MF-132	116440MF-133
H53 (3 Phase)	116443MF-136	116444MF-137
H53 (3 pH 575 V)	116447MF-000	116448MF-000
H54 (1 Phase)	116451MF-132	116452MF-133
H54 (3 Phase)	116455MF-136	116456MF-137
H54 (3 pH 575 V)	116459MF-000	116460MF-000
<b>STANDARD DESIGN</b>		
H63 (1 Phase)	116463-132	116464LF-133
H63 (3 Phase)	116467-136	116468LF-137
H63 (3 pH 575 V)	116471-000	116472LF-000
H64 (1 Phase)	116475-132	116476LF-133
H64 (3 Phase)	116479-136	116480LF-137
H64 (3 pH 575 V)	116483-000	116484LF-000
H65 (1 Phase)	116487-132	116488LF-133
H65 (3 Phase)	116491-136	116492LF-137
H65 (3 pH 575 V)	116495-000	116496LF-000
H66 (1 Phase)	116499-132	116500LF-133
H66 (3 Phase)	116503-136	116504LF-137
H66 (3 pH 575 V)	116507-000	116508LF-000
H67 (1 Phase)	116511-132	116512LF-133
H67 (3 Phase)	116515-136	116516LF-137
H67 (3 pH 575 V)	116519-000	116520LF-000
H68 (3 Phase)	116523-136	116524LF-137
H68 (3 pH 575 V)	116527-000	116528LF-000

**NOTE:**

STANDARD DESIGN circulators are with Sleeve Bearing SBA and MAINTENANCE FREE DESIGN circulators are with ball bearing SBA.



# S&H 3-PIECE CIRCULATORS | S MODELS



S & H Series circulators feature the unique Armstrong shaft and bearing module for ease of serviceability and maximum interchangeability. Oversized shafts of alloy steel machined to exact tolerances. Impellers are constructed from non-ferrous material and are designed for optimal water delivery. Available in bronze-fitted and all-bronze construction.

The Armstrong S&H circulators now include an ECM motor option and deploy a proven fixed-speed design, which both are cost-effective, durable and easy to maintain. Models are available in the traditional sleeve-bearing design as well as the new, permanently-lubricated, maintenance-free design.

## MATERIALS OF CONSTRUCTION

PART NAME	BRONZE FITTED	LEAD FREE BRONZE*
<b>Pump Body</b>	Cast iron	Lead free Bronze

**Impeller:** Non-ferrous

**Bearings:**  Sleeve - Oil lubricated\*\*  
 Maintenance free - Permanently lubricated\*\*\*

**Seal:** Mechanical

**Stationary seal face:** Sintered silicon carbide

**Coupler:** s25-s46: Flexible, 4 - Spring;  
 s55-s69: Flexible spacer type

**Motor:** Single phase - 1800 RPM - Resilient mounted  
 Three phase - 1800 RPM - Resilient mounted

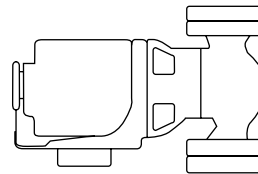
\* Contains less than 0.25% lead, weighted average.

\*\* Alloy shaft with copper sleeve.

\*\*\* Stainless steel shaft.

## MOUNTING ORIENTATION

The pump should be installed in a position to permit proper lubrication of bearings and servicing. Motor and bearing bracket are to be kept free of insulation. Pump and motor unit are designed to be supported by the in line piping only. Do not support in any other manner. A height of approximately 4 feet above floor is recommended.

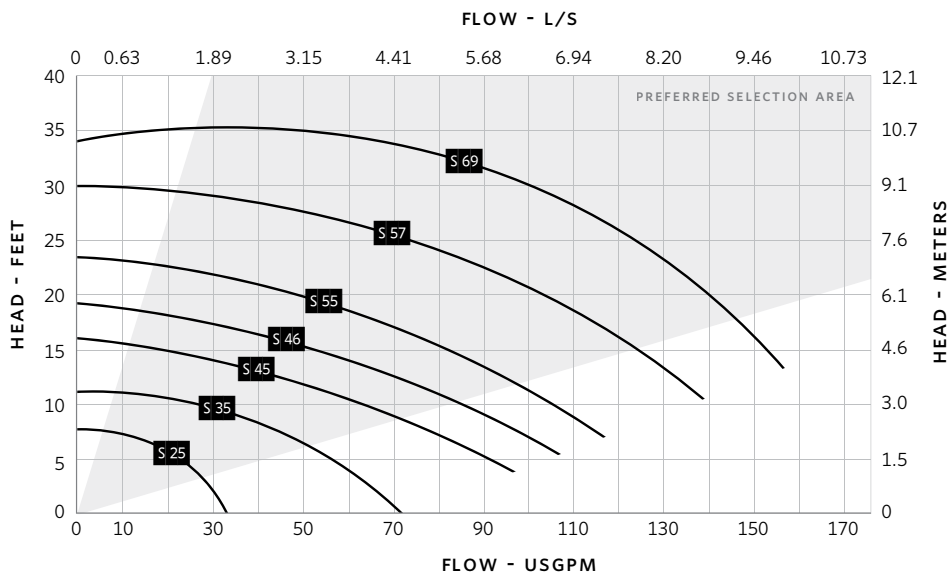


HORIZONTAL MOUNTING

## MAXIMUM PUMP OPERATING CONDITIONS

125 psig at 225°F (863 kPa at 107°C)

## PERFORMANCE CURVE



Based on 1800 RPM, 60 Hz motors. For 50 Hz motors write for special capacity charts.

# S&H 3-PIECE CIRCULATORS | S MODELS

## DIMENSION DATA - INCHES (MM)

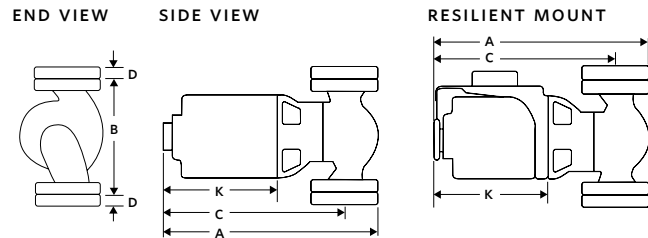
MODEL	FLANGE SIZE (N.P.T)	MOTOR**		DIMENSIONS INCHES (mm)				WEIGHT lbs (kg)
		HP	PHASE AND VOLT	A	B	C	D	
S25	¾	½ <sub>12</sub>	1 phase 115 v	13.75 (349)	6.50 (165)	11.50 (292)	0.75 (19)	19 (8.6)
	1	½ <sub>12</sub>	1 phase 115 v	13.75 (349)	6.50 (165)	11.50 (292)	0.75 (19)	19 (8.6)
	1¼	½ <sub>12</sub>	1 phase 115 v	13.75 (349)	6.50 (165)	11.50 (292)	0.88 (22)	19 (8.6)
	1½	½ <sub>12</sub>	1 phase 115 v	13.75 (349)	6.50 (165)	11.50 (292)	0.88 (22)	19 (8.6)
S35	2	¾	1 phase 115 v	15.00 (581)	8.50 (216)	12.50 (318)	0.88 (22)	38 (17.2)
S45	2½	¾	1 phase 115 v	15.75 (400)	10.00 (254)	12.50 (318)	1.00 (25)	45 (20.4)
	3	¾	1 phase 115 v	15.75 (400)	10.00 (254)	12.50 (318)	1.00 (25)	45 (20.4)
S46	3	¾	1 phase 115 v	15.75 (400)	10.00 (254)	12.50 (318)	1.00 (25)	51 (23.1)
S55	3	½	1 phase 115/230 v	19.50 (495)	12.00 (305)	16.00 (406)	1.00 (25)	82 (37.2)
	3	½	3 phase 208-230/460 v	19.50 (495)	12.00 (305)	16.00 (406)	1.00 (25)	74 (33.6)
	3	½	3 phase 575 v	19.50 (495)	12.00 (305)	16.00 (406)	1.00 (25)	74 (33.6)
S57	3	¾	1 phase 115/230 v	20.00 (508)	12.00 (305)	16.50 (419)	1.00 (25)	82 (37.2)
	3	¾	3 phase 208-230/460 v	20.00 (508)	12.00 (305)	16.50 (419)	1.00 (25)	76 (34.5)
	3	¾	3 phase 575 v	20.00 (508)	12.00 (305)	16.50 (419)	1.00 (25)	76 (34.5)
S69	3	1	1 phase 115/230 v	25.00 (635)	14.25 (362)	20.25 (514)	1.00 (25)	130 (59.0)
	3	1	3 phase 208-230/460 v	25.00 (635)	14.25 (362)	20.25 (514)	1.00 (25)	125 (56.7)
	3	1	3 phase 575 v	25.00 (635)	14.25 (362)	20.25 (514)	1.00 (25)	125 (56.7)

Dimensions shown are for reference only. For exact dimensional data, contact factory.

Companion flanges are not furnished as standard on S-25, S-45 and H-32.

Conduit box not supplied on ½ hp or greater.

\*\* All single phase motors are equipped with a built-in thermal overload protection. Three phase motors require external overload protection.



## PART NUMBERS

MODEL	BRONZE FITTED ITEM NO.	LEAD FREE* BRONZE ITEM NO.
<b>MAINTENANCE FREE DESIGN</b>		
S25	174031MF-013	174031MF-043
S35	174033MF-013	174033MF-043
S45	174036MF-113	174036MF-143
S46	174037MF-113	174037MF-143
S55 (1 Phase)	106284MF-132	106284MF-133
S55 (3 Phase)	106284MF-136	106284MF-137
S55 (3 pH 575 V)	106284MF-010	106284MF-011
S57 (1 Phase)	106285MF-132	106285MF-133
S57 (3 Phase)	106285MF-136	106285MF-137
S57 (3 pH 575 V)	106285MF-010	106285MF-011
<b>STANDARD DESIGN</b>		
S69 (1 Phase)	116531-132	116532LF-133
S69 (3 Phase)	116535-136	116536LF-137
S69 (3 pH 575 V)	116539-000	116540LF-000

**NOTE:**

STANDARD DESIGN circulators are with Sleeve Bearing sBA and MAINTENANCE FREE DESIGN circulators are with ball bearing sBA.

# S&H 3-PIECE CIRCULATORS | S MODELS

## COMPANION SINGLE FLANGE PART NUMBERS

SIZE	CAST IRON	LF BRONZE
¾	116013-011	116013-841
1	116012-011	116012-841
1¼	116011-011	116011-841
1½	116009-011	116009-841
2	105210-011/106074-011	105210-841/106074-841
2½	105189-011	105189-841
3	105188-011/133615-010	105188-841/106466-841





# 1050 & 1060 3-PIECE CIRCULATORS | CUSTOM IN-LINE



The Armstrong 1050/1060 circulators serve residential and light commercial systems that require higher flow and pressure. 1050/1060 circulators also offer the flexibility of customizing the flow curve to specific application requirements.

### PUMP DESIGN DATA

Pump model: \_\_\_\_\_ Flange size: \_\_\_\_\_  
 No. of pumps: \_\_\_\_\_ Note: \_\_\_\_\_  
 Capacity: \_\_\_\_\_ USgpm (L/s) Temperature: \_\_\_\_\_ °F (°C)  
 Head: \_\_\_\_\_ ft (m) Liquid: \_\_\_\_\_  
 Companion flanges: Included

### MOTOR DESIGN DATA

kW: \_\_\_\_\_ RPM: 1800 Hertz: \_\_\_\_\_  
 Frame size: \_\_\_\_\_ Enclosure: \_\_\_\_\_

### MATERIALS OF CONSTRUCTION

PART NAME	BRONZE FITTED	ALL BRONZE
Pump body	Cast iron	Bronze

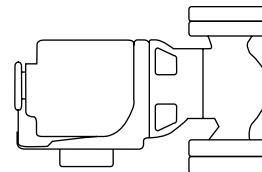
- Impeller:** SERIES 1050: Non-ferrous  
SERIES 1060: Bronze
- Bearings:** Sleeve-oil lubricated
- Shaft:** Alloy steel-copper sleeve
- Coupler:** Flexible spacer type
- Mechanical seal assembly:** Carbon/SiC, stainless steel trim, Viton seal

### MAXIMUM PUMP OPERATING CONDITIONS

175 psig at 225°F (1207 kPa at 107°C)

### MOUNTING ORIENTATION

The pump should be installed in a position to permit proper lubrication of bearings and servicing. Motor and bearing bracket are to be kept free of insulation. Pump and motor unit are designed to be supported by the in line piping only. Do not support in any other manner. A height of approximately 4 feet above floor is recommended.



HORIZONTAL MOUNTING

# 1050 & 1060 3-PIECE CIRCULATORS | CUSTOM IN-LINE

## MOTOR DATA - INCHES (MM)

PUMP SIZE	MOTOR		RESILIENT MOUNT INCHES (mm)			RIGID MOUNT INCHES (mm)			SHPG.WEIGHT lbs (kg)
	HP	PHASE AND VOLT	A	C	K	L	M	N	
1050	1/4	1 PHASE 115 V	17.25 (438)	13.50 (343)	7.38 (187)	—	—	—	48 (22)
	1/3					—	—	—	
	1/2	1 PHASE 115/230 V OR 3 PHASE 208- 230/460 V OR 575 V	19.75 (502)	16.00 (406)	9.88 (251)	—	—	—	58 (26)
	3/4					—	—	—	75 (34)
	1					—	—	—	80 (36)
1060 1.5D	1/2	1 PHASE 115/230 V OR 3 PHASE 208- 230/460 V OR 575 V	22.00 (559)	18.75 (476)	9.88 (251)	—	—	—	86 (39)
	3/4					—	—	—	82 (37)
	1					—	—	—	92 (42)
	1 1/2*	—	—	—	21.50 (546)	18.25 (464)	8.88 (225)	115 (52)	
1060 2D	1/2	1 PHASE 115/230 V OR 3 PHASE 208- 230/460 V OR 575 V	22.75 (578)	19.25 (489)	9.88 (251)	—	—	—	90 (41)
	3/4					—	—	—	96 (44)
	1					—	—	—	100 (45)
	1 1/2*					—	—	—	21.75 (552)
	2*	3 PHASE 208- 230/460 V OR 575 V	—	—	—	22.75 (578)	19.25 (489)	9.88 (251)	124 (56)
1060 3D	1	1 PHASE 115/230 V OR 3 PHASE 208- 230/460 V OR 575 V	—	—	—	23.50 (597)	18.50 (470)	8.88 (225)	135 (61)
	1 1/2*					24.00 (610)	19.00 (483)	8.88 (225)	138 (63)
	2*	3 PHASE 208- 230/460 V OR 575 V	—	—	—	25.00 (635)	20.00 (508)	9.88 (251)	143 (65)
	3*					27.75 (705)	22.75 (578)	9.88 (251)	150 (68)

## DIMENSION DATA - INCHES (MM)

PUMP SIZE	FLANGE SIZE (N.P.T)	DIMENSIONS INCHES (mm)				
		B	D	E	F	H
1050 1B	1	11.50 (292)	0.75 (19)	1.38 (35)	3.75 (95)	4.12 (105)
1050 1.25B	1 1/4	11.50 (292)	0.88 (22)	1.38 (35)	3.75 (95)	4.12 (105)
1050 1.5B	1 1/2					
1050 2B	2					
1060 1.5D	1 1/2					
1060 2D	2	14.00 (356)	0.88 (22)	1.00 (25)	4.75 (121)	5.12 (130)
1060 3D	3	18.00 (457)	1.00 (25)	—	5.88 (149)	5.00 (127)

Dimensions shown are for reference only. For exact dimensional data, contact factory.

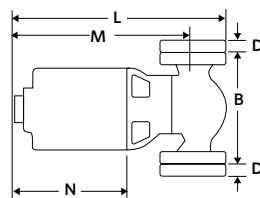
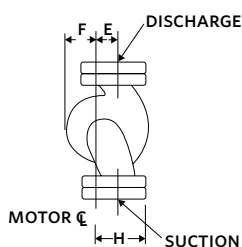
Pumps are shipped for up discharge.

Tapped openings are provided in the pump body for venting and draining.

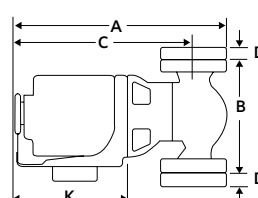
Motors are equipped with a built-in thermal overload protection. Motor resilient mount.

All single phase motors are equipped with a built-in thermal overload protection. Three phase motors rigid mount, require external thermal overload protection.

\* Motors rigid mount.



RIGID MOUNT



RESILIENT MOUNT

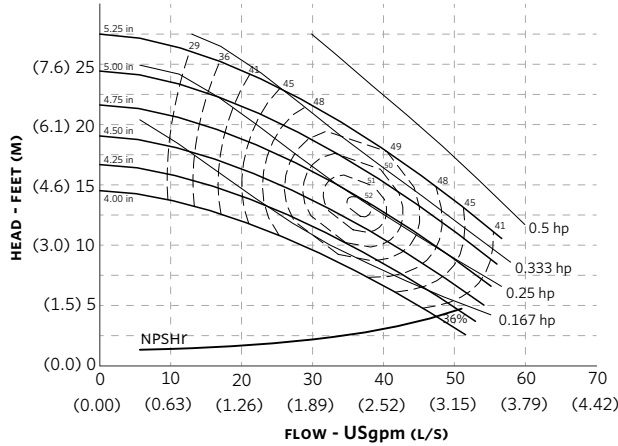
# 1050 & 1060 3-PIECE CIRCULATORS | CUSTOM IN-LINE

## PERFORMANCE CURVE

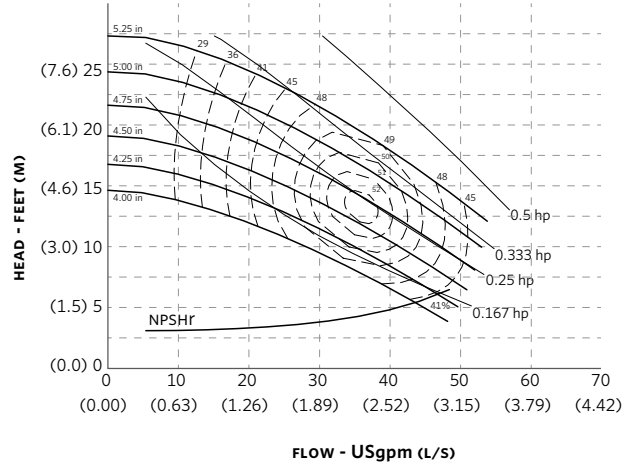
RPM: 1800 Availability: 1050 all ratings

- BHP based on shown Fluid's sp. gr.
- Performance guaranteed only at operating point indicated.
- Curve shown for clear, cold water - sp. gr. 1.0000

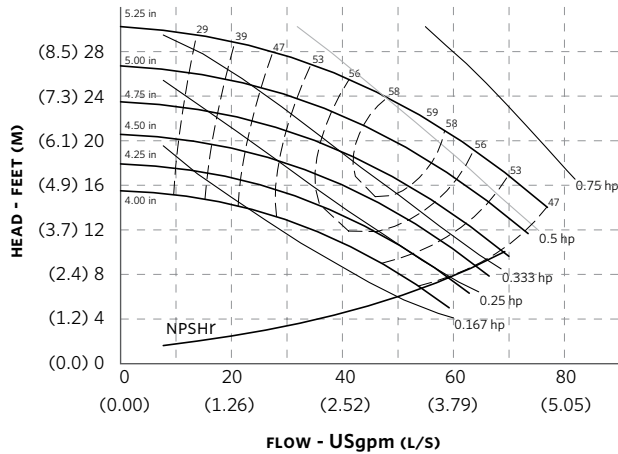
Curve number: PT25-0-0-1800 Size: 1B



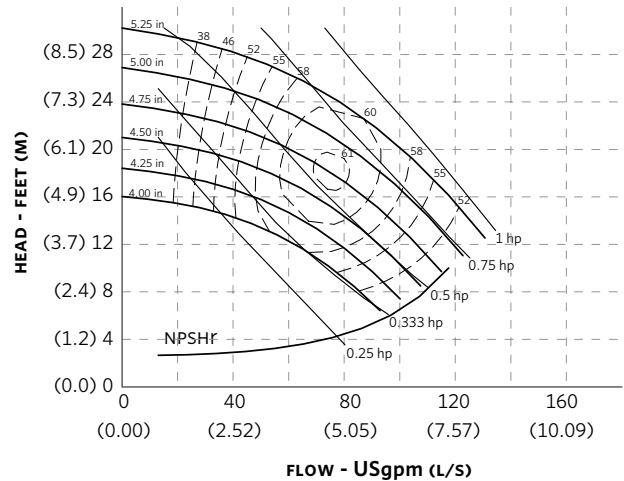
Curve number: PT1-1-0-1800 Size: 1.25B



Curve number: PT5-0-0-1800 Size: 1.5B



Curve number: PT26-0-0-1800 Size: 2B



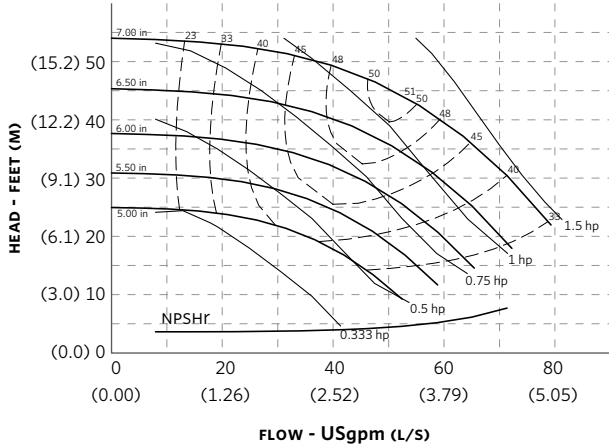
# 1050 & 1060 3-PIECE CIRCULATORS | CUSTOM IN-LINE

## PERFORMANCE CURVE

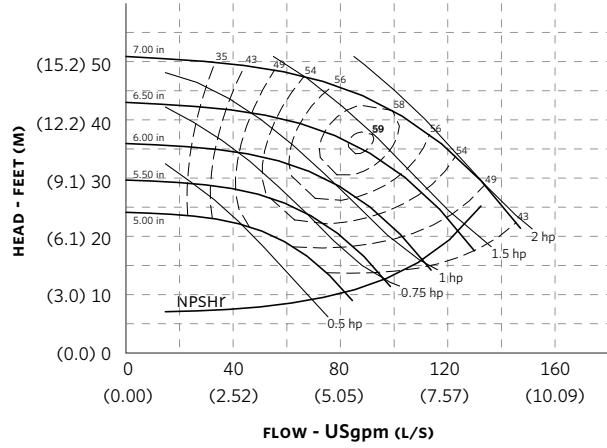
RPM: 1800 Availability: 1060 all ratings

- BHP based on shown Fluid's sp. gr.
- Performance guaranteed only at operating point indicated.
- Curve shown for clear, cold water - sp. gr. 1.0000

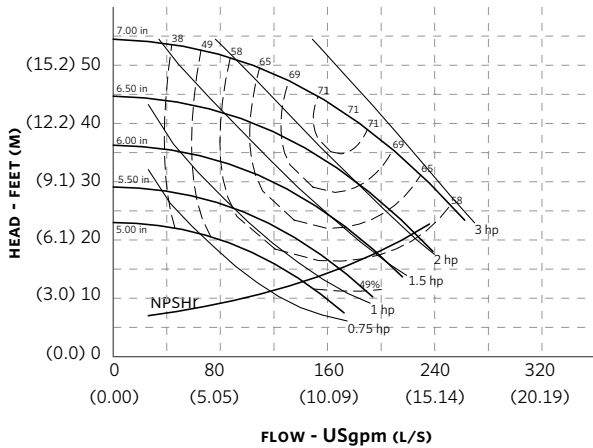
Curve number: PT8-O-O-1800 Size: 1.5D



Curve number: PT29-O-O-1800 Size: 2D



Curve number: PT41-O-O-1800 Size: 3D



## E.2 CIRCULATORS



The Armstrong E.2 circulators draw on advanced motor technology and efficient hydraulic design to achieve excellent wire-to-water duty point efficiencies

### MATERIALS OF CONSTRUCTION

**Pump body:** Cast iron (closed systems)  
Bronze (lead free for open systems)

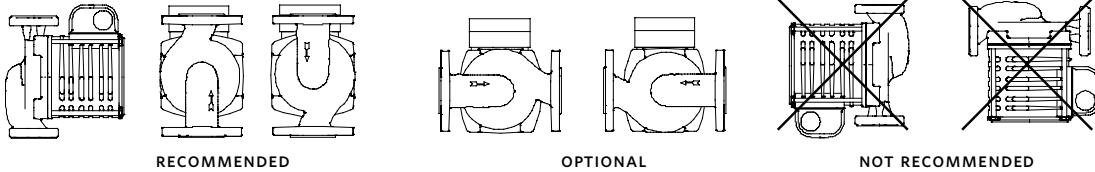
**Face plate:** Stainless steel      **Shaft:** Stainless steel  
**Impeller:** 30% Glass-filled noryl      **Volute gasket:** EPDM  
**Bearings:** Permanently lubricated stainless steel  
**Seal:** Silicon carbide enviroseal c/w viton elastomer

### TECHNICAL DATA

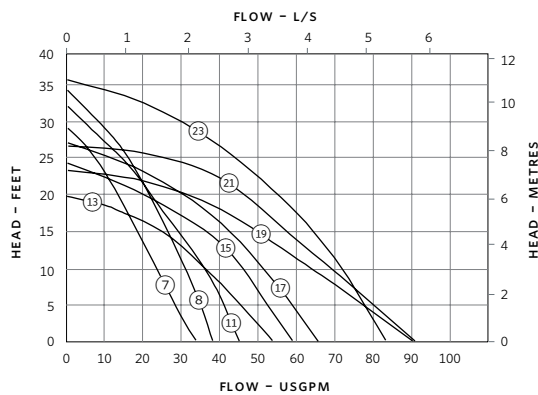
**Flow range:** 0 to 128.0 USgpm (0 to 8.1 L/s)  
**Head range:** 0 to 61.0 feet (0 to 18.6 m)  
**Max/Min fluid temp:** 230°F/40°F (110°C/4°C)  
**Max. Working pressure:** 150 psi (1034 kPa)

### MOUNTING ORIENTATION

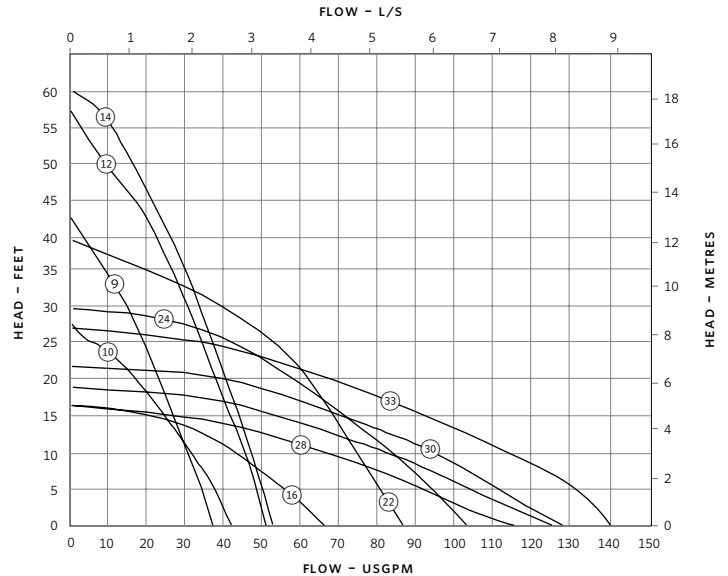
For indoor use only



### PERFORMANCE CURVE



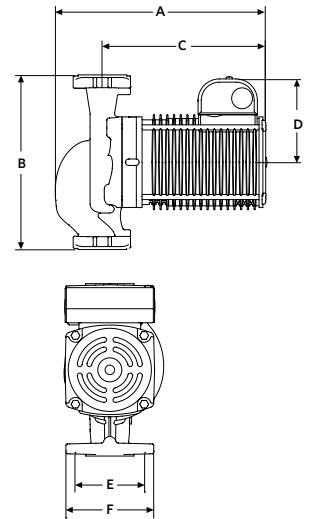
Circled numbers denote E.2 Series model number (Performance guaranteed only at operating point indicated).



## E.2 CIRCULATORS

### DIMENSION DATA - INCHES (MM)

MODEL	BODY	CONNECTION TYPE & SIZE	DIMENSIONS INCHES (mm)						SHIPPING WEIGHT lbs (kg)							
			A	B	C	D	E	F								
E7.2	CAST IRON	1.25" diameter 2 bolt flanges	7.10 (180)	6.40 (164)	5.50 (140)	3.80 (97)	3.20 (81)	4.20 (107)	13.1 (5.94)							
E7.2B	BRONZE								13.3 (6.03)							
E8.2	CAST IRON								13.1 (5.94)							
E8.2B	BRONZE								13.3 (6.03)							
E9.2	CAST IRON								13.1 (5.94)							
E9.2B	BRONZE								13.3 (6.03)							
E10.2	CAST IRON	1.5" diameter 2 bolt flanges	7.50 (191)	8.50 (215)	5.60 (142)	3.80 (97)	3.40 (86)	4.20 (107)	15.1 (6.85)							
E10.2B	BRONZE															
E11.2	CAST IRON															
E11.2B	BRONZE															
E13.2	CAST IRON								14.8 (6.71)							
E13.2B	BRONZE															
E16.2	CAST IRON	2" diameter 4 bolt flanges	8.40 (212)	8.50 (215)	5.80 (147)	3.80 (97)	2.90 (73)	5.20 (131)	18.8 (8.53)							
E16.2B	BRONZE		20.9 (9.48)													
E30.2-2"	CAST IRON	4 bolt flanges	10.90 (276)	8.50 (215)	8.30 (210)	4.00 (101)	2.90 (73)	5.20 (131)	17.2 (7.80)							
E30.2B-2"	BRONZE		25.7 (11.66)													
E30.2-3"	CAST IRON	3" diameter 4 bolt flanges	11.30 (286)	8.50 (215)	8.30 (210)	4.00 (101)	3.50 (89)	6.00 (152)	26.8 (12.16)							
E30.2B-3"	BRONZE		29.2 (13.24)													
E33.2-2"	CAST IRON	2" diameter 4 bolt flanges	10.90 (276)	8.50 (215)	8.30 (210)	4.00 (101)	2.90 (73)	5.20 (131)	17.2 (7.80)							
E33.2B-2"	BRONZE		25.7 (11.66)													
E33.2-3"	CAST IRON	3" diameter 4 bolt flanges	11.30 (286)	8.50 (215)	8.30 (210)	4.00 (101)	3.50 (89)	6.00 (152)	26.8 (12.16)							
E33.2B-3"	BRONZE		29.2 (13.24)													
E12.2	CAST IRON	1.25" diameter 2 bolt flanges	9.30 (235)	6.40 (164)	7.80 (197)	4.00 (101)	3.20 (81)	4.20 (107)	17.8 (8.07)							
E12.2B	BRONZE								18.4 (8.35)							
E14.2	CAST IRON								17.8 (8.07)							
E14.2B	BRONZE								18.4 (8.35)							
E15.2	CAST IRON								20.9 (9.48)							
E15.2B	BRONZE								21.2 (9.62)							
E17.2	CAST IRON	20.9 (9.48)														
E17.2B	BRONZE		21.2 (9.62)													
E19.2	CAST IRON	1.5" diameter 2 bolt flanges	10.30 (261)	8.50 (215)	8.00 (202)	4.00 (101)	3.40 (86)	4.20 (107)	20.7 (9.39)							
E19.2B	BRONZE								20.9 (9.48)							
E21.2	CAST IRON								20.7 (9.39)							
E21.2B	BRONZE								20.9 (9.48)							
E22.2	CAST IRON								20.7 (9.39)							
E22.2B	BRONZE								20.9 (9.48)							
E23.2	CAST IRON								20.7 (9.39)							
E23.2B	BRONZE								20.9 (9.48)							
E24.2	CAST IRON								20.7 (9.39)							
E24.2B	BRONZE								20.9 (9.48)							
E28.2	CAST IRON								3" diameter 4 bolt flanges	11.35 (286)	8.50 (215)	8.35 (210)	4.00 (101)	3.50 (89)	6.00 (152)	26.8 (12.16)
E28.2B	BRONZE															29.2 (13.24)
E29.2	CAST IRON	26.8 (12.16)														
E29.2B	BRONZE	29.2 (13.24)														



## E.2 CIRCULATORS

### MOTOR DATA

MODEL	VOLTAGE	FULL LOAD AMP DRAW (A)	NOMINAL POWER (W)	FREQUENCY (HZ)	MOTOR TYPE	SPEED (RPM)	
E7.2/ E7.2B	120V	2.0	1/8 hp (125W)	60 Hz	Two pole, Single phase	3400	
E8.2/ E8.2B	208V	1.0				3250	
E9.2/ E9.2B	240V	1.0				3300	
E10.2/ E10.2B	120V	2.0				3300	
E11.2/ E11.2B						3400	
E13.2/ E13.2B						3400	
E16.2/ E16.2B						3400	
E30.2/ E30.2B	120V	4.1	1/2 hp (300W)		Two pole, Single phase ODP	3350	
	208V	2.4				3300	
	240V	2.4			3300		
	277V	2.4				3300	
E33.2/ E33.2B	120V	5.7			Two pole, Single phase	3500	
	208V	3.1				3450	
	240V	3.1			3450		
	277V	3.1		3450			
E12.2/ E12.2B	120V	4.8		Two pole, Single phase	3450		
E14.2/ E14.2B							
E15.2/ E15.2B	120V	2.5		Two pole, Single phase ODP	3450		
	208V	1.8				3450	
	240V	1.8			3450		
	277V	1.8				3450	
E17.2/ E17.2B	120V	3.0	Two pole, Single phase ODP		3450		
	208V	1.6				3450	
	240V	1.6			3450		
	277V	1.6				3450	
E19.2/ E19.2B	120V	3.4			Two pole, Single phase ODP	3450	
	208V	1.8					3450
	240V	1.8				3450	
	277V	1.8					3450
E21.2/ E21.2B	120V	3.8				Two pole, Single phase ODP	3450
	208V	2.0					
	240V	2.0		3450			
	277V	2.0					3450
E22.2/ E22.2B	120V	5.7		Two pole, Single phase ODP			3450
	208V	3.0					
	240V	3.0	3450				
	277V	3.0					3450
E23.2/ E23.2B	120V	5.0	Two pole, Single phase ODP				3450
	208V	2.6					
E24.2/ E24.2B	240V	2.6			3450		
	277V	2.6					3450
E28.2/ E28.2B	120V	3.3			Two pole, Single phase ODP		3450
	208V	1.7					
	240V	1.7				3450	
	277V	1.7					3450
E29.2/ E29.2B	120V	3.8				Two pole, Single phase ODP	3450
	208V	2.0					
	240V	2.0		3450			
	277V	2.0					3450

## E.2 CIRCULATORS

### PART NUMBERS

MODEL	120 V	240 V
E7.2	182202-643	182202-671
E7.2B	182202-644	182202-672
E8.2	182202-657	182202-645
E8.2B	182202-658	182202-646
E9.2	182202-659	182202-647
E9.2B	182202-660	182202-648
E10.2	182202-649	182202-661
E10.2B	182202-650	182202-662
E11.2	182202-651	182202-663
E11.2B	182202-652	182202-664
E13.2	182202-655	182202-667
E13.2B	182202-656	182202-668
E16.2	182202-653	182202-665
E16.2B	182202-654	182202-666
E30.2-2"	182212-645	182212-604
E30.2B-2"	182212-646	182212-605
E30.2-3"	182212-671	182212-630
E30.2B-3"	182212-672	182212-631
E33.2-2"	182222-669	182212-628
E33.2B-2"	182212-670	182212-629
E33.2-3"	182212-675	182212-634
E33.2B-3"	182212-676	182212-635
E12.2	182212-841	182212-800
E12.2B	182212-842	182212-801
E14.2	182212-843	182212-802
E14.2B	182212-844	182212-803
E15.2	182212-661	182212-620
E15.2B	182212-662	182212-621
E17.2	182212-663	182212-622
E17.2B	182212-664	182212-623
E19.2	182212-649	182212-608
E19.2B	182212-650	182212-609
E21.2	182212-665	182212-624
E21.2B	182212-666	182212-625
E22.2	182212-667	182212-626
E22.2B	182212-668	182212-627
E23.2	182212-651	182212-610
E23.2B	182212-652	182212-611
E24.2	182212-653	182212-612
E24.2B	182212-654	182212-613
E28.2	182212-655	182212-614
E28.2B	182212-656	182212-615
E29.2	182212-657	182212-616
E29.2B	182212-658	182212-617

### ACCESSORIES

MODEL	FLANGE KITS
E7.2/ E7.2B E8.2/ E8.2B E9.2/ E9.2B E12.2/ E12.2B E14.2/ E14.2B E15.2/ E15.2B E17.2/ E17.2B	¾" Flange kits 1" Flange kits 1¼" Flange kits 1½" Flange kits
E10.2/ E10.2B E11.2/ E11.2B E13.2/ E13.2B E19.2/ E19.2B E21.2/ E21.2B E22.2/ E22.2B E23.2/ E23.2B E24.2/ E24.2B	1" Flange kits 1¼" Flange kits 1½" Flange kits
E16.2/ E16.2B E30.2-2" / E30.2-2"B E33.2-2" / E33.2-2"B E28.2/ E28.2B E29.2/ E29.2B	2" Flange kits
E30.2-3" / E30.2-3"B E33.2-3" / E33.2-3"B	3" Flange kits

- Timer
- Aquastat
- Spool pieces



# 4270 PUMPS | MOTOR MOUNTED



The Armstrong 4270 close coupled horizontal pumps are motor mounted and designed for long service life and easy maintenance.

### MATERIALS OF CONSTRUCTION

**Construction:** Bronze Fitted      **O-ring:** Viton  
**Impeller:** Ultem                      **Adapter:** Aluminum  
**Casing/Volute:** Cast iron        **Shaft:** 416 Stainless steel

### MOUNTING ORIENTATION

Mount the pump on a foundation sufficiently substantial to absorb any vibration. A good foundation should weigh approximately two-and-one-half times the shipping weight of the pump.

### MAXIMUM PUMP OPERATING CONDITIONS

150 psig at 275°F (1034 kPa at 135°C)

### MOTOR DESIGN DATA

**kW:** \_\_\_\_\_                      **Hertz:** 60 Hz  
**Enclosure:** 50J                      **Efficiency:** Standard  
**RPM:** 3500

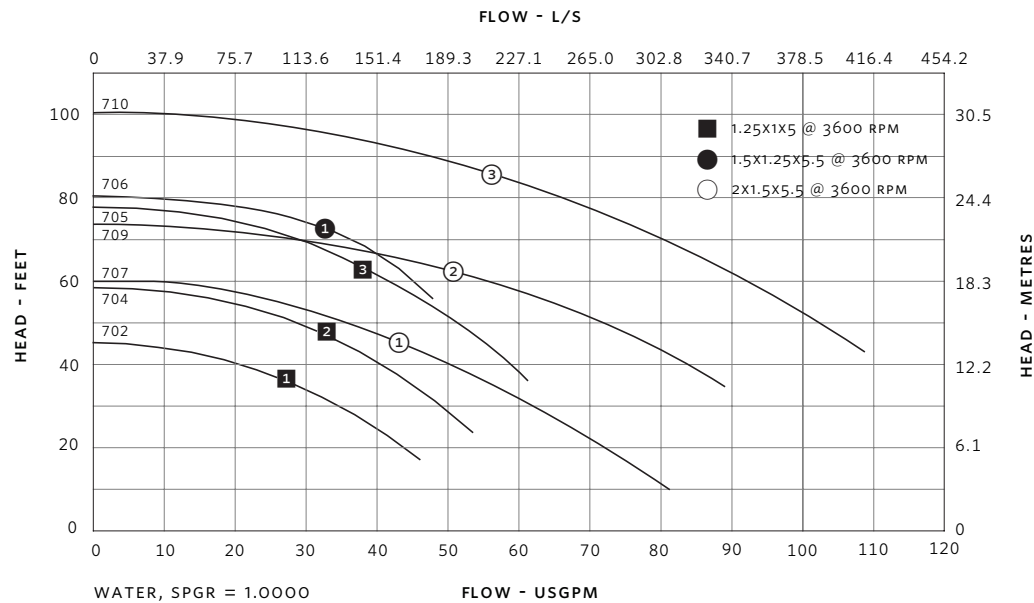
### MECHANICAL SEAL DESIGN DATA

**Seal type:** 21                              **L-cup:** Viton  
**Insert:** Carbon                          **Retainer:** Stainless steel  
**Seal:** Ceramic                          **Spring:** Stainless steel  
**Bellows:** Viton

### OPTIONAL EQUIPMENT

Flush line for vertical mounting

### PERFORMANCE CURVE

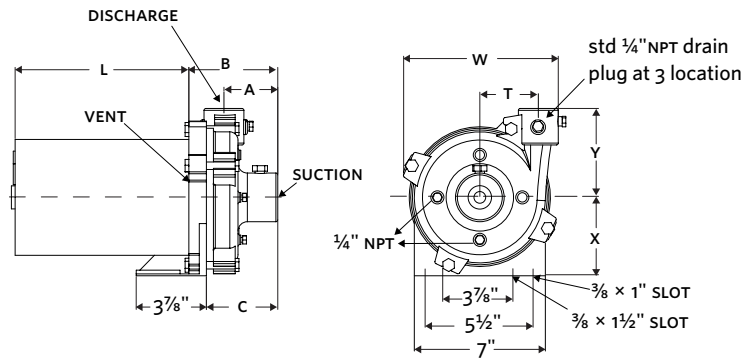


# 4270 PUMPS | MOTOR MOUNTED

## DIMENSION DATA - INCHES (MM)

MODEL	SUCTION	DISCHARGE	IMPELLER SIZE	MOTOR HP	DIMENSIONS INCHES (mm)								WEIGHT lbs (kg)	
					A	B	C	L*	T	W	X	Y		
702**	1.25 (31)	1.00 (25)	3.50 (88)	¾										38 (84)
704**	1.25 (31)	1.00 (25)	4.00 (100)	1	2.90 (73)	4.80 (121)	3.80 (95)	8.80 (222)	3.10 (79)	8.30 (210)	4.20 (106)	4.80 (121)		40 (88)
705**	1.25 (31)	1.00 (25)	4.50 (114)	1½										49 (108)
706**	1.50 (38)	1.25 (31)	4.50 (114)	2										51 (113)
707**	2.00 (50)	1.50 (38)	4.00 (100)	1½										53 (117)
709T	2.00 (50)	1.50 (38)	4.38 (111)	2	2.90 (73)	4.80 (121)	3.80 (95)	8.80 (222)	3.10 (79)	8.50 (216)	4.20 (106)	4.80 (121)		56 (124)
710T	2.00 (50)	1.50 (38)	5.00 (125)	3										60 (132)

All dimensions are in inches (mm) and weights in lbs (kg)  
 \*Motors are available with open drip-proof enclosures only.  
 \*\*Add suffix to the end of the model number.  
 Suffix number: s: for 60 HZ - 1 phase - 115 v / 230 v (230 v only for 3 HP and 5 HP)  
 t: for 60 HZ - 3 phase - 208-230 v / 460v



## PART NUMBERS

MODEL	BRONZE FITTED	ALL BRONZE
702S	410133-201	410133-241
702T	410133-301	410133-341
704S	410133-203	410133-243
704T	410133-303	410133-343
705S	410133-204	410133-244
705T	410133-304	410133-344
706S	410134-200	410134-240
706T	410134-300	410134-340
707S	410135-200	410135-240
707T	410135-300	410135-340
709T	410135-302	410135-342
710T	410135-303	410135-343

# DESIGN ENVELOPE 4300/4380 EXPRESS PUMPS

## VERTICAL IN-LINE PUMPS



Pipe-mounted UL 778 pumping unit with integrated intelligent controls for space-saving installation and superior energy performance. Saves up to 75% in energy over comparable traditional constant speed or variable frequency operated pump installations. Remote services through internet to enhance reliability and sustain optimal performance over life of pumps.

### MATERIALS OF CONSTRUCTION

- Construction:** Low pressure ductile e-coated stainless fitted
- Casing (volute):** Ductile Iron A536 GR65-45-12, E-coated
- Casing O-Ring:** EPDM
- Flush line:** Braided Stainless Steel
- Impeller:** Stainless Steel 316, A743 CF8M
- Stub shaft (4380):** SS ASTM A276 Type 416
- Pump shaft (4300):** SS ASTM A276 Type 416

### MAXIMUM PUMP OPERATING CONDITIONS

- ANSI 125**
- Design envelope 4300:** 100 psig at 300°F (7 bar at 150°C)
- Design envelope 4380:** 140 psig at 250°F (10 bar at 121°C)

### INTEGRATED EC MOTOR DATA

- Enclosure:** TEFC
- Voltage:**  208-230
- Efficiency:** IE5  460 V  575 V

### MECHANICAL SEAL DESIGN DATA

<b>Seal type:</b>	Inside single-spring (4380)
	Outside balanced (4300)
<b>Secondary seal:</b>	EPDM (4380)
	VITON (4300)
<b>Rotating face:</b>	Resin bonded carbon
<b>Stationary seat:</b>	Silicon-carbide
<b>Springs:</b>	Stainless steel
<b>Rotating hardware:</b>	Stainless steel

### DRIVE DATA

- Standard sensorless bundle:** Included
- Orientation:** L5
- Protocol (standard):** BACnet™ MS/TP  
BACnet™ TCP/IP  
Modbus RTU
- Enclosure:**  Indoor - UL TYPE 12
- Fused disconnect switch:** No
- EMI/RFI control:** Integrated filter designed to meet EN61800-3
- Harmonic suppression:** Equivalent: 5% AC line reactor - Supporting IEEE 519-1992 requirements\*\*
- Cooling:** Fan-cooled
- Ambient temperature:** -10°C to +45°C upto 1000 meters elevation (14°F to 113°F upto 3280FT)
- Analog I/O:** Two analog inputs & one analog output.  
Output can be configured for voltage or current.
- Digital I/O:** Two Inputs & two outputs.  
Outputs can be configured as inputs.
- Relay outputs:** Two programmable
- Communication port:** 1-RS485

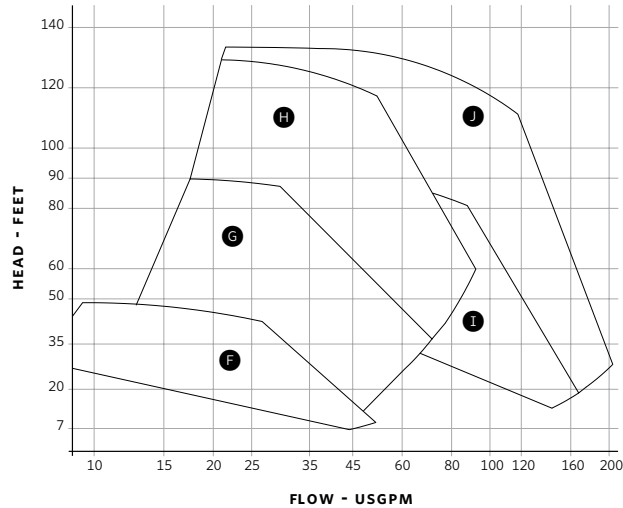
\* If minimum maintained system pressure is not known, default is 40% of design head.  
\*\* If supplied with the system electrical details, Armstrong will run a computer simulation of the system wide harmonics. If system harmonic levels are exceeded, Armstrong can also recommend additional harmonic mitigation and the cost for such mitigation.

# DESIGN ENVELOPE 4300/4380 EXPRESS PUMPS

VERTICAL IN-LINE PUMPS

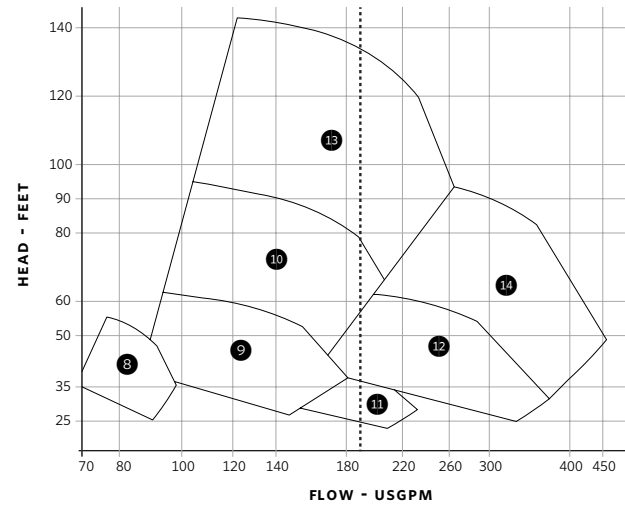
## PERFORMANCE CURVES

UP TO 200 GPM



SEE RIGHT FOR HIGHER FLOW CURVES →

UP TO 450 GPM



← SEE LEFT FOR LOWER FLOW CURVES

## MOTOR DATA - INCHES (MM)

	DESIGN ENVELOPE MODEL	PART NUMBER			INLET & OUTLET ANSI 125	MOTOR HP*
		208-230 VOLTS	460 VOLTS	575 VOLTS		
F	4380 0103-000.5	PC598AS06TG55AYX	PC598AS06WG55AYX	PC598AS06YG55AYX	1.5" MNPT	0.5
G	4380 1205-001.5	PC600AS11TG55AYX	PC600AS11WG55AYX	PC600AS11YG55AYX	1.25 × 1.25	1.5
H	4380 1205-003.0	PC600AS21TG55AYX	PC600AS21WG55AYX	PC600AS21YG55AYX	1.25 × 1.25	3
I	4380 1505-003.0	PC601AS21TG55AYX	PC601AS21WG55AYX	PC601AS21YG55AYX	1.5 × 1.5	3
J	4380 1505-005.0	PC601AS31TG55AYX	PC601AS31WG55AYX	PC601AS31YG55AYX	1.5 × 1.5	5
8	4380 1503-001.5	PC000AS10TG55AYX	PC000AS10WG55AYX	PC000AS10YG55AYX	1.5 × 1.5	1.5
9	4380 0205-003.0	PC002AS22TG55AYX	PC002AS22WG55AYX	PC002AS22YG55AYX	2 × 2	3
10	4380 0205-005.0	PC002AS31TG55AYX	PC002AS31WG55AYX	PC002AS31YG55AYX	2 × 2	5
11	4380 2505-003.0	PC003AS22TG55AYX	PC003AS22WG55AYX	PC003AS22YG55AYX	2.5 × 2.5	3
12	4380 0305-005.0	PC004AS32TG55AYX	PC004AS32WG55AYX	PC004AS32YG55AYX	3 × 3	5
13	4300 0205-010.0	PS002AB45TG55AYX	PS002AB45WG55AYX	PS002AB45YG55AYX	2 × 2	10
14	4300 0305-010.0	PS004AB46TG55AYX	PS004AB46WG55AYX	PS004AB46YG55AYX	3 × 3	10

\*All Motors are with 115 Efficiency and TEFC Enclosure

Note: All Motors are permanent magnet ECM

# DESIGN ENVELOPE 4300/4380 EXPRESS PUMPS

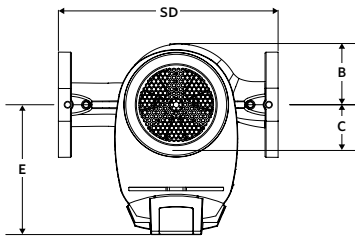
## VERTICAL IN-LINE PUMPS

### DIMENSION DATA - INCHES (MM)

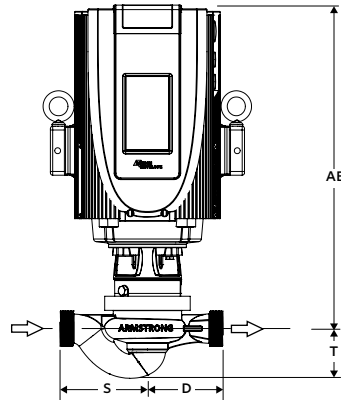
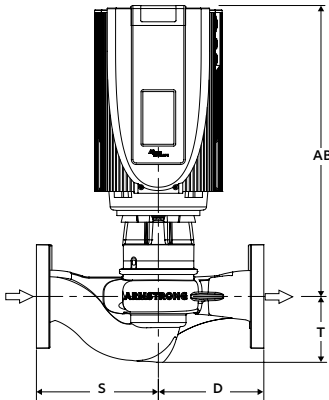
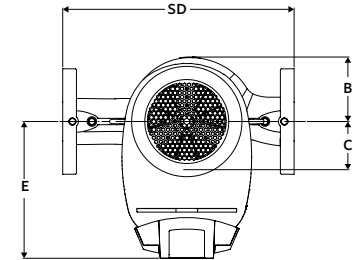
	MODEL	DIMENSIONS - inches (mm)								WEIGHT lbs (kg)
		AB	B	C	D	E	S	SD	T	
F	4380 0103-000.5	18.27(464)	2.47(63)	2.22(56)	4.01(102)	8.08(205)	4.64(118)	8.66(220)	2.64(67)	52(23.8)
G	4380 1205-001.5	18.27(464)	3.51(89)	3.20(81)	5.26(134)	8.08(205)	5.76(146)	11.02(280)	3.00(76)	66(29.9)
H	4380 1205-003.0	18.27(464)	3.51(89)	3.20(81)	5.26(134)	8.08(205)	5.76(146)	11.02(280)	3.00(76)	83(37.8)
I	4380 1505-003.0	18.27(464)	3.91(99)	3.50(89)	5.53(140)	8.08(205)	6.27(159)	11.81(300)	3.59(91)	87(39.6)
J	4380 1505-005.0	18.27(464)	3.91(99)	3.50(89)	5.53(140)	8.08(205)	6.27(159)	11.81(300)	3.59(91)	96(43.6)
K	4380 1503-001.5	16.91(430)	3.09(78)	2.27(58)	4.59(116)	7.54(191)	5.37(136)	9.96(253)	2.93(74)	53(24.0)
L	4380 0205-003.0	18.11(460)	4.31(109)	3.49(89)	6.07(154)	7.54(191)	7.07(180)	13.14(334)	3.12(79)	75(34.0)
M	4380 0205-005.0	18.01(457)	4.31(109)	3.49(89)	6.07(154)	7.54(191)	7.07(180)	13.14(334)	3.12(79)	85(38.5)
N	4380 2505-003.0	18.23(463)	4.75(120)	3.65(93)	7.22(183)	7.54(191)	8.22(209)	15.43(392)	3.50(89)	80(36.3)
O	4380 0305-005.0	18.45(469)	4.80(122)	3.66(93)	8.06(205)	7.54(191)	9.31(236)	17.40(442)	5.00(127)	99(44.9)
P	4300 0205-010.0	20.65(778)	4.30(109)	3.50(89)	6.07(154)	7.54(191)	7.07(180)	13.14(334)	3.12(79)	120(54.4)
Q	4300 0305-010.0	24.56(624)	4.81(122)	3.65(93)	8.06(205)	7.54(191)	9.31(236)	17.38(441)	3.65(93)	135(61.2)

For exact installation data please write factory for certified dimensions.

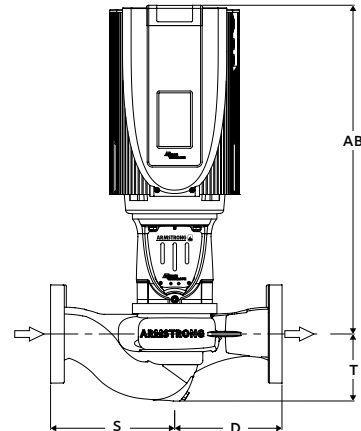
### DE 4380



### DE 4300



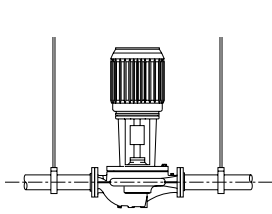
Note: only for 0103-000.5 model



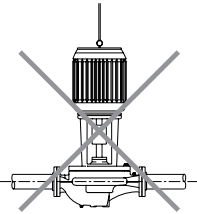
# DESIGN ENVELOPE 4300/4380 EXPRESS PUMPS |

## VERTICAL IN-LINE PUMPS

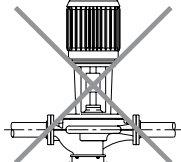
### INSTALLATION



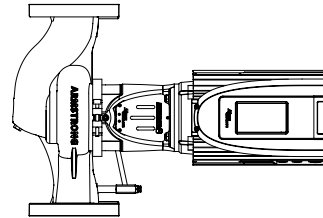
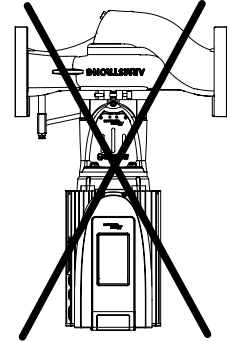
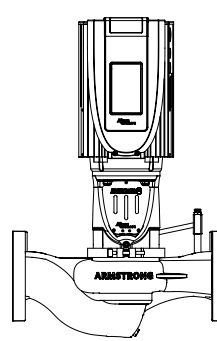
HANGER SUPPORTED PIPE MOUNTED



MOTOR LIFTING HOOK SUPPORTED



MOUNTED ON RIGID BASE WITHOUT FLEXIBLE CONNECTORS



# DESIGN ENVELOPE 4322/4372 EXPRESS PUMPS

## VERTICAL IN-LINE PUMPS



Pipe-mounted 2-pump unit with integrated intelligent controls for space-saving installation, superior energy performance, and parallel-pumping or full redundancy operation. Saves up to 75% in energy over comparable traditional constant speed or variable frequency operated pump installations. Remote services through internet to enhance reliability and sustain optimal performance over life of pumps.

### MATERIALS OF CONSTRUCTION

- Construction:** Low pressure ductile e-coated stainless fitted
- Casing(volute):** Ductile Iron A536 GR65-45-12, E-coated
- Casing O-Ring:** EPDM
- Flush line:** Braided Stainless Steel
- Impeller:** Stainless Steel 316, A743 CF8M
- Stub shaft(4372):** SS ASTM A276 Type 416
- Pump shaft(4322):** SS ASTM A276 Type 416

### MAXIMUM PUMP OPERATING CONDITIONS

- ANSI 125**
- Design envelope 4322:** 100 psig at 300°F(7 bar at 150°C)
- Design envelope 4372:** 140 psig at 250°F(10 bar at 121°C)

### INTEGRATED EC MOTOR DATA

- Enclosure:** TEFC
- Voltage:** 208-230
- Efficiency:** IE5 460 V 575 V

### MECHANICAL SEAL DESIGN DATA

<b>Seal type:</b>	Inside single-spring(4372)
	Outside balanced(4322)
<b>Secondary seal:</b>	EPDM(4372)
	VITON(4322)
<b>Rotating face:</b>	Resin bonded carbon
<b>Stationary seat:</b>	Silicon-carbide
<b>Springs:</b>	Stainless steel
<b>Rotating hardware:</b>	Stainless steel

### DRIVE DATA

- Standard sensorless bundle:** Included w/pre-wired bridge parallel
- Protocol(standard):** BACnet™ MS/TP  
BACnet™ TCP/IP  
Modbus RTU
- Enclosure:**  Indoor - UL TYPE 12
- Fused disconnect switch:** No
- EMI/RFI control:** Integrated filter designed to meet EN61800-3
- Harmonic suppression:** Equivalent: 5% AC line reactor - Supporting IEEE 519-1992 requirements\*\*
- Cooling:** Fan-cooled
- Ambient temperature:** -10°C to +45°C upto 1000 meters elevation(14°F to 113°F upto 3280FT)
- Analog i/o:** Two analog inputs & one analog output.  
Output can be configured for voltage or current.
- Digital i/o:** Two digital inputs & two digital outputs.  
Outputs can be configured as inputs.
- Relay outputs:** Two programmable
- Communication port:** 1-RS485

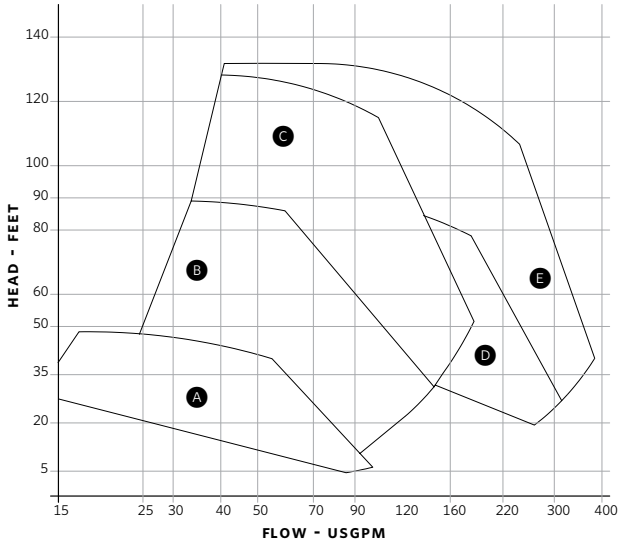
\* If minimum maintained system pressure is not known, default is 40% of design head.  
\*\* If supplied with the system electrical details, Armstrong will run a computer simulation of the system wide harmonics. If system harmonic levels are exceeded, Armstrong can also recommend additional harmonic mitigation and the cost for such mitigation.

# DESIGN ENVELOPE 4322/4372 EXPRESS PUMPS

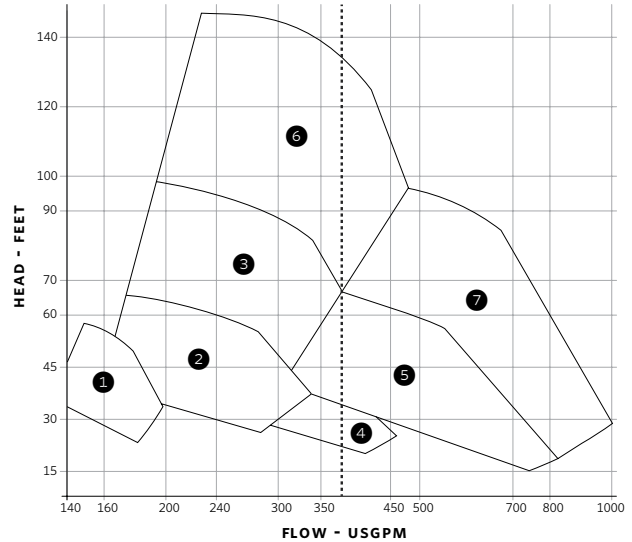
## VERTICAL IN-LINE PUMPS | SUBMITTAL

### PERFORMANCE CURVES

UP TO 400 GPM



UP TO 1000 GPM



SEE RIGHT FOR HIGHER FLOW CURVES →

← SEE LEFT FOR LOWER FLOW CURVES

### MOTOR DATA - INCHES(MM)

	DESIGN ENVELOPE MODEL	PART NUMBER			INLET & OUTLET ANSI 125	MOTOR HP*
		208-230 VOLTS	460 VOLTS	575 VOLTS		
Ⓐ	4372 0103-000.5	GC598AS06TG5PAXX	GC598AS06WG5PAXX	GC598AS06YG5PAXX	1.5" MNPT	0.5
Ⓑ	4372 1205-001.5	GC600AS11TG5PAYX	GC600AS11WG5PAYX	GC600AS11YG5PAYX	1.25 × 1.25	1.5
Ⓒ	4372 1205-003.0	GC600AS21TG5PAYX	GC600AS21WG5PAYX	GC600AS21YG5PAYX	1.25 × 1.25	3
Ⓓ	4372 1505-003.0	GC601AS21TG5PAYX	GC601AS21WG5PAYX	GC601AS21YG5PAYX	1.5 × 1.5	3
Ⓔ	4372 1505-005.0	GC601AS31TG5PAYX	GC601AS31WG5PAYX	GC601AS31YG5PAYX	1.5 × 1.5	5
①	4372 1503-001.5	GC000AS10TG5PAYX	GC000AS10WG5PAYX	GC000AB10YG5PAYX	1.5 × 1.5	1.5
②	4372 0205-003.0	GC002AS22TG5PAYX	GC002AS22WG5PAYX	GC002AB22YG5PAYX	2 × 2	3
③	4372 0205-005.0	GC002AS31TG5PAYX	GC002AS31WG5PAYX	GC002AB31YG5PAYX	2 × 2	5
④	4372 2505-003.0	GC003AS22TG5PAYX	GC003AS22WG5PAYX	GC003AB22YG5PAYX	2.5 × 2.5	3
⑤	4372 0305-005.0	GC004AS32TG5PAYX	GC004AS32WG5PAYX	GC004AB32YG5PAYX	3 × 3	5
⑥	4322 0205-010.0	GS002AB45TG5PAYX	GS002AB45WG5PAYX	GS002AB45YG5PAYX	2 × 2	10
⑦	4322 0305-010.0	GS004AB46TG5PAYX	GS004AB46WG5PAYX	GS004AB46YG5PAYX	3 × 3	10

\*All Motors are with 1E5 Efficiency and TEFC Enclosure

Note: All Motors are permanent magnet ECM



# DESIGN ENVELOPE 4322/4372 EXPRESS PUMPS

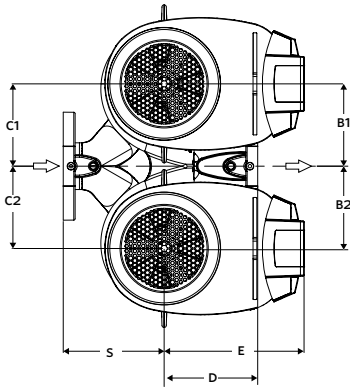
## VERTICAL IN-LINE PUMPS

### DIMENSION DATA - INCHES(MM)

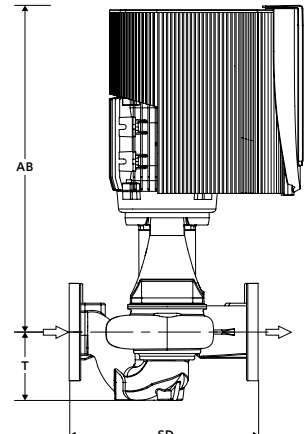
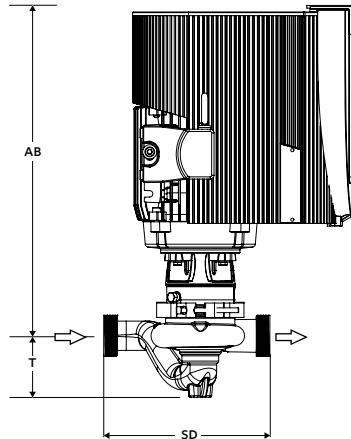
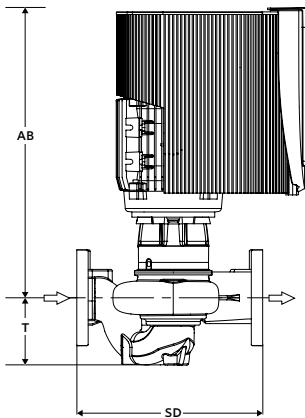
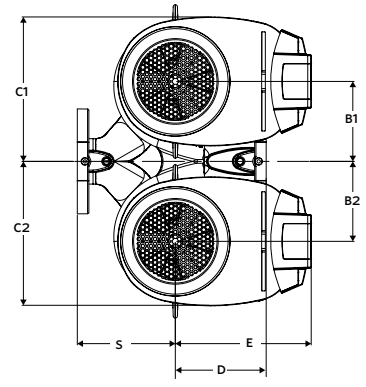
	MODEL	DIMENSIONS - inches (mm)										WEIGHT lbs (kg)
		AB	B1	B2	C1	C2	D	E	S	SD	T	
Ⓐ	4372 0103-000.5	17.21 (437)	5.12 (130)	5.12 (130)	10.28 (261)	10.28 (261)	3.55 (90)	8.08 (205)	5.11 (130)	8.66 (220)	3.20 (81)	108 (48.8)
Ⓑ	4372 1205-001.5	18.40 (467)	5.83 (148)	5.83 (148)	11.00 (279)	11.00 (279)	7.02 (178)	8.08 (205)	4.00 (102)	11.02 (280)	3.77 (96)	108 (48.8)
Ⓒ	4372 1205-003.0	18.40 (467)	5.83 (148)	5.83 (148)	11.00 (279)	11.00 (279)	7.02 (178)	8.18 (208)	4.00 (102)	11.02 (280)	3.77 (96)	143 (64.9)
Ⓓ	4372 1505-003.0	18.25 (464)	5.86 (149)	5.86 (149)	11.02 (280)	11.02 (280)	6.92 (176)	8.18 (208)	4.10 (104)	11.02 (280)	4.00 (102)	150 (68.0)
Ⓔ	4372 1505-005.0	18.25 (464)	5.86 (149)	5.86 (149)	11.02 (280)	11.02 (280)	6.92 (176)	8.18 (208)	4.10 (104)	11.02 (280)	4.00 (102)	168 (76.2)
Ⓚ	4372 1503-001.5	17.14 (435)	4.90 (124)	4.90 (124)	7.51 (191)	7.51 (191)	6.69 (170)	7.54 (191)	3.15 (80)	9.84 (250)	3.54 (90)	96 (43.5)
Ⓛ	4372 0205-003.0	18.22 (463)	5.50 (140)	5.50 (140)	9.26 (235)	9.28 (236)	7.83 (199)	7.54 (191)	5.19 (132)	13.02 (331)	4.27 (108)	126 (57.1)
Ⓜ	4372 0205-005.0	18.13 (460)	5.50 (140)	5.50 (140)	9.26 (235)	9.28 (236)	7.83 (199)	7.54 (191)	5.19 (132)	13.02 (331)	4.27 (108)	141 (64.0)
Ⓝ	4372 2505-003.0	18.20 (462)	5.50 (140)	5.50 (140)	9.50 (241)	9.50 (241)	7.24 (184)	7.54 (191)	6.15 (156)	13.39 (340)	5.12 (130)	134 (60.8)
Ⓔ	4372 0305-005.0	18.33 (466)	6.00 (152)	6.00 (152)	10.05 (255)	10.05 (255)	7.35 (187)	7.54 (191)	6.82 (173)	14.17 (360)	5.13 (130)	160 (72.6)
Ⓖ	4322 0205-010.0	24.24 (616)	5.50 (140)	5.50 (140)	9.26 (235)	9.28 (236)	7.83 (199)	7.54 (191)	5.19 (132)	13.02 (331)	4.27 (108)	164 (74.4)
Ⓗ	4322 0305-010.0	24.44 (621)	6.00 (152)	6.00 (152)	10.05 (255)	10.05 (255)	7.35 (187)	7.54 (191)	6.82 (173)	14.17 (360)	5.13 (130)	191 (86.6)

For exact installation data please write factory for certified dimensions.

### DE 4372



### DE 4322

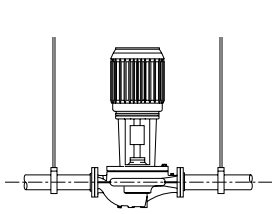


Note: only for 0103-000.5 model

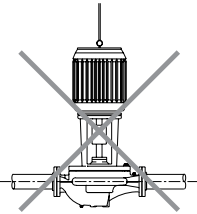
# DESIGN ENVELOPE 4322/4372 EXPRESS PUMPS |

VERTICAL IN-LINE PUMPS | SUBMITTAL

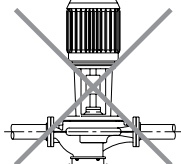
## INSTALLATION



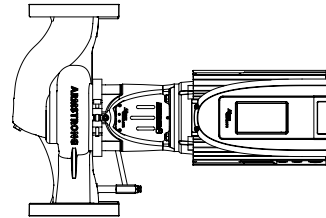
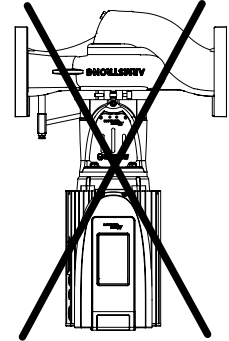
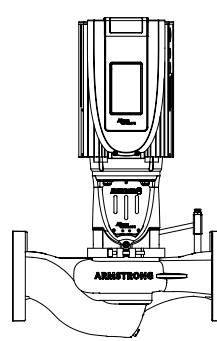
HANGER SUPPORTED PIPE MOUNTED



MOTOR LIFTING HOOK SUPPORTED



MOUNTED ON RIGID BASE WITHOUT FLEXIBLE CONNECTORS



## HYDRONIC SPECIALTIES

Automatic Air Vents	59
Float Type Air Vents	61
Diaphragm Expansion Tanks	63
Relief and Reducing Valves	65



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# AUTOMATIC AIR VENTS | HYDRONIC SPECIALTIES



Furnish and install, as shown on plans and in accordance with manufacturer's installation instructions. The device shall have a brass body construction and corrosion resistant wetted parts. The air vent shall be suitable for use with cold and hot water systems. The 1/2" models shall be supplied with an isolation valve. The air vents shall be Armstrong Series AVA or AVV.

## MATERIALS OF CONSTRUCTION

**Body and cover:** Brass Fitted

**Internal components:** Non-Ferrous

## TECHNICAL DATA

**Maximum working pressure:** 150 psi (1034 kPa)

**Maximum working temperature:** 248°F (120°C)

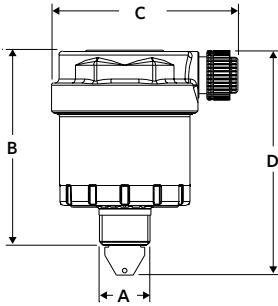
**Minimum working temperature:** 15°F (-10°C)

## DIMENSION DATA - INCHES (MM)

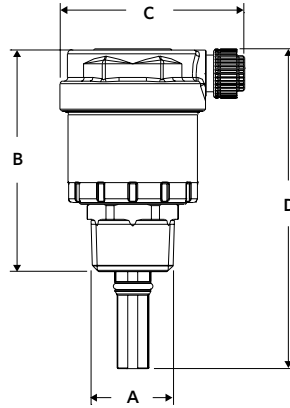
MODEL	DESCRIPTION	DIMENSIONS INCHES (mm)				WEIGHT lbs (oz.)
		A	B	C	D	
AVA-013	Automatic Air Vent with angled discharge	3/8" NPT	2.06 (52)	1.88 (48)	2.25 (57)	0.20 (0.10)
AVA-025		1/4" NPT	2.06 (52)	1.88 (48)	2.25 (57)	
AVA-038		3/8" NPT	2.06 (52)	1.88 (48)	2.25 (57)	
AVA-050	Automatic Air Vent with angled discharge and service check valve	1/2" NPT	2.25 (57)	1.88 (48)	3.19 (81)	
AVA-075	Automatic Air Vent with angled discharge and M/F adapter	3/4" MPT	3.25 (83)	1.88 (48)	-	0.50
		1/2" FPT	3.25 (83)	1.88 (48)	-	(0.28)
AVV-038	High capacity Automatic Air Vent with vertical discharge	3/8" NPT	2.94 (75)	1.88 (48)	3.25 (83)	0.35 (0.16)
AVV-050	High capacity Automatic Air Vent with vertical discharge and service check valve	1/2" NPT	3.25 (83)	1.88 (48)	4.19 (106)	
AVV-075	High capacity Automatic Air Vent with vertical discharge and M/F adapter	3/4" MPT	4.00 (100)	1.88 (48)	-	0.60
		1/2" FPT	4.00 (100)	1.88 (48)	-	(0.22)

# AUTOMATIC AIR VENTS | HYDRONIC SPECIALTIES

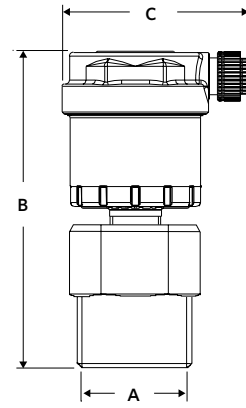
Models AVA-013, -025 & -038



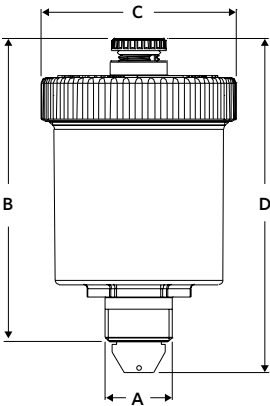
Models AVA-050 with service check valve



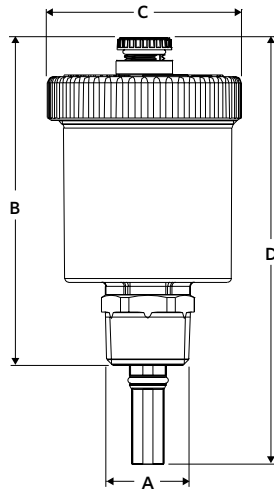
Models AVA-075



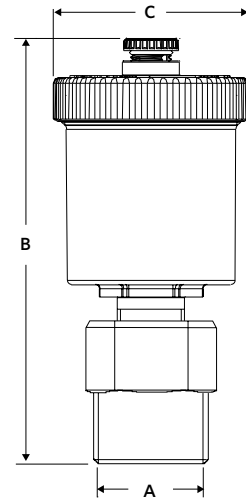
Models AVV-038



Models AVV-050 with service check valve



Models AVV-075



## PART NUMBERS

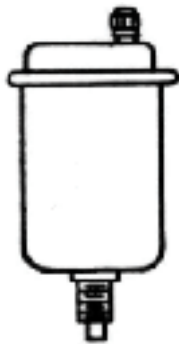
MODEL	PART NUMBER
AVA-013	272005-300
AVA-025	272005-301
AVA-038	272005-302
AVA-050	272005-303
AVA-075	272005-308
AVV-038	272005-305
AVV-050	272005-306
AVV-075	272005-307

# FLOAT TYPE AIR VENTS | HYDRONIC SPECIALTIES



## NO. 67 AUTO-VENT

Vertical mounting  $\frac{1}{8}$ " I.P.  
Male connection.  
Up to 35 lbs. pressure  
 $3\frac{3}{4} \times 1\frac{1}{16}$ "



## NO. 75 AUTO-VENT

Combination connection-  
 $\frac{1}{2}$ " NPT Female and  
 $\frac{3}{4}$ " NPT Male  
Up to 150 lbs. pressure



## NO. 71 AUTO-VENT

Vertical mounting  $\frac{1}{4}$ " NPT.  
Male connection.  
Up to 150 lbs. pressure  
 $4\frac{3}{8} \times 2\frac{1}{4}$ "



## NO. 72 AUTO-VENT

Vertical or horizontal  
mounting  $\frac{1}{8}$ " NPT  
Male connection  
Up to 75 lbs. pressure  
 $1\frac{1}{4} \times \frac{1}{2}$ "



## PART NUMBERS

MODEL	PART NUMBER
67	272005-004
71	272005-002
72	272005-005

MODEL	PART NUMBER
75	272005-003
7A	272005-006

MODEL NUMBER	PIPE SIZE
67	$\frac{1}{8}$ " (3.18)M
71	$\frac{1}{4}$ " (6.35)M
72	$\frac{1}{8}$ " (3.18)M
75	$\frac{1}{2}$ " (12.7)F & $\frac{3}{4}$ " (19.05)M

7A overflow connector

NOTE: All dimensions are in inches (mm)





# DIAPHRAGM EXPANSION TANK | HYDRONIC SPECIALTIES



This line of expansion tanks is specifically designed for use in hydronic heating systems. The unique proven design of these tanks incorporates a flexible diaphragm that separates system water from the tank air charge (12 psig) resulting in more positive system protection.

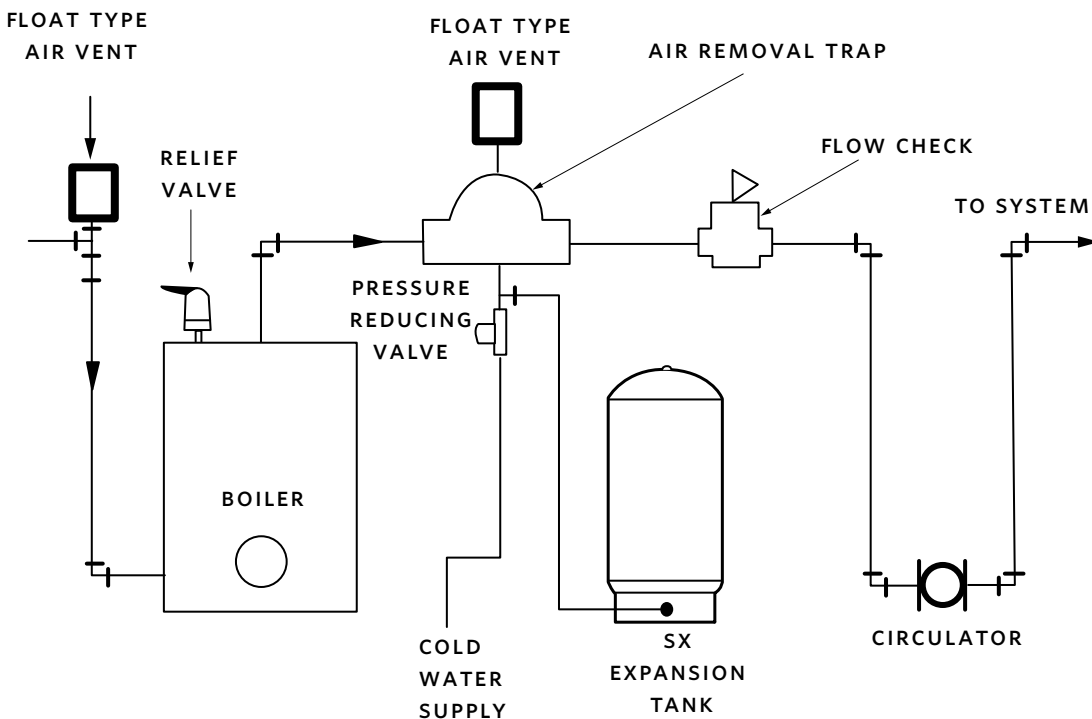
## DESIGN FEATURES

- Permanent air cushion
- Mild steel shell
- Enamel finish
- Eliminates water logging
- Diaphragm separates 12 psi air cushion from expanding system water
- Saves space and installation costs
- Multiple unit installation for larger volume capacity

## TECHNICAL DATA

- **Maximum working pressure:** 100 psi (689 kPa)
- **Maximum working temperature:** 240°F (116°C)
- **Standard factory pre-charge (may be field adjusted):** 12 psi (83 kPa)

## MOUNTING ORIENTATION

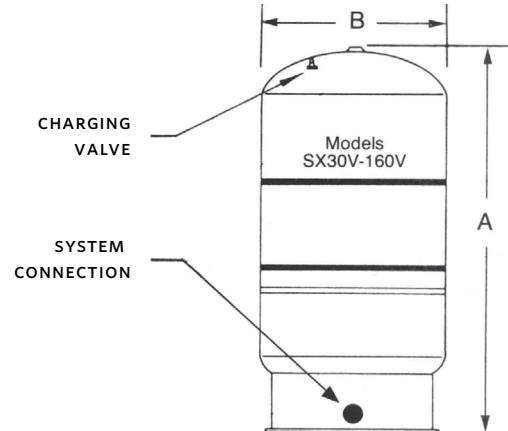
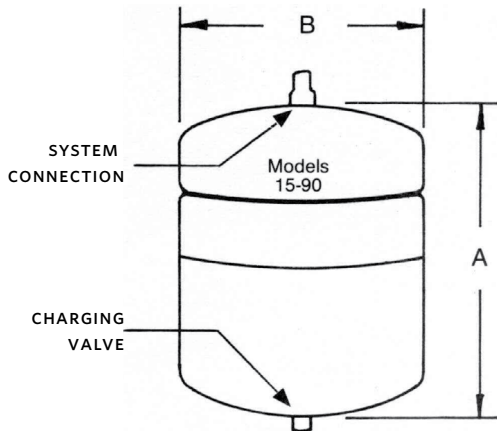


# DIAPHRAGM EXPANSION TANK | HYDRONIC SPECIALTIES

## DIMENSION DATA - INCHES (MM)

TANKS MODEL NO.	SIZE		DIMENSIONS INCHES (mm)		SYSTEM	WEIGHT
	VOLUME (GAL.)	ACCEPT (GAL.)	A	B	CONN. (N.P.T)	lbs (kg)
15	2	0.9	11.50 (292)	8.00 (203)	0.50 (13)	5 (2.27)
30	4.4	2.4	14.00 (356)	11.00 (279)	0.50 (13)	9 (4.08)
60	7.6	2.4	23.00 (584)	11.00 (279)	0.50(13)	14 (6.35)
90	14	11.3	21.00 (533)	15.00 (381)	0.50 (13)	23 (10.43)
SX-30V	14	11.3	24.00(610)	15.00 (381)	1.00 (25)	25 (11.34)
SX-40V	20	11.3	31.75 (806)	15.00 (381)	1.00 (25)	32 (14.51)
SX-60V	32	11.3	46.63 (1184)	15.00 (381)	1.00 (25)	45 (20.41)
SX-90V	45	34	36.00 (914)	22.00 (559)	1.25 (32)	70 (31.75)
SX-110V	62	34	46.50 (1181)	22.00 (559)	1.25 (32)	92 (41.73)
SX-160V	86	46	47.19 (1199)	26.00 (660)	1.25 (32)	113 (51.26)

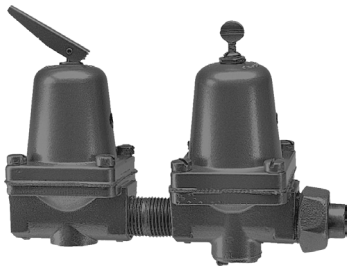
All figures are nominal.  
Do not use with fresh or potable water.



## PART NUMBERS

MODEL	PART NUMBER
15	572018-001
30	572018-002
60	572018-003
90	572018-004
SX-30V	572018-005
SX-40V	572018-006
SX-60V	572018-007
SX-90V	572018-008
SX-110V	572018-009
SX-160V	572018-010

# RELIEF AND REDUCING VALVES | HYDRONIC SPECIALTIES



Low-priced combination Relief and Reducing valves, built to the high standards of all Armstrong products.

Standard relief valves are competitively priced valves are built to high standards and offer many outstanding superiorities. Extra large diaphragm assures positive action.

## MOUNTING ORIENTATION

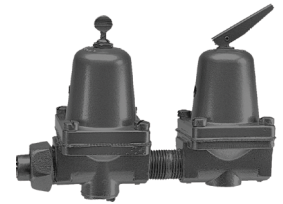
The pressure reducing valve should be installed with the flow arrow on the body pointing in the direction of the flow.

## PART NUMBERS

MODEL	PART NUMBER	MODEL	PART NUMBER
C-11	216945-300	RD-40	207937-343
RL-11	216942-300	RD-50	207937-300
RD-11T/S	216944-300	HRD-70	207936-300

## COMBINATION RELIEF AND REDUCING VALVE

Bodies have built-in strainer, extra large diaphragms, 1/2" (12.7mm) sweat or threaded union fitting and anti-siphon check valve feature on Reducing Valve. Reducing Valve is factory set at 12 psi but is easily adjusted to meet varying building heights. The special composition valve disc seat is brass and is practically noiseless during operation.



C-11

MODEL	SIZE		BODY CONSTRUCTION			BODY CONSTR.	APPROX SHIP. WEIGHT lbs (kg)
	BOILER	FILL	RELIEF VALVE	REDUCING VALVE			
				FACTORY SETTING DEL. PRESS.	READJUSTABLE RANGE		
C-11	1/2 (12.7)	1/2 (12.7)	30 (13.6)	12 (5.44)	7 to 25 (3.18 to 11.34)	Brass	2.25 (1.02)



RL-11

MODEL	SIZE	DESCRIPTION	BODY CONSTR.	APPROX SHIP. WEIGHT lbs (kg)
RL-11	1/2 (12.7)	<b>Max setting-</b> 30 lbs (13.61 kg)	Brass	1.25 (0.57)
RD-11T/S		<b>REDUCING VALVES:</b> All working parts are brass with easily cleaned built-in strainer. Factory adjusted at 12 psi suitable for buildings up to three stories high. Complete with integral check valve, the RD-11 is equipped with either a sweat or threaded tail piece on the inlet side.		
RD-40	3/4 (19.0)	<b>HIGH PRESSURE REDUCING VALVE:</b> Factory adjusted for 150 lbs initial pressure, 45 lbs delivery pressure. Other pressures must be specified when ordering. All working parts (built in strainer and extra large diaphragm) are brass. Complete with check valve.		3.25 (1.47)
RD-50*				
HRD-70				



RD-40  
RD-50  
HRD-70



RD-11

All dimensions are in inches (mm) and weights in lbs (kg)

\* The same unit is used in Armstrong Combination valve.



## CIRCUIT BALANCING VALVES

Circuit Balancing Valves - Mini Sweat	69
Circuit Balancing Valves - Venturi	71
Circuit Balancing Valves - ANSI Flanged	75
Circuit Balancing Valves - ANSI Grooved	79
Flange Adapter Kits	83
PT Port & Extensions	85
Differential Pressure Manometer	87
Portable Flow Measurement Meter	89
CBV Balancing Wheel	91

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# CIRCUIT BALANCING VALVES | MINI SWEAT



Compact Mini Sweat cbv-MS is available in 1/2" and 3/4" sizes with solder-type connections.

All Armstrong cbv models feature precision flow measurement, pump throttling and temperature measurement capabilities.

## SPECIFICATION

**Connection:** Solder joint

**Material of construction:** Brass

**Handwheel:** 1 turn 360°

## MAXIMUM PUMP OPERATING CONDITIONS

300 psig at 250°F (2068 kPa at 121°C)

## MOUNTING ORIENTATION

cbvs must be installed for flow in the direction of the arrow on the valve body and to allow easy access to the metering ports and handwheel.

**NOTE:** We recommend that the valve be installed in such a way that the meter connections be above or on the side of the valve body. (Not below or at 6 o'clock).

## DIMENSION DATA - INCHES (MM)

MODEL	PIPE SIZE	A	B	C	WEIGHT
CBV-1/2"MS	1/2"	3.12 (79)	3.53 (90)	1.34 (34)	1.10 (0.50)
CBV-3/4"MS	3/4"	3.78 (96)	3.62 (92)	1.34 (34)	1.19 (0.54)

All dimensions are in inches (mm) and weights are in lbs (kg)

Solder style models are supplied unassembled. Valve body must be soldered in the line before assembly.

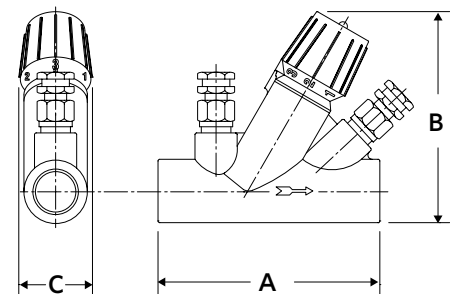
Refer to Cv curves for sizing and balancing, giving pressure drop at different settings and flow rates.

Suggested meters for use in conjunction with Armstrong cbvs are the CBDM-200, CBDM-135/60, DPM-15 and DPM-100.

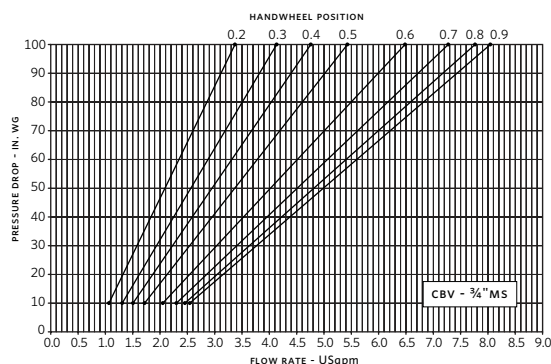
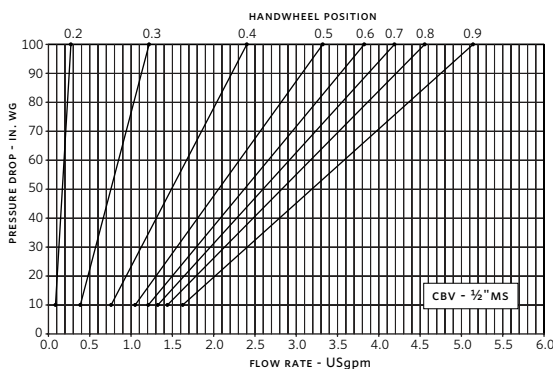
All valves furnished with probe metering ports.

## PART NUMBERS

MODEL	PART NUMBER
CBV-1/2"MS	570109-332
CBV-3/4"MS	570109-333



## PERFORMANCE CURVE







# CIRCUIT BALANCING VALVES | VENTURI |

LEAD FREE, CERTIFIED TO NSF/ANSI 372



The Armstrong Circuit Balancing Valves (CBV) provide precision flow measurement, pump throttling and temperature measurement capabilities. ½" to 2" models feature multi-turn adjustment for precise control, hidden memory stops to set balance point and soft seats for positive shutoff.

All Armstrong CBV models feature precision flow measurement, pump throttling and temperature measurement capabilities.

## MATERIALS OF CONSTRUCTION

**Body, bonnet:** Brass alloy CW617

**Stem and disc:** Brass - c46500

**Elastomers:** EPDM (may contain silicone)

**Handwheel:** Reinforced nylon; ABS

## TECHNICAL DATA

**Maximum working pressure:** PN20 / 300 PSI (2068 kPa)

**Operating temperature range:** -4°F to 300°F (-20°C to 150°C)

## FLOW RATE RANGES

MODEL	PIPE SIZE	MIN. FLOW RATE	MAX. FLOW RATE
CBV050V(X)CR-LF*	½" (DN15)	0.26 (0.02)	1.98 (0.12)
CBV075V(X)CR-LF*	¾" (DN20)	0.41 (0.03)	3.11 (0.20)
CBV050V(X)CR	½" (DN15)	1.22 (0.08)	9.57 (0.60)
CBV075V(X)CR	¾" (DN20)	1.99 (0.13)	13.76 (0.87)
CBV100V(X)CR	1" (DN25)	4.57 (0.29)	22.97 (1.45)
CBV125V(X)CR	1¼" (DN32)	6.17 (0.39)	38.0 (2.39)
CBV150V(X)CR	1½" (DN40)	9.02 (0.57)	50.07 (3.15)
CBV200V(X)CR	2" (DN50)	15.50 (0.98)	81.92 (5.16)

Flow in USgpm(L/s)

Where model (X) = Connection Type: T = NPT, S = Sweat, B = BSPP (ISO-228).

\* Armstrong low flow circuit balancing valves are needed for systems where the flow rate is below ASHRAE guidelines. Low flow units allow contractors to line size the valve, despite the low flow velocity. In addition, low flow valves:

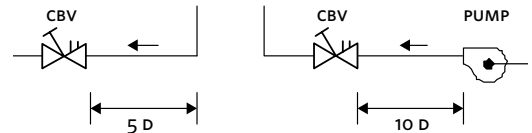
- Boost the differential pressure signal to make the signal more stable and reliable
- Provide superior flow regulation over the operating range
- Are less prone to blockage due to particles in the system fluid
- Accurately indicate a blockage condition

## INSTALLATION

ARMflo Circuit Balancing Valves are highly resistant to turbulence induced by nearby piping components and can often provide excellent results when mounted directly to other fittings.

However, for optimum flow measurement accuracy and when practical, locate the valve:

- 5 pipe diameters downstream of a fitting.
- 2 pipe diameters upstream of a fitting.
- 10 pipe diameters upstream or downstream of a pump.



## ACCESSORIES

**PT ports**

**PT port extensions** □ 1¾" □ 2¾"

CBDM 200

**Differential pressure manometers** CBDM 135/60

DPM-15

DPM-100

## NOTES

- 1 Solder style models - Valve body must be opened at least one full turn prior to being soldered in the line.
- 2 For valve sizing, refer to the performance curve and flow rate ranges. For balancing, use Venturi Cv curves or slide rule, which display differential pressure drop across the Venturi for different flow rates.
- 3 Suggested differential pressure meters for use with Armstrong CBV's are DPM-15 and DPM-100 digital differential pressure meters and CBDM 135/60 and CBDM 200 analogue meters.
- 4 All valves furnished with probe metering ports.

# CIRCUIT BALANCING VALVES | VENTURI |

LEAD FREE, CERTIFIED TO NSF/ANSI 372

## DIMENSION DATA - INCHES (MM)

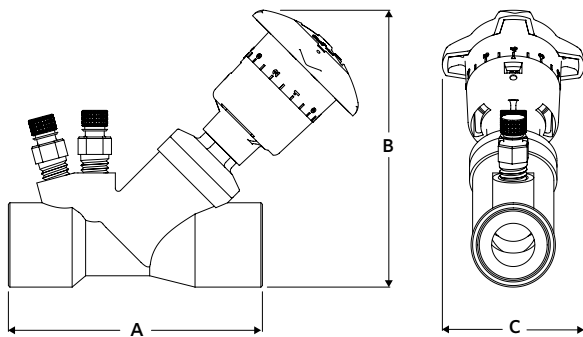
MODEL	PIPE SIZE	DIMENSIONS INCHES (mm)			WEIGHT lbs (kg)
		A	B	C	
<b>SOLDER JOINT CONNECTION</b>					
CBV050VSCR-LF	½" (DN15)	3.19 (81)	4.56 (116)	2.76 (70)	1.05 (0.48)
CBV050VSCR					
CBV075VSCR-LF	¾" (DN20)	3.64 (93)	4.65 (118)	2.76 (70)	1.09 (0.49)
CBV075VSCR					
CBV100VSCR	1" (DN25)	4.26 (108)	4.95 (126)	2.76 (70)	1.68 (0.76)
CBV125VSCR	1¼" (DN32)	4.94 (125)	5.40 (137)	2.76 (70)	2.26 (1.03)
CBV150VSCR	1½" (DN40)	5.67 (144)	5.60 (142)	2.76 (70)	3.22 (1.46)
CBV200VSCR	2" (DN50)	7.03 (179)	6.36 (162)	2.76 (70)	5.40 (2.45)
<b>THREADED CONNECTION</b>					
CBV050V(X)CR-LF	½" (DN15)	2.99 (76)	4.60 (117)	2.76 (70)	1.07 (0.49)
CBV050V(X)CR					
CBV075V(X)CR-LF	¾" (DN20)	3.26 (83)	4.90 (125)	2.76 (70)	1.21 (0.55)
CBV075V(X)CR					
CBV100V(X)CR	1" (DN25)	3.80 (97)	5.29 (135)	2.76 (70)	1.86 (0.84)
CBV125V(X)CR	1¼" (DN32)	4.32 (110)	5.60 (143)	2.76 (70)	2.34 (1.06)
CBV150V(X)CR	1½" (DN40)	5.07 (129)	5.90 (150)	2.76 (70)	3.49 (1.59)
CBV200V(X)CR	2" (DN50)	6.00 (153)	6.68 (170)	2.76 (70)	5.97 (2.46)

All dimensions are in inches (mm) and weights in lbs (kg)  
Where model (x) = Connection Type: T = NPT or B = BSPP (ISO-228).

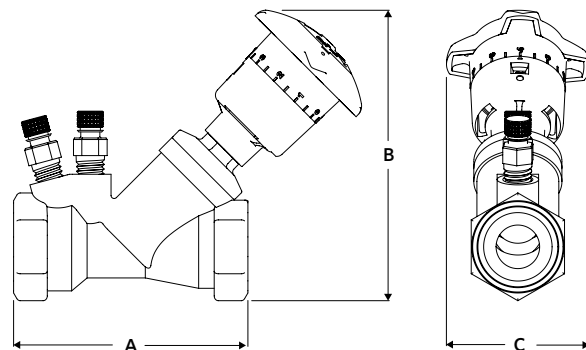
## PART NUMBERS

MODEL	PART NUMBER
CBV050V(S)CR-LF	571110LF-370
CBV050V(T)CR-LF	571110LF-360
CBV050V(B)CR-LF	571110LF-530
CBV050V(S)CR	571110LF-350
CBV050V(T)CR	571110LF-340
CBV050V(B)CR	571110LF-520
CBV075V(S)CR-LF	571110LF-371
CBV075V(T)CR-LF	571110LF-361
CBV075V(B)CR-LF	571110LF-531
CBV075V(S)CR	571110LF-351
CBV075V(T)CR	571110LF-341
CBV075V(B)CR	571110LF-521
CBV100V(S)CR	571110LF-352
CBV100V(T)CR	571110LF-342
CBV100V(B)CR	571110LF-522
CBV125V(S)CR	571110LF-353
CBV125V(T)CR	571110LF-343
CBV125V(B)CR	571110LF-523
CBV150V(S)CR	571110LF-354
CBV150V(T)CR	571110LF-344
CBV150V(B)CR	571110LF-524
CBV200V(S)CR	571110LF-355
CBV200V(T)CR	571110LF-345
CBV200V(B)CR	571110LF-525

SOLDER JOINT CONNECTION



THREADED CONNECTION

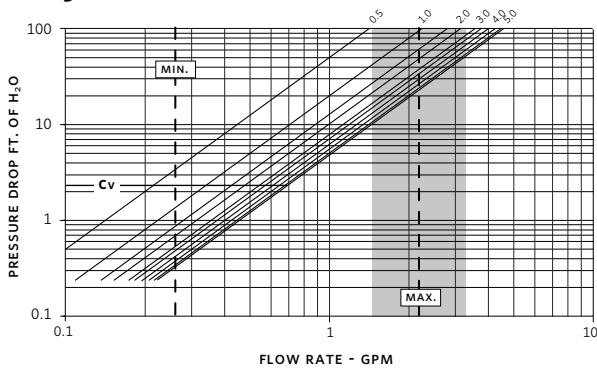


# CIRCUIT BALANCING VALVES | VENTURI

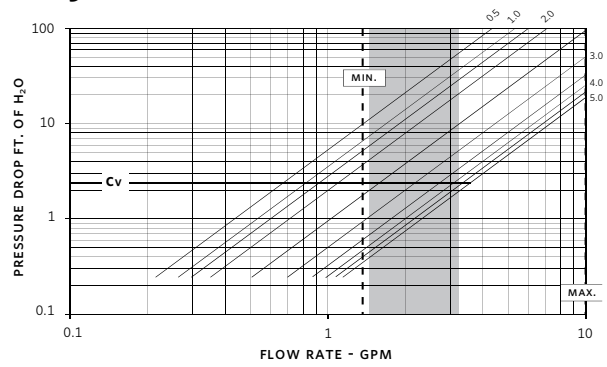
LEAD FREE, CERTIFIED TO NSF/ANSI 372

## PERFORMANCE CURVES

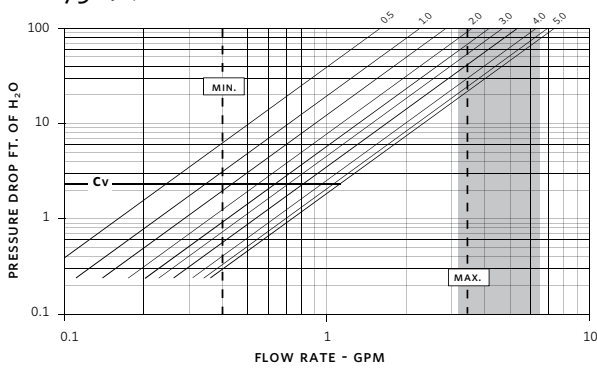
CBV050V(X)CR-LF



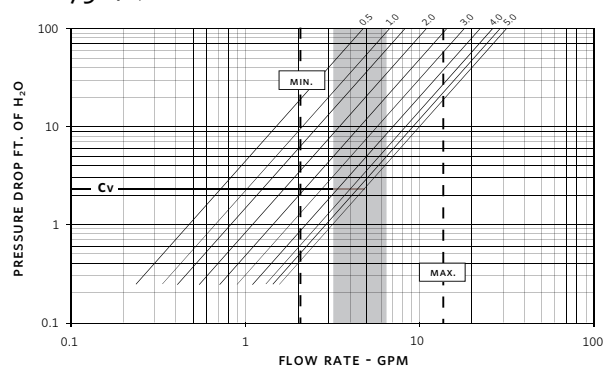
CBV050V(X)CR



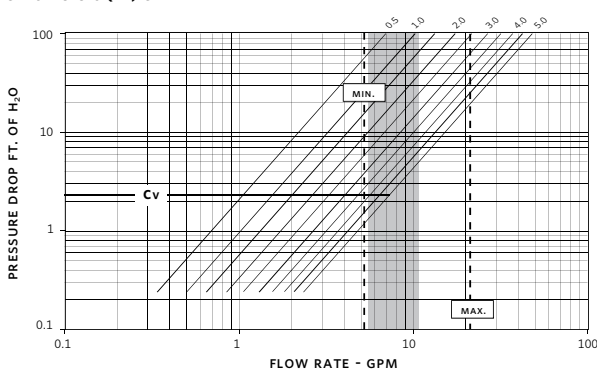
CBV075V(X)CR-LF



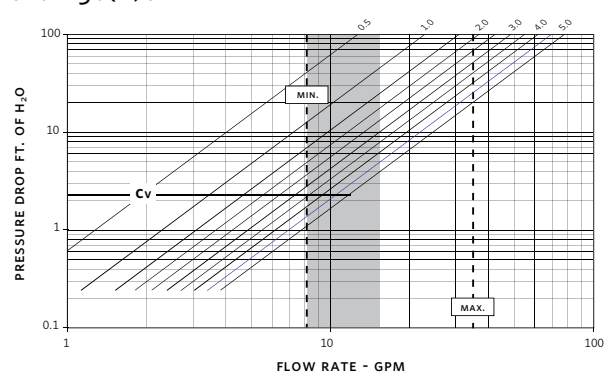
CBV075V(X)CR



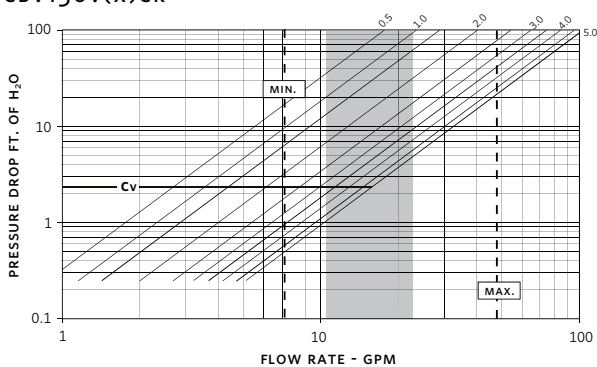
CBV100V(X)CR



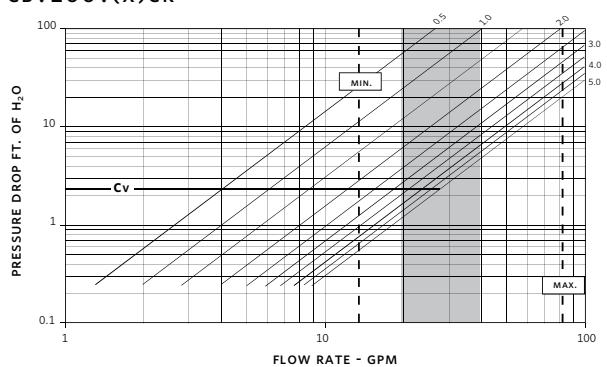
CBV125V(X)CR



CBV150V(X)CR

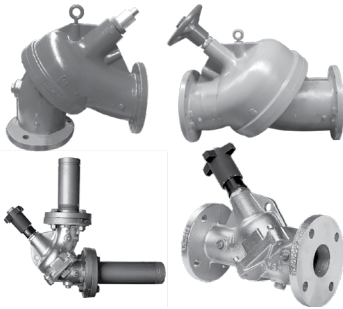


CBV200V(X)CR





# CIRCUIT BALANCING VALVES | ANSI FLANGED



Job: \_\_\_\_\_  
 Representative: \_\_\_\_\_  
 Engineer: \_\_\_\_\_  
 Contractor: \_\_\_\_\_  
 Order no: \_\_\_\_\_ Date: \_\_\_\_\_  
 Submitted by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

## MATERIALS OF CONSTRUCTION

**Body:** Cast iron ASTM A48 class 30B    **Disk:** Bronze ASTM B584 C-84400  
**Seat:** EPDM\*\* elastomer    **Stem:** Brass - ASTM B -16  
**Trim:** Brass ASTM B283 C-37700    **O-ring:** Buna & EPDM\*\* elastomer  
**Insulation:** Optional fibre glass insulation with PVC cover

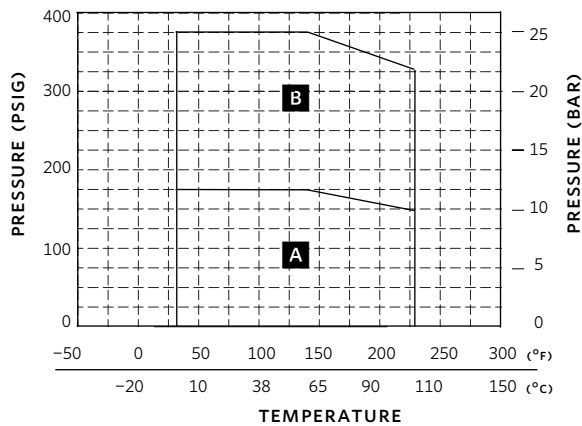
\*\* EPDM is not suitable for oil service.

## MAXIMUM PUMP OPERATING CONDITIONS

175 psig at 230°F (1207 kPa at 110°C\*)

\*Optional Viton for 2½" to 6" sizes elastomers for temperatures up to 300°F (150°C)

## OPERATING PARAMETERS



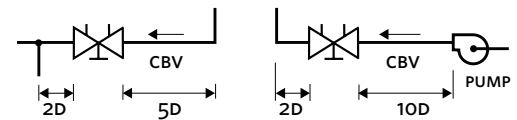
**LEGEND:** **A** 2.5" - 12" ANSI 125 FLANGE  
**B** 8" - 12" ANSI 250 FLANGE

## DESIGN DATA CBV STRAIGHT AND ANGLE

PIPE SIZE	STEM: NO. OF 360° TURNS	PIPE SIZE	STEM: NO. OF 360° TURNS
2.5	5	6	6
3	5	8	12
4	6	10	10
5	6	12	14

## INSTALLATION

Generally locate the valve five pipe diameters downstream from a fitting; with two diameters downstream from the balancing valve free from fittings. If a balancing valve is located downstream from a circulation pump, allow a distance of ten (10) diameters between the pump and balancing valves (as illustrated below). To save space, the valve may be used in the angled configuration as an elbow.



## ACCESSORIES

<b>PT ports</b>	
<b>PT port extensions</b>	<input type="checkbox"/> 1¾" <input type="checkbox"/> 2¾"
<b>Differential pressure manometers</b>	CBDM 200
	CBDM 135/60
	DPM-15 DPM-100

**Orifice Plates:** 2½" to 12"

**Venturis:** 2½" to 12" butt welded

Pre-formed insulation is available to meet ASTM D 1784/ Class T4253-C, MEA # 7-87, ASTM E-84 and ASTM E-136 with a flame spread rating of 25 or less and a smoke development rating of 50 or less.

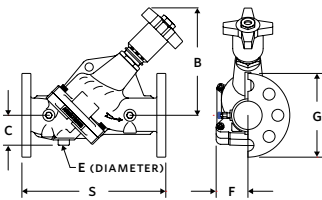
# CIRCUIT BALANCING VALVES | ANSI FLANGED

## DIMENSION DATA - INCHES (MM)

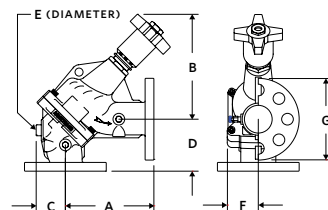
MODEL	PIPE SIZE	DIMENSIONS INCHES (mm)								WEIGHT lbs (kg)
		A	B (FULL OPEN)	C	D	E	F	G	S	
<b>125 # ANSI FLANGE</b>										
CBV-2½FS	2.5	7.38	9.62 (244)	2.75	4.63	1.00	2.56	7.00	12.00	33
CBV-2½FA		(187)		(70)	(118)	(25)	(65)	(178)	(305)	(15)
CBV-3FS	3	8.19	10.50 (267)	2.44	3.88	1.00	3.00	7.50	12.00	39
CBV-3FA		(208)		(62)	(99)	(25)	(76)	(191)	(305)	(17.7)
CBV-4FS	4	9.63	10.56 (268)	3.00	4.38	1.25	3.44	9.00	14.00	59
CBV-4FA		(245)		(76)	(111)	(32)	(87)	(229)	(356)	(26.8)
CBV-5FS	5	12.00	13.06 (332)	3.63	5.50	1.25	4.94	10.00	17.50	108
CBV-5FA		(305)		(92)	(140)	(32)	(125)	(254)	(445)	(49)
CBV-6FS	6	14.13	13.75 (349)	4.44	6.63	2.00	5.88	11.00	20.69	167
CBV-6FA		(359)		(113)	(168)	(51)	(149)	(279)	(526)	(75.7)
CBV-8FS	8	19.00	24.62 (625)	5.69	9.19	2.25	7.88	13.50	28.00	344
CBV-8FA		(483)		(145)	(233)	(57)	(200)	(343)	(711)	(156)
CBV-10FS	10	20.33	26.50 (673)	6.56	9.78	2.25	9.47	16.00	30.01	603
CBV-10FA		(516)		(167)	(248)	(57)	(241)	(406)	(762)	(273)
CBV-12FS	12	24.07	28.43 (722)	7.63	14.05	2.25	12.63	19.00	38.09	1006
CBV-12FA		(611)		(194)	(357)	(57)	(321)	(483)	(967)	(456)
<b>250 # ANSI FLANGE</b>										
CBV-8FS	8	19.11	24.62 (625)	5.69	9.69	2.25	7.88	15.00	28.20	396
CBV-8FA		(485)		(145)	(246)	(57)	(200)	(380)	(716)	(180)
CBV-10FS	10	20.33	26.50 (673)	6.56	9.80	2.25	9.47	17.50	30.01	712
CBV-10FA		(516)		(167)	(249)	(57)	(241)	(445)	(762)	(323.6)
CBV-12FS	12	24.05	28.43 (722)	7.63	14.03	2.25	12.63	20.50	38.05	1163
CBV-12FA		(611)		(194)	(356)	(57)	(321)	(521)	(966)	(528.6)

NOTE: All dimensions are in inches (mm) and weights in lbs (kg). Dimensional tolerance up to ±0.125" (3mm).

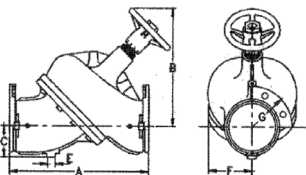
MODEL CBV-FS - 2.5" TO 6"



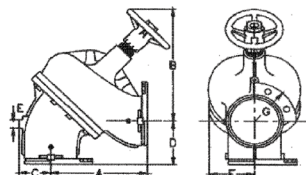
MODEL CBV-FA - 2.5" TO 6"



MODEL CBV-FS - 8" TO 12"



MODEL CBV-FA - 8" TO 12"



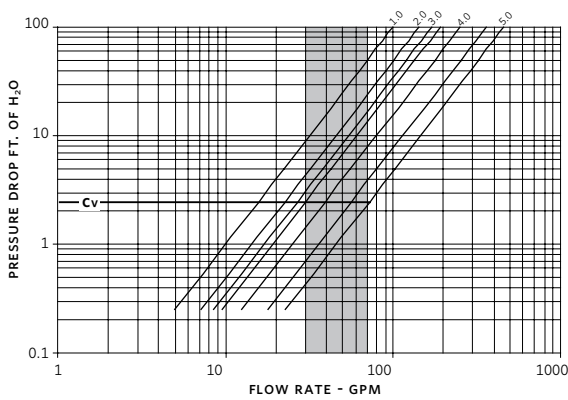
# CIRCUIT BALANCING VALVES | ANSI FLANGED

## PART NUMBERS

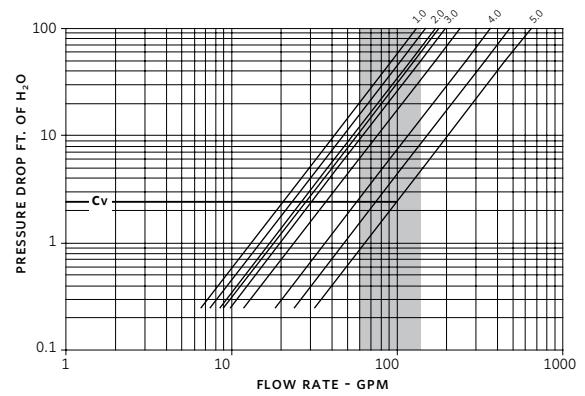
MODEL	PART NUMBER	MODEL	PART NUMBER
CBV-2½FS	570109-376	CBV-10FS-125#	570109-382
CBV-2½FA	570109-476	CBV-10FA-125#	570109-482
CBV-3FS	570109-377	CBV-10FS-250#	570109-662
CBV-3FA	570109-477	CBV-10FA-250#	570109-682
CBV-4FS	570109-378	CBV-12FS-125#	570109-383
CBV-4FA	570109-478	CBV-12FA-125#	570109-483
CBV-5FS	570109-379	CBV-12FS-250#	570109-663
CBV-5FA	570109-479	CBV-12FA-250#	570109-683
CBV-6FS	570109-380		
CBV-6FA	570109-480		
CBV-8FS-125#	570109-381		
CBV-8FA-125#	570109-481		
CBV-8FS-250#	570109-661		
CBV-8FA-250#	570109-681		

## PERFORMANCE CURVES

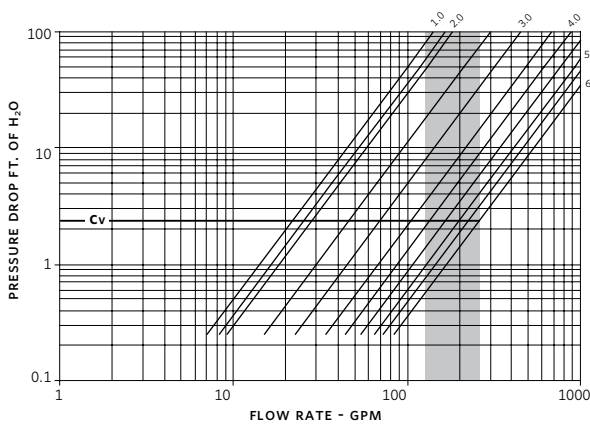
CBV-2½FS/CBV-2½FA



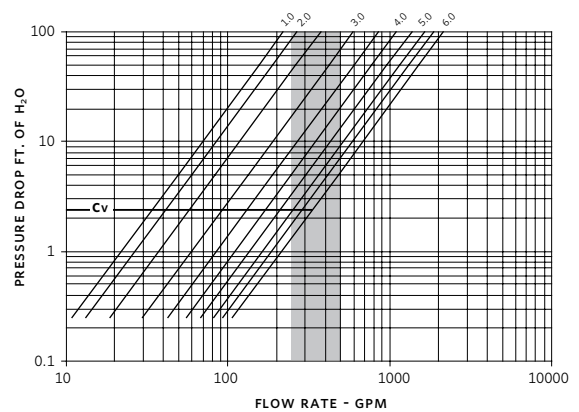
CBV-3FS/CBV-3FA



CBV-4FS/CBV-4FA



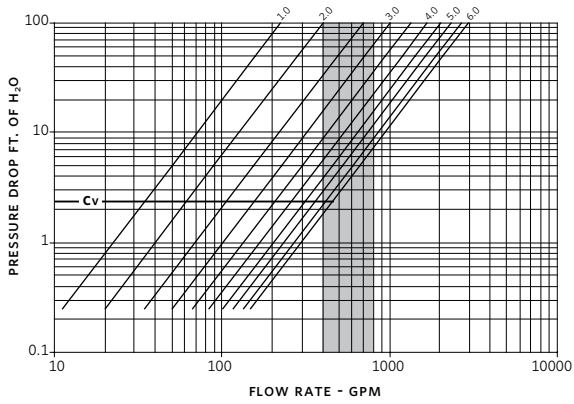
CBV-5FS/CBV-5FA



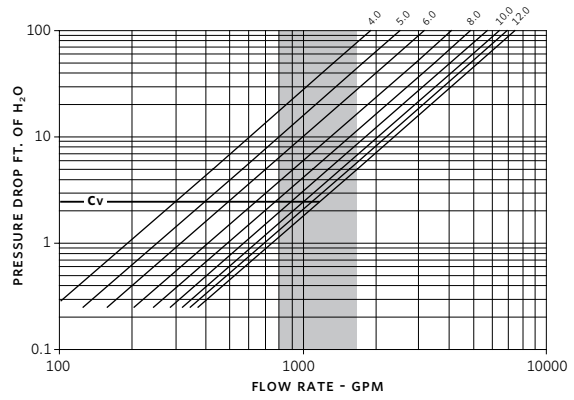
# CIRCUIT BALANCING VALVES | ANSI FLANGED

## PERFORMANCE CURVES

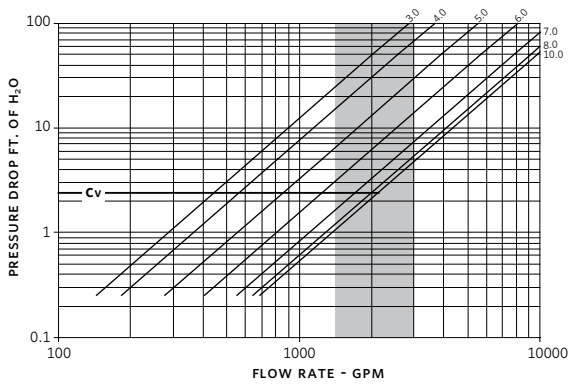
CBV-6FS/CBV-6FA



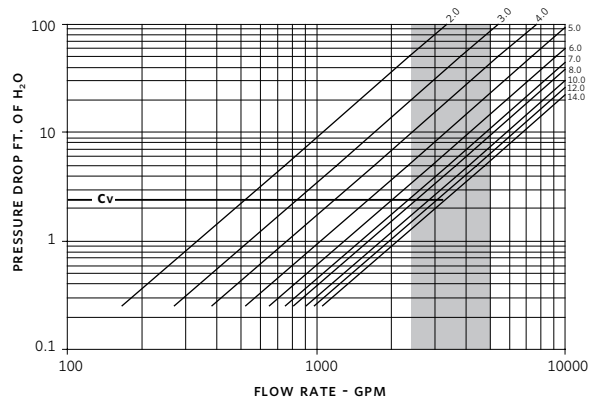
CBV-8FS/CBV-8FA



CBV-10FS/CBV-10FA

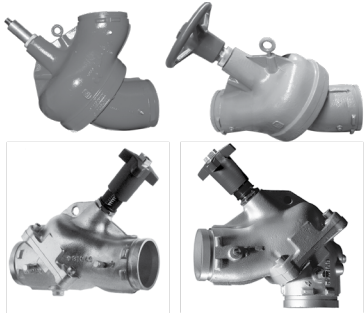


CBV-12FS/CBV-12FA





# CIRCUIT BALANCING VALVES | ANSI GROOVED



ARMflo CBV-G circuit balancing valves are rugged, double regulating valves for balancing hydronic fluid flow in HVAC heating and chiller systems. These valves combine the functions of positive shut-off, precise flow regulation, and variable orifice flow measurement. Ensure application requirements are compatible with materials of construction, temperature and pressure ratings, and flowrate ranges, as defined in the corresponding product submittals

## MATERIALS OF CONSTRUCTION

- Body:** Ductile iron ASTM A536 GR65-45-12
- Disk:** Bronze ASTM B584 C-84400
- Seat:** Ultra high strength engineered resin
- Stem:** 2½" - 4" - Brass - ASTM B -16  
5" - 12" - Stainless steel ASTM A582 type 416
- Trim:** Brass C-37700
- O-ring:** Buna

**Insulation:** Optional (pre-formed insulation is available to meet ASTM D 1784/class T4253-C, MEA # 7-87, ASTM E-84 and ASTM E-136 with a flame spread rating of 25 or less and a smoke development rating of 50 or less.)

**PT ports ¼" (2):** NPT brass body with EPDM\*\* check and gasketed cap

\*\* EPDM is not suitable for oil service.

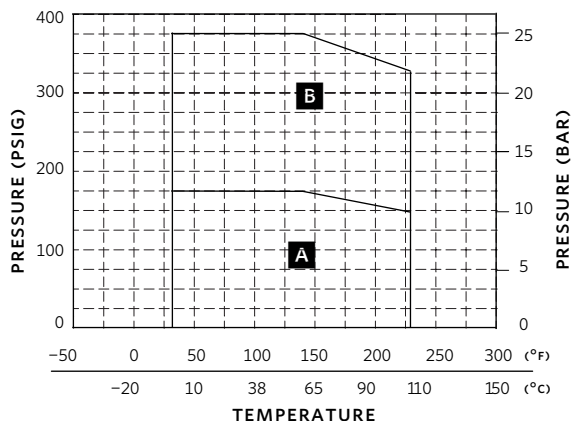
## MAXIMUM PUMP OPERATING CONDITIONS

**Max. working pressure:** 375 psi (2586 kPa), limited to 175 psi (1207 kPa) when used with Class 125/150 flange adapter

**Max. working temperature:** 230°F (110°C)\*

\*Optional viton for 2½" to 6" sizes elastomers for temperatures up to 300°F (150°C)

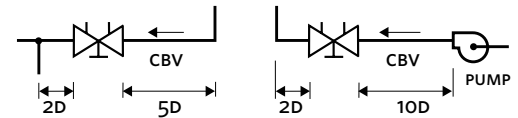
## OPERATING PARAMETERS



**LEGEND:** **A** Body with ANSI 125 ARMgrip flange adapter  
**B** Body alone, or with ANSI 250 ARMgrip flange adapter

## INSTALLATION

Generally locate the valve five pipe diameters downstream from a fitting; with two diameters downstream from the balancing valve free from fittings. If a balancing valve is located downstream from a circulation pump, allow a distance of ten (10) diameters between the pump and balancing valves (as illustrated below). To save space, the valve may be used in the angled configuration as an elbow.



## ACCESSORIES

<b>PT ports</b>	
<b>PT port extensions</b>	□ 1¾" □ 2¾"
<b>Armstrong flange adapter</b>	ANSI125#, ANSI250# PN16, PN25
<b>Differential pressure manometers</b>	CBDM 200
	CBDM 135/60
	DPM-15 DPM-100
<b>Flow meters</b>	Orifice plates: 2½" to 12"
	Venturis: 2½" to 12" butt welded

# CIRCUIT BALANCING VALVES | ANSI GROOVED

## DIMENSION DATA - INCHES (MM)

MODEL	CONNECTION SIZES	DIMENSIONS INCHES (mm)						WEIGHT lbs (kg)
		A	B (OPEN)	C	D	E	F	
CBV-2½GS	DN65	12.00 (305)	9.62 (244)	2.75 (70)	N/A	1.00 (25)	2.56 (65)	19
CBV-2½GA		7.40 (187)	9.62 (244)	2.75 (70)	4.60 (117)	1.00 (25)	2.56 (65)	(9.0)
CBV-3GS	DN80	12.00 (305)	10.50 (267)	2.44 (62)	N/A	1.00 (25)	3.00 (76)	24
CBV-3GA		8.30 (208)	10.50 (267)	2.44 (62)	3.90 (98)	1.00 (25)	3.00 (76)	(11.0)
CBV-4GS	DN100	14.00 (356)	10.56 (268)	3.00 (76)	N/A	1.25 (32)	3.44 (87)	42
CBV-4GA		9.60 (244)	10.56 (268)	3.00 (76)	4.30 (111)	1.25 (32)	3.44 (87)	(19.0)
CBV-5GS	DN125	17.50 (445)	12.80 (324)	3.60 (92)	N/A	1.25 (32)	4.94 (125)	81
CBV-5GA		12.00 (305)	12.80 (324)	3.60 (92)	5.50 (140)	1.25 (32)	4.94 (125)	(37.0)
CBV-6GS	DN150	20.70 (525)	13.10 (332)	4.40 (113)	N/A	2.00 (51)	5.88 (149)	54
CBV-6GA		14.10 (359)	13.10 (332)	4.40 (113)	6.63 (168)	2.00 (51)	5.88 (149)	(120)
CBV-8GS	DN200	28.19 (716)	24.62 (625)	5.69 (144)	N/A	2.00 (51)	7.88 (200)	310
CBV-8GA		18.93 (481)	24.62 (625)	5.69 (144)	9.19 (233)	2.00 (51)	7.88 (200)	(141)
CBV-10GS	DN250	30.00 (762)	26.50 (673)	6.60 (167)	N/A	2.00 (51)	9.47 (241)	460
CBV-10GA		20.30 (516)	26.50 (673)	6.60 (167)	9.80 (248)	2.00 (51)	9.47 (241)	(209)
CBV-12GS	DN300	38.10 (967)	28.40 (722)	7.60 (194)	N/A	2.00 (51)	12.63 (321)	870
CBV-12GA		24.10 (611)	28.40 (722)	7.60 (194)	14.00 (356)	2.00 (51)	12.63 (321)	(395)

NOTE: All dimensions are in inches (mm) and weights in lbs (kg). Dimensional tolerance up to ±0.125" (3mm).

## FLOW RATE RANGES

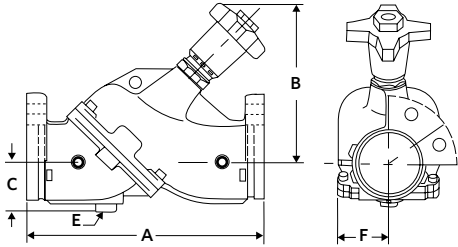
CONNECTION SIZES	STEM: NO. OF 360° TURNS	KV (OPEN)	CV (OPEN)	MIN. FLOW RATE L/S (USGPM)	MAX. FLOW RATE L/S (USGPM)
DN65	5	60	70	1.9 (30)	4.4 (71)
DN80	5	85	100	3.8 (60)	8.8 (140)
DN100	5	239	280	8.2 (130)	17.0 (270)
DN125	5	281	330	15.8 (250)	31.6 (500)
DN150	5	392	460	25.2 (400)	50.5 (800)
DN200	5	1024	1200	50.5 (800)	107.3 (1700)
DN250	5	1877	2200	94.7 (1500)	189.3 (3000)
DN300	5	2815	3300	151.4 (2400)	315.5 (5000)

## PART NUMBERS

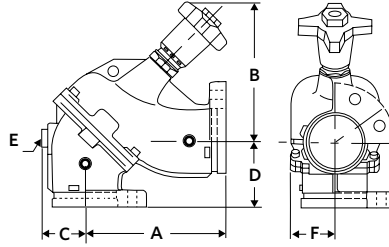
MODEL	PART NUMBER	MODEL	PART NUMBER
CBV-2½GS	570109-386	CBV-6GS	570109-390
CBV-2½GA	570109-486	CBV-6GA	570109-490
CBV-3GS	570109-387	CBV-8GS	570109-391
CBV-3GA	570109-487	CBV-8GA	570109-491
CBV-4GS	570109-388	CBV-10GS	570109-392
CBV-4GA	570109-488	CBV-10GA	570109-492
CBV-5GS	570109-389	CBV-12GS	570109-393
CBV-5GA	570109-489	CBV-12GA	570109-493

# CIRCUIT BALANCING VALVES | ANSI GROOVED

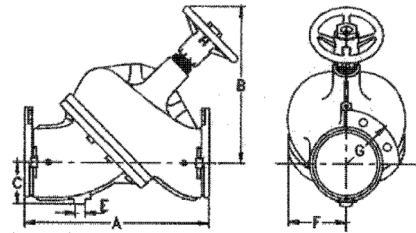
MODEL CBV-GS - 2.5" TO 6"



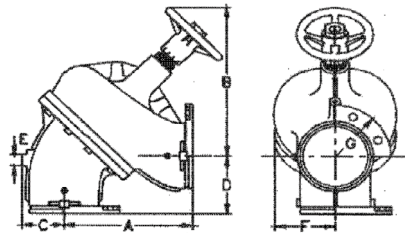
MODEL CBV-GA - 2.5" TO 6"



MODEL CBV-FS - 8" TO 12"

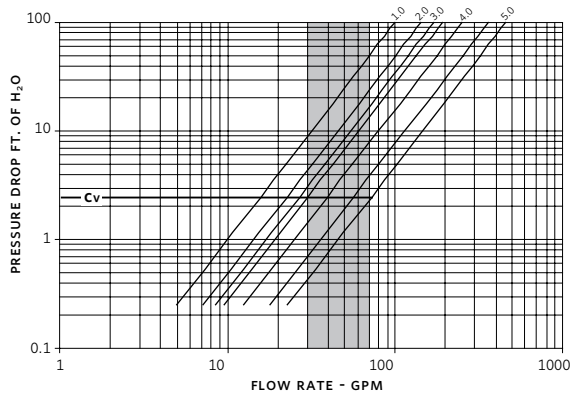


MODEL CBV-FA - 8" TO 12"

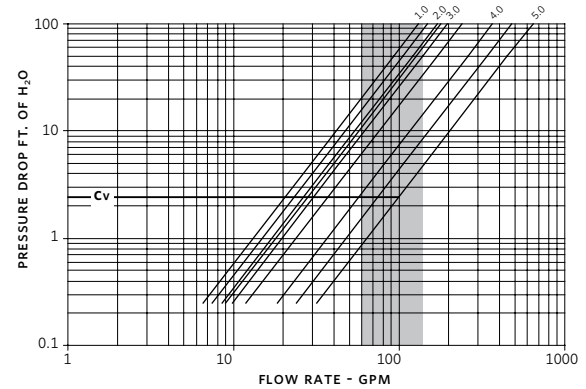


## PERFORMANCE CURVES

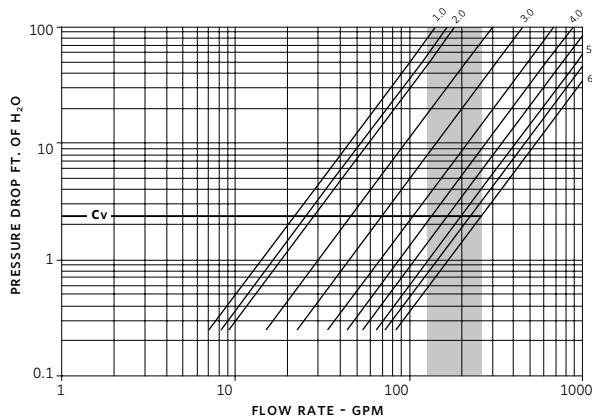
CBV-2½GS/CBV-2½GA



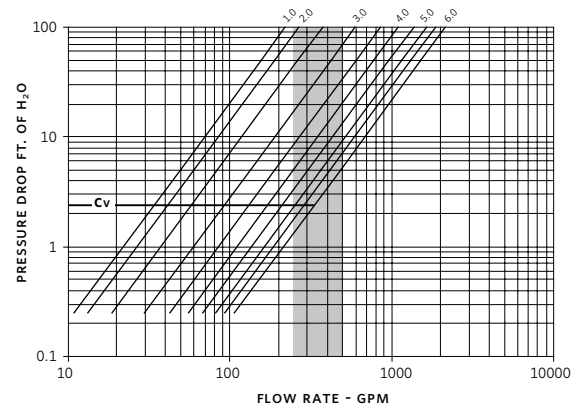
CBV-3GS/CBV-3GA



CBV-4GS/CBV-4GA



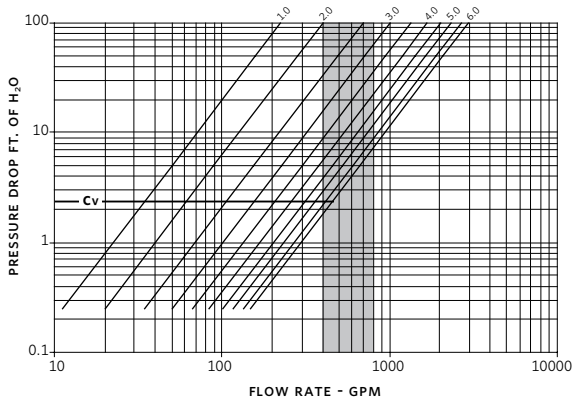
CBV-5GS/CBV-5GA



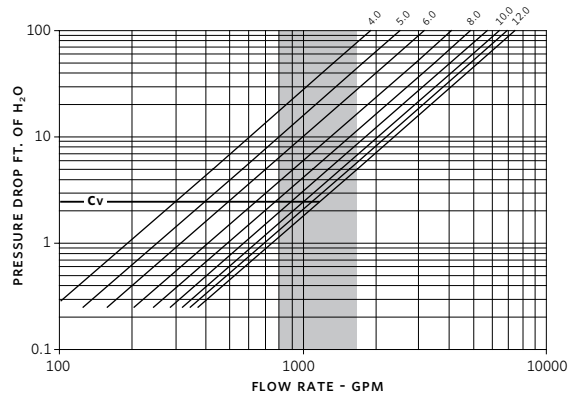
# CIRCUIT BALANCING VALVES | ANSI GROOVED

## PERFORMANCE CURVES

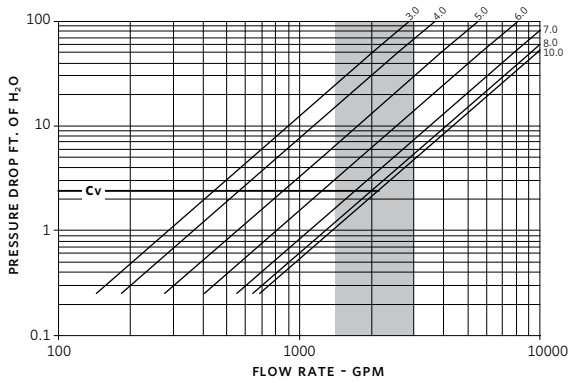
CBV-6GS/CBV-6GA



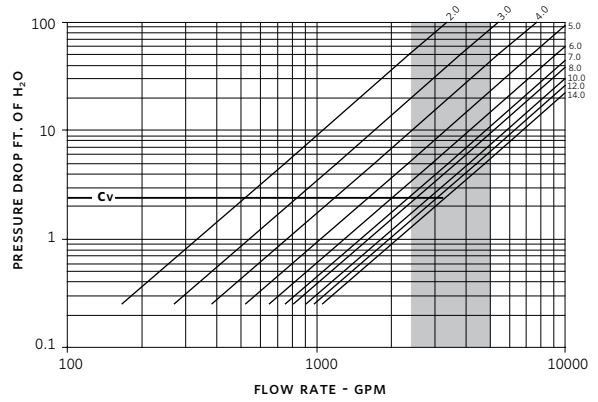
CBV-8GS/CBV-8GA



CBV-10GS/CBV-10GA



CBV-12GS/CBV-12GA



# ARMGRIP™ FLANGE ADAPTER KITS | ANSI 125 & 250



ARMgrip™ Flange Adapter Kits quickly convert industry standard grooved pipe connections to flanged connections, as required to suit application requirements. Armstrong grooved products (such as CBV-G, AFO-G, FTV-G and SSG) include special tabs that engage the flange adapter to prevent rotation during installation, just like a fixed flange. While grooved connection components may provide the greatest initial and installed cost economy, optional ARMgrip™ flange adapters enable the widest range of on-site application versatility, while reducing spare parts costs and inventory.

MODEL	SIZE INCHES (mm)	ANSI RATING		TEMPERATURE RATING		QUANTITY	IDENTIFICATION
FA2.5	2.5 (63.5)	<input type="checkbox"/> 125	<input type="checkbox"/> 250	<input type="checkbox"/> Standard	<input type="checkbox"/> High Temp		
FA3	3.0 (76.2)	<input type="checkbox"/> 125	<input type="checkbox"/> 250	<input type="checkbox"/> Standard	<input type="checkbox"/> High Temp		
FA4	4.0 (101.6)	<input type="checkbox"/> 125	<input type="checkbox"/> 250	<input type="checkbox"/> Standard	<input type="checkbox"/> High Temp		
FA5	5.0 (127.0)	<input type="checkbox"/> 125	<input type="checkbox"/> 250	<input type="checkbox"/> Standard	<input type="checkbox"/> High Temp		
FA6	6.0 (152.4)	<input type="checkbox"/> 125	<input type="checkbox"/> 250	<input type="checkbox"/> Standard	<input type="checkbox"/> High Temp		
FA8	8.0 (203.2)	<input type="checkbox"/> 125	<input type="checkbox"/> 250	<input type="checkbox"/> Standard	<input type="checkbox"/> High Temp		
FA10	10.0 (254.0)	<input type="checkbox"/> 125	<input type="checkbox"/> 250	<input type="checkbox"/> Standard	<input type="checkbox"/> High Temp		
FA12	12.0 (304.8)	<input type="checkbox"/> 125	<input type="checkbox"/> 250	<input type="checkbox"/> Standard	<input type="checkbox"/> High Temp		

## TECHNICAL DATA

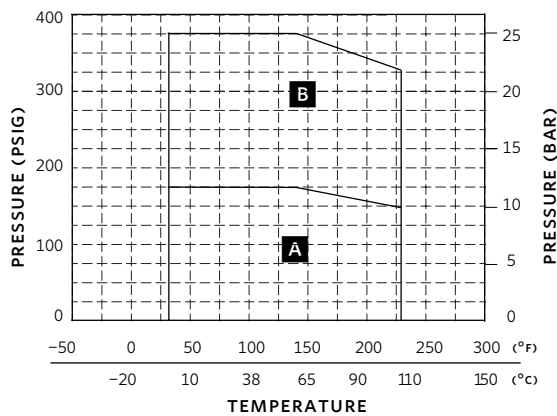
**Flange:** Ductile iron ASTM A536 GR65-45-12

**Connection:** Industry standard grooves

**Gasket:** STANDARD TEMPERATURE: EPDM

HIGH TEMPERATURE: Viton® or equal

## PRESSURE/TEMPERATURE



**LEGEND:** **A** Body with ANSI 125 ARMgrip flange adapter  
**B** Body alone, or with ANSI 250 ARMgrip flange adapter

## GROOVE SPECIFICATIONS

Armstrong component grooves comply with the following pipe standards for cut groove connections:

- ANSI B36.10
- BS1387 (ISO65)
- DIN2440 & 2448 (ISO4200)
- JIS G3452

Some pipe standards have more than one o.d. per nominal pipe size. Always specify pipe o.d. to match component grooves connections.



FLANGE ADAPTER GASKET



ARMSTRONG DUCTILE IRON FLANGE ADAPTER

# ARMGRIP™ FLANGE ADAPTER KITS | ANSI 125 & 250

## ARMGRIP™ FLANGE ADAPTER KITS\*

MODEL	PIPE O.D.	FLANGE			BOLT HOLES			WEIGHT lbs (kg)
		RATING	O.D.	THICKNESS	B.C.D	SIZE	NUMBER	
FA2.5	73 (2.9)	ANSI 125**	7.25 (184)	0.88 (22)	5.72/5.50 (146/140)†	0.75 (19)	4 Slots	7 (3)
		ANSI 250	7.50 (190)	1.00 (25)	5.88 (149)	0.88 (22)	8	7 (3)
FA3	89 (3.5)	ANSI 125	7.50 (190)	0.88 (22)	6.00 (152)	0.75 (19)	4	8 (4)
		ANSI 250	8.25 (210)	1.12 (29)	6.62 (168)	0.88 (22)	8	8 (4)
FA4	114 (4.5)	ANSI 125***	9.00 (229)	0.94 (24)	7.50/7.10 (191/180)†	0.75 (19)	8 Slots	9 (4)
		ANSI 250	10.00 (254)	1.25 (32)	7.88 (200)	0.88 (22)	8	20 (9)
FA5	142 (5.6)	ANSI 125***	10.00 (254)	0.94 (24)	8.50 (216)	0.88 (22)	8	11 (5)
		ANSI 250	11.00 (279)	1.38 (35)	9.26 (235)	0.88 (22)	8	22 (10)
FA6	168 (6.6)	ANSI 125	11.00 (279)	1.00 (25)	9.50 (241)	0.88 (22)	8	13 (6)
		ANSI 250	12.50 (318)	1.44 (37)	10.62 (270)	0.88 (22)	12	24 (11)
FA8	219 (8.6)	ANSI 125	13.50 (343)	1.12 (29)	11.74 (298)	0.88 (22)	8	18 (8)
		ANSI 250	15.00 (381)	1.63 (41)	13.0 (330)	1.00 (25)	12	36 (16)
FA10	273 (10.8)	ANSI 125	16.00 (406)	1.19 (30)	14.24 (361)	1.00 (25)	12	24 (11)
		ANSI 250	17.50 (444)	1.88 (48)	15.25 (387)	1.12 (29)	16	51 (23)
FA12	324 (12.8)	ANSI 125	19.00 (483)	1.25 (32)	17.00 (432)	1.00 (25)	12	51 (23)
		ANSI 250	20.50 (521)	2.00 (51)	17.74 (451)	1.25 (32)	16	75 (34)

## ARMSTRONG CUT GROOVE CONNECTIONS\*

NOMINAL SIZES	PIPE O.D.	O.D. TOLERANCE		GASKET SEAT††	GROOVE WIDTH††	GROOVE DIAMETER		GROOVE DEPTH
		+	-			DIMENSION	TOLERANCE	
2.50 (65)	2.90 (73)	0.01 (0.13)	0.01 (0.13)	0.6 (15.88)	0.3 (7.92)	2.7 (68.83)	±0.005 (0.13)	0.08 (2.11)
3.00 (80)	3.50 (89)	0.01 (0.25)	0.01 (0.25)	0.6 (15.88)	0.3 (7.92)	3.3 (84.68)	±0.010 (0.25)	0.08 (2.11)
4.00 (100)	4.50 (115)	0.01 (0.25)	0.01 (0.25)	0.6 (15.88)	0.4 (9.52)	4.3 (110.1)	±0.010 (0.25)	0.09 (2.3)
5.00 (125)	5.80 (142)	0.01 (0.13)	0.01 (0.13)	0.6 (15.88)	0.4 (9.52)	5.4 (136.8)	±0.005 (0.13)	0.10 (2.41)
6.00 (150)	6.60 (168)	0.01 (0.25)	0.01 (0.25)	0.6 (15.88)	0.4 (9.52)	6.4 (163.7)	±0.010 (0.25)	0.09 (2.29)
8.00 (200)	8.60 (219)	0.03 (0.79)	0.03 (0.79)	0.8 (19.05)	0.4 (11.18)	8.4 (214.4)	-0.64 (0.02)	0.09 (2.34)
10.00 (250)	10.80 (273)	0.06 (1.60)	0.03 (0.79)	0.8 (19.05)	0.5 (12.70)	10.6 (268.3)	-0.69 (0.03)	0.09 (2.39)
12.00 (300)	12.80 (324)	0.09 (2.36)	0.03 (0.79)	0.8 (19.05)	0.5 (12.70)	12.5 (318.3)	-0.76 (0.03)	0.11 (2.78)

## PART NUMBERS

MODEL	ANSI		PN		MODEL	ANSI		PN	
	RATING	PART NUMBER	RATING	PART NUMBER		RATING	PART NUMBER	RATING	PART NUMBER
FA2.5	ANSI 125**	570204-000	PN 16	570204-000	FA6	ANSI 125	570212-000	PN 16	570212-000
	ANSI 250	570205-000	PN 25	570204-000		ANSI 250	570213-000	PN 25	570213-500
FA3	ANSI 125	570206-000	PN 16	570206-500	FA8	ANSI 125	570214-000	PN 16	570214-500
	ANSI 250	570207-000	PN 25	570206-500		ANSI 250	570215-000	PN 25	570229-500
FA4	ANSI 125***	570208-000	PN 16	570208-000	FA10	ANSI 125	570228-000	PN 16	570228-500
	ANSI 250	570209-000	PN 25	570209-500		ANSI 250	570229-000	PN 25	570229-500
FA5	ANSI 125***	570210-000	PN 16	570210-500	FA12	ANSI 125	570230-000	PN 16	570230-500
	ANSI 250	570211-000	PN 25	570211-500		ANSI 250	570231-000	PN 25	570231-500

\* All dimensions are in inches (mm) and weights in lbs (kg).

\*\* Also fits PN16 and PN25

\*\*\* Also fits PN16

† Bolt holes are elongated

†† ±0.03 (±0.76)

# PT PORT AND EXTENSIONS



Armstrong PT ports enable the quick connection of pressure and temperature measuring instruments for testing, balancing, and troubleshooting hydronic systems.

## MATERIAL OF CONSTRUCTION

**Body and cap:** Brass ASTM B-16 H02 C36000

**Seal:** EPDM

## TECHNICAL DATA

**Maximum operating pressure:** 300 psi (2068 kPa)  
20 bar (PN20)

**Operating temperature range:** -4°F TO 300°F  
(-20°C TO 150°C)

## DIMENSION DATA - INCHES (MM)

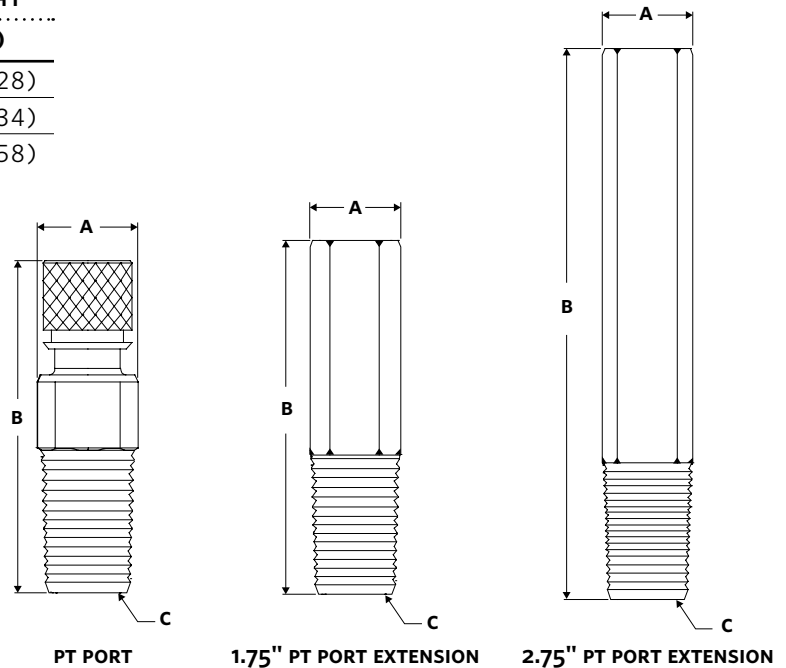
MODEL	DIMENSIONS INCHES (mm)			WEIGHT oz. (g)
	A	B	C	
PT port	0.5 (13)	1.54 (39)	¼" NPT	1.0 (28)
PT port	0.5 (13)	1.75 (44)	¼" NPT	1.2 (34)
extension	0.5 (13)	2.75 (70)	¼" NPT	2.0 (58)

## PART NUMBERS

MODEL	ITEM NUMBER
PT port	570148-004
PT port	570148-200
extension	570148-201

## PT PORTS & EXTENSIONS

Armstrong PT ports enable the quick connection of pressure and temperature measuring instruments for testing, balancing, and troubleshooting hydronic systems. The dual EPDM seals provide superior protection against leaks in either heated or chilled water systems, and are compatible with water and ethylene or propylene glycol anti-freeze solutions. The ¼" NPT male mounting thread mates with common pipe fittings and the ⅛" flared thread port mates with compatible instrument probes such as those used with an Armstrong DPM differential pressure manometer. Two sizes of ¼" NPT M × F extensions are available to improve the accessibility of PT ports that are mounted in hard-to-reach locations or where pipe insulation is used.







# DIFFERENTIAL PRESSURE MANOMETER



The Differential Pressure Manometer (DPM) is a rugged, digital instrument used to measure the pressure drop or pressure gain across hydronic system components.

## MATERIAL OF CONSTRUCTION

- Service:** Compatible, non-combustible gases & liquids
- Wetted materials:** Type 316L stainless steel
- Accuracy:** ±0.5% of full scale from 60°F - 78°F (15°C - 25°C);  
±1% of full scale from 32°F - 60°F and 78°F - 104°F  
(0°C - 15°C and 25°C - 40°C)
- Measurement range:** DPM-100: 0 - 100 psi (0 - 689 kPa)  
DPM-15: 0 - 15 psi (0 - 103 kPa)
- Maximum pressure:** DPM-100: 200 psi (1379 kPa)  
DPM-15: 30 psi (207 kPa)
- Selectable pressure units:** psi, in. H<sub>2</sub>O, in. Hg, mm Hg, kPa, bar and mbar
- Operating temperature range:** 32°F TO 200°F (0°C TO 93°C)
- Storage temperature:** -4°F TO 176°F (-20°C TO 80°C)
- Pressure hysteresis:** ±0.1% of full scale
- Connections:** Two 1/8" female NPT
- Adapters:** Two 1/4" male SAE adapters included
- Display:** 0.42" (10.6 MM) 4 1/2 digit LCD with units indicators
- Power source:** 9 V alkaline battery (included)
- Battery life:** Up to 100 hours (less when LCD backlight used)
- Agency approvals:** CE

## CARRYING CASE, HOSES & FITTINGS

- Case is made of durable resin material
- Includes impact resistant foam packing
- Flexible hoses (one red and one blue) complete with fittings:
  - 1/4" female SAE flare straight fitting (connects to 1/4"SAE adapters on meter)
  - 1/4" female SAE 45° elbow fitting (connects to measuring probes)
- Two pressure measuring probes with adapter fittings
- One Armstrong cbv balancing wheel
- One Armstrong ARMflo venturi-style cbv balancing slide rule

The Differential Pressure Manometer (DPM) is a rugged, digital instrument used to measure the pressure drop or pressure gain across hydronic system components. The DPM is available in either 0-15 psi or 0-100 psi measurement range models for precise adjustment of circuit balancing valves, and to monitor circulator performance. Both models measure gauge or differential pressure and can store up to 40 readings for later recall. The operator can select from a variety of Imperial and metric measurement units to suit the hydronic system design data. Valuable safety features include visible and audible instrument over-range warning alarms and backlit display for work in poorly illuminated areas. The lightweight, compact DPM design is easy to use in the tight, overhead spaces commonly encountered when balancing or troubleshooting hydronic systems.

# DIFFERENTIAL PRESSURE MANOMETER

## DIMENSION DATA - INCHES (MM)

MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
DPM-15 meter only	5.88 (150)	2.75 (70)	0.88 (20)	0.90 (0.4)
DPM-15 with case & hose fit	13.50 (343)	17.00 (432)	4.50 (114)	5.85 (2.6)
DPM-100 meter only	5.88 (150)	2.75 (70)	0.88 (20)	0.90 (0.4)
DPM-100 with case & hose fit	13.50 (343)	17.00 (432)	4.50 (114)	5.85 (2.6)

All dimensions are in inches (mm) and weights are in lbs (kg)

## PART NUMBERS

MODEL	PART NUMBERS
DPM-15 meter only	570095-201
DPM-15 with case & hose fit	570095-202
DPM-100 meter only	570095-206
DPM-100 with case & hose fit	570095-207
DPM-15 and DPM-100 with case & hose fit	570095-208

# PORTABLE FLOW MEASUREMENT METER |

CBDM 200 & CBDM 135/60



The Differential Pressure Meter is a precision measuring instrument designed to measure the differential pressure of liquids between two points in a pressurized system.

The instrument can cover a broad range of differential pressures with accuracies of  $\pm 3-2-3\%$  full scale (ascending). The gauge is protected against over-range to the maximum working pressure of the system.

## SPECIFICATION

ITEM	CBDM 200	CBDM* 135/60
Range	0-200	0-135" 0-60"
Diameter	2½"	4½"
Hose length	5"	5"
Adapters	Schrader to ¼" PMP	Schrader to ¼" PMP
Max. operating pressure	500 psi	300 psi
Max. operating temperature	150°F (66 °C)	150°F (66 °C)
Accuracy	$\pm 5\%$ ascending	0-135": $\pm 5\%$ ascending 0-60": $\pm 3-2-3\%$

\* Two meters in one case

## MATERIAL OF CONSTRUCTION

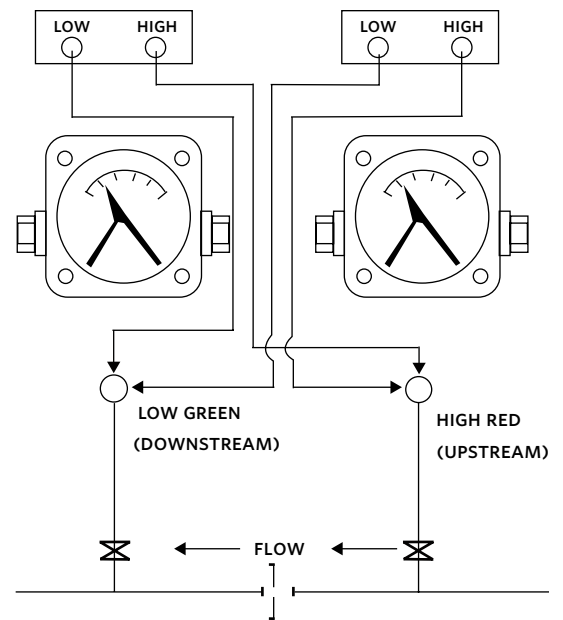
ITEM	CBDM 200	CBDM* 135/60
Gauge	Aluminum body, s.s.316 internals, BUNA-N seals	One polysulfone body and one aluminum body, both with s.s. internals and with BUNA-N seals
Tubing	Nylon	
Fittings	Brass	
Filters	90 micron	
Hoses	BUNA-N with neoprene jacket and 'Schrader' ¼" brass couplet. (Connects with ¼" 37° flare male fitting).	

## DIMENSION DATA - INCHES

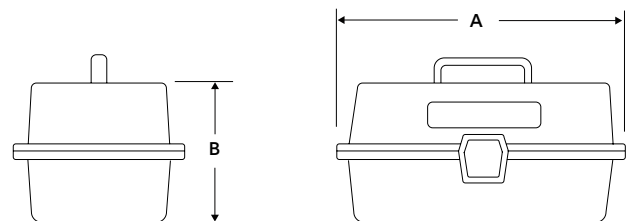
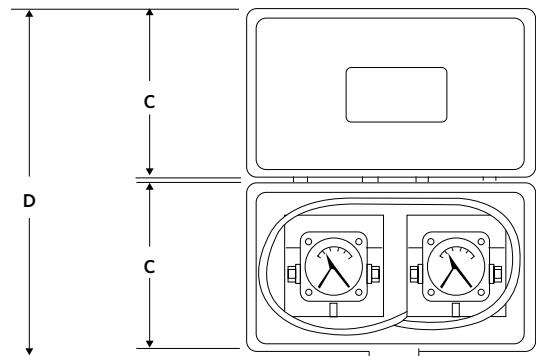
MODEL	A	B	C	D
CBDM 200	12.50	6.00	7.00	14.00
CBDM 135/60	16.50	7.25	9.00	18.50

## PART NUMBERS

MODEL	ITEM NUMBER
CBDM 200	570095-003
CBDM 135/60	570095-001



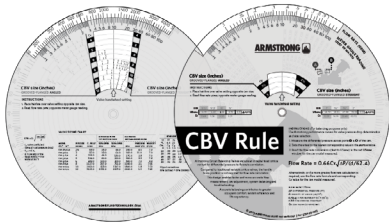
PRESSURE GAUGE CONNECTIONS CBDM 135/60



ARMSTRONG CBV CIRCUIT BALANCING VALVE



# CBV BALANCING WHEEL | CBV FLOW MEASUREMENT



## 1/2"-2" CIRCUIT BALANCING VALVES

- 1 Measure the differential pressure ( $\Delta P$ ) across ports A & B (FIG. 1) of the ARMflo CBV.
- 2 Using the CBV Rule, turn the wheel of the slide rule (FIG. 2) until the measured pressure drop appears in window. For example, for the slide rule shown in FIG. 2, the wheel is turned reveal 3.00 in the window.
- 3 Read the flow for the particular size of valve installed. In this case, the reading for a 3/4" valve would be 5.96 USgpm.
- 4 The flow calculation for other valve sizes appear on either side of the center rivet.

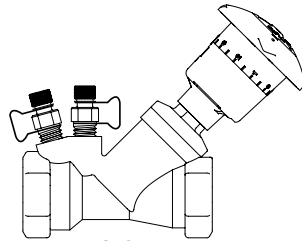


FIG. 1

- 5 In the event that the calculated flow is not within the desired range, turning the handle clockwise will decrease the flow and turning the handle anticlockwise will increase the flow.

Alternatively, or if a more precise flow rate calculation is required, use the flow rate formula and corresponding Cv value for the cbv model measured.

$$\text{Flow rate} = 0.66 \text{ Cv} \sqrt{\Delta P / (d / 62.4)}$$

Flow rate : USgpm

$\Delta P$ : Differential pressure (ft of h<sub>2</sub>O)

D: Density of liquid (lb/ft<sup>3</sup>)

D/62.4: 1 for water at 60°F (16°C)

0.66: Conversion constant

Cv: cbv flow co-efficient

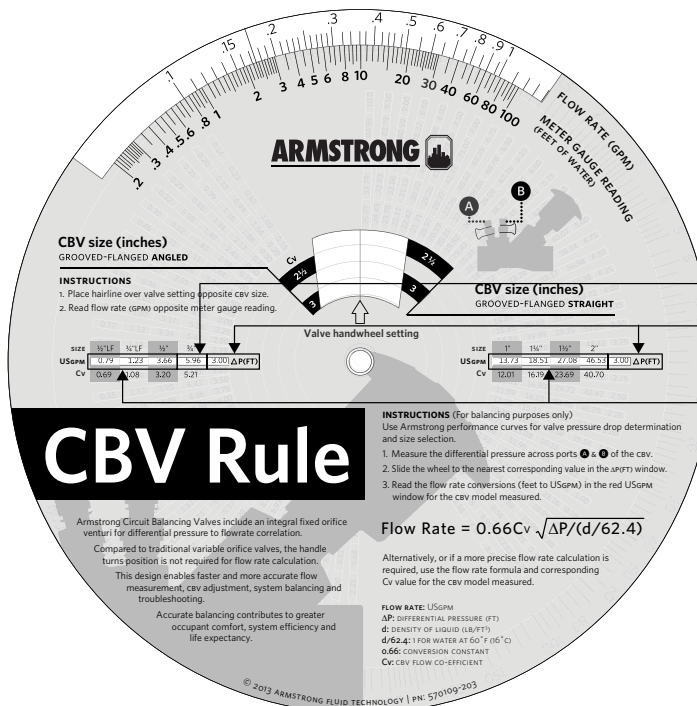


FIG. 2

ARMflo Circuit Balancing Valves (cbv) include an integral venturi for differential pressure to flow rate correlation.

Compared to traditional variable orifice valves, the handle turns position is not required for flow rate calculation.

The venturi design also results in higher flow measurement accuracy (especially when throttled), correctly indicates valve plugging conditions, and enables faster and more accurate flow measurement, CBV adjustment, system balancing and troubleshooting. Accurate balancing contributes to greater occupant comfort, system efficiency and life expectancy.

Flow Rate for 3/4" CBV = 5.96 USgpm  
 $\Delta P = 3.0$  ft

Flow Rate for other sizes between 1/2" and 2" sizes

# CBV BALANCING WHEEL | CBV FLOW MEASUREMENT

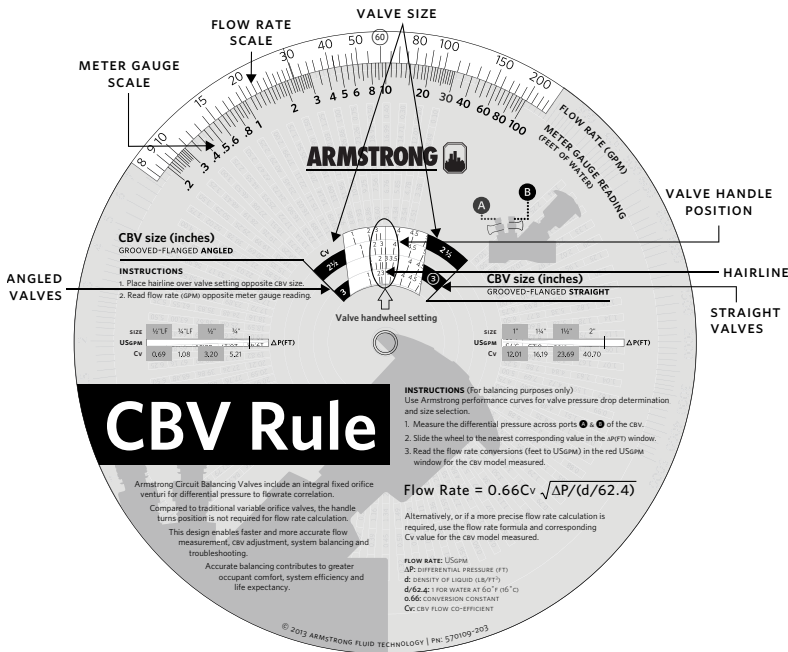


FIG. 3

## 2 1/2" & 3" CIRCUIT BALANCING VALVES (FIG. 3)

- 1 Measure the differential pressure ( $\Delta P$ ) in the pipe with an appropriate measuring device.
- 2 Determine whether straight or angled configuration is used.
- 3 Set the hairline over the valve handwheel setting of the size and configuration of the valve.
- 4 In this case we have a ③" straight valve with a handwheel setting of "3". The **Meter Gauge Reading** is 10 ft.
- 5 Read across from 10 on the lower scale to reveal a **Flow rate** of ⑩ USgpm.
- 6 In the event that the calculated flow is not within the desired range, turning the handle clockwise will decrease the flow and turning the handle anticlockwise will increase the flow.

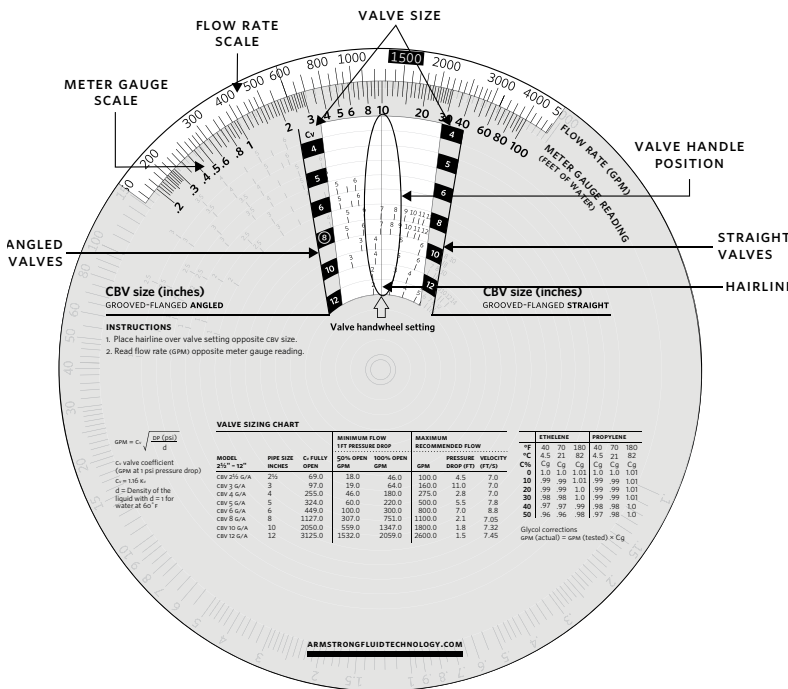


FIG. 4

## 4"-12" CIRCUIT BALANCING VALVES (FIG. 4)

- 1 The process is the same as with the 2 1/2 & 3" valves. Measure the differential pressure ( $\Delta P$ ) in the pipe with an appropriate measuring device.
- 2 Determine whether straight or angled configuration is used.
- 3 Set the hairline over the valve handwheel setting of the size and configuration of the valve.
- 4 In this case we have a ⑧" angled valve with a handwheel setting of "7". The **Meter Gauge Reading** is 15 ft.
- 5 Read across from 15 on the lower scale to reveal a **Flow rate** of 1550 USgpm.
- 6 In the event that the calculated flow is not within the desired range, turning the handle clockwise will decrease the flow and turning the handle anticlockwise will increase the flow.

## REPLACEMENT PARTS

S&H Circulator Less Volute	95
Companion Flanges	97
Hardware Kits	101
Flange Hardware Kits - Cross Reference	103
Flex Flange	105
Flange Kits	107
Flange Kits - Union Fitting	109
Design Envelope Pumping unit with iECM motor	111
Design Envelope Pumping unit with IVS motor	115
Seal Bearing Assemblies	117
Coupler Assemblies	121
Motors	123
Seal Kits	125
Impellers	126
Gaskets	130
Pump Bodies	131

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# S&H CIRCULATOR LESS VOLUTE |

KIT



The Armstrong Pump-Less-Volute kits (PLV) are complete repair solutions for the S&H circulator line. Armstrong PLVs can also be used to rebuild or upgrade select ITT/ B&G circulator models.

## MATERIALS OF CONSTRUCTION

**Pump body:** Gold painted steel, radially split for servicing ease

**Motor:** Maintenance-free, permanently lubricated

**Sealed bearing assembly:** Armstrong sba with universal bearing module

- Stainless steel face plate
- Alloy steel shaft (heat treated for long life)
- Maintenance free: Ball bearing
- Sleeve bearing: Copper sleeve  
Circular oil wick

**Coupler:** 4-spring or flexible coupler

**Shaft:** Alloy steel (heat treated for long life), copper sleeve

**Mechanical seal:** Carbon/SiC, stainless steel trim, Viton seal

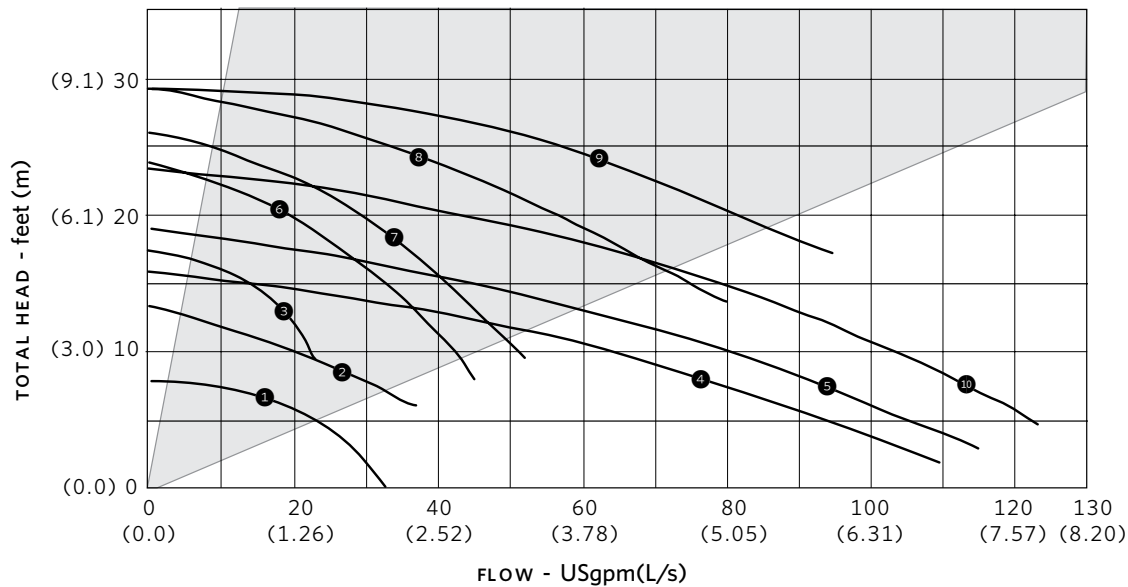
**Impeller:** Noryl (registered trade mark of GE plastics)

Armstrong in-line circulators are favoured by system designers and chiller/boiler manufacturers who prefer 3-piece construction for reliability, efficiency, and serviceability. Today's models are direct substitutes for all compatible circulators built over the last 50 years. Armstrong Gold Series - Pump Less Volute kits enable you to upgrade and renew circulators manufactured by others, to gain the benefits of Armstrong quality, service, and performance, along with these design innovations.

## MAXIMUM PUMP OPERATING CONDITIONS

125 psig at 225°F (863 kPa at 107°C)

## PERFORMANCE CURVE



- |       |       |       |       |       |
|-------|-------|-------|-------|-------|
| ① S25 | ② H32 | ③ H41 | ④ S45 | ⑤ S46 |
| ⑥ H51 | ⑦ H52 | ⑧ H53 | ⑨ H54 | ⑩ S55 |

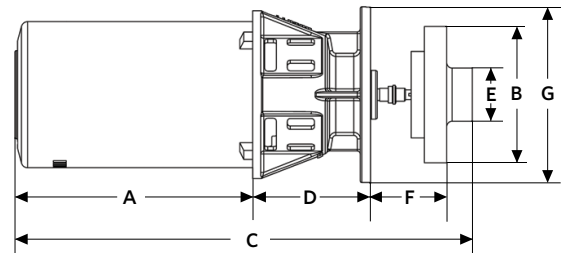
# S&H CIRCULATOR LESS VOLUTE KIT

## DIMENSION DATA - INCHES (MM)

MODEL	MOTOR*		DIMENSIONS INCHES (mm)						
	HP	PHASE AND VOLT	A	B	C	D	E	F	G
S25 LV	1/12	1 PHASE 115 V	6.12 (155)	2.75 (70)	12.62 (321)	3.88 (98)	1.25 (31)	1.25 (33)	3.38 (86)
H32 LV	1/6		7.50 (190)	3.38 (86)	13.88 (354)	3.38 (84)	1.38 (36)	1.75 (44)	4.25 (107)
H41 LV	1/6		7.50 (190)	4.25 (108)	14.12 (358)	3.38 (84)	1.25 (32)	1.75 (44)	5.38 (135)
S45 LV	1/4		7.50 (190)	4.25 (108)	14.25 (360)	3.38 (84)	2.00 (50)	1.75 (45)	5.38 (135)
S46 LV	1/3		7.50 (190)	5.25 (135)	14.25 (360)	3.38 (84)	2.00 (50)	1.75 (45)	5.38 (135)
H51 LV	1/4		7.50 (190)	5.25 (135)	15.62 (396)	4.62 (117)	2.12 (53)	1.75 (43)	6.88 (173)
H52 LV	1/3		7.50 (190)	5.25 (135)	15.62 (396)	4.62 (117)	2.12 (53)	1.75 (43)	6.88 (173)
H53 LV	1/2	1 PHASE 115/230 V or 3 PHASE 208- 230/460 V	5.12 (130)	5.25 (135)	13.12 (333)	4.62 (117)	2.12 (53)	1.75 (43)	6.88 (173)
H54 LV	3/4		10.38 (235)	5.25 (135)	17.75 (452)	4.62 (117)	2.12 (53)	2.12 (54)	6.88 (173)
S55 LV	1/2		8.25 (210)	5.25 (135)	16.75 (426)	4.62 (117)	2.12 (53)	2.12 (54)	6.88 (173)
Raypak 1	1/3	1 PHASE 115 V	7.50 (190)	4.38 (112)	14.75 (375)	4.62 (117)	2.12 (53)	2.12 (54)	6.88 (173)
Raypak 2	1/2	1 PHASE 115/208-230 V	9.88 (251)	4.50 (115)	17.25 (439)	4.62 (117)	2.12 (53)	2.12 (54)	6.88 (173)
Raypak 3	3/4		10.38 (235)	4.50 (115)	17.75 (452)	4.62 (117)	2.12 (53)	2.12 (54)	6.88 (173)
Raypak 4	1/2		9.25 (235)	N/A	N/A	4.62 (117)	N/A	N/A	N/A

## PART NUMBERS

SLEEVE BEARING CONFIG.		BALL BEARING CONFIG.	
MODEL	PART NUMBER	MODEL	PART NUMBER
S25 LV	110116-200	S25 LV/MF	110116MF-200
H32 LV	110116-201	H32 LV/MF	110116MF-201
H41 LV	110116-202	H41 LV/MF	110116MF-202
S45 LV	110116-203	S45 LV/MF	110116MF-203
S46 LV	110116-204	S46 LV/MF	110116MF-204
H51 LV	110116-300	H51 LV/MF	110116MF-300
H52 LV	110116-301	H52 LV/MF	110116MF-301
H53 LV	110116-302	H53 LV/MF	110116MF-302
H54 LV	110116-304	H54 LV/MF	110116MF-304
S55 LV	110116-306	S55 LV/MF	110116MF-306
H53-3 LV	110116-303	H53-3 LV/MF	110116MF-303
H54-3 LV	110116-305	H54-3 LV/MF	110116MF-305
S55-3 LV	110116-307	S55-3 LV/MF	110116MF-307
Raypak 1	110108-675	Raypak 1/MF	110108MF-675
Raypak 2	110108-677	Raypak 2/MF	110108MF-677
Raypak 3	110108-717	Raypak 3/MF	110108MF-717
Raypak 4	110108-680	Raypak 4/MF	110108MF-680



Dimensions shown are for reference only.

\*All single phase motors are equipped with built-in thermal overload protection. Three phase motors require external overload protection.

\*\* Base circulator: 2B 1050 AB- LV

# COMPANION FLANGES |

## PARTS INFORMATION

### CAST IRON FLANGES APPLICATION GUIDE

CAST IRON MODEL	PIPE SIZE AND PART NUMBER (FOR SINGLE FLANGES/FLANGE KITS)							HARDWARE KIT #	B & G FASTENER KIT #
	0.75"	1.0"	1.25"	1.5"	2.0"	2.5"	3.0"		
Astro 230/ 250CI/CI-R/ 280/210/286/ Compass	116013-011	116012-011	116011-011	116009-011				810120-202	P15696
E7/E8/E9/ E12/E12-TE/ E14/E14-TE/ E15/ E17	116013-011	116012-011	116011-011	116009-011				810120-244	P64910
E10/E11/E13/ E19/E21/E22/ E23/E24/ Astro 290		106073-011	104300-011	104301-011				810120-204	P64940
E16					106074-011			810120-206	F91600
E28/E29							105188-011	810120-208	P65129
E30 (2")/ E33 (2")					106074-011			810120-212	N/A
E30 (3")/ E33 (3")							105188-011	810120-208	P65129
H-32 BF		106073-011	104300-011	104301-011				810120-218	P64930
H-41 BF		116012-011						810120-210	P64230
H-51 BF		116012-011						810120-218	N/A
H-52 BF			116011-011					810120-218	P64910
H-53 BF				N/A				810120-218	P64930
H-54 BF					106074-011			810120-212	N/A
H-63 BF / H-64 BF / H-65 BF				104301-011				810120-204	N/A
H-66 BF / H-67 BF / H-68 BF					106074-011			810120-212	N/A
S-25 BF	116013-011	116012-011	116011-011	116009-011				810120-202	P15696
S-35 BF					105210-011			810120-206	F91600
S-45 BF						105189-011	105188-011	810120-208	P65129
S-46 BF/ S-55 BF/ S-57 BF							105188-011	810120-208	P65129
S-69 BF							133615-010	810120-214	P09540

(A hardware kit is included in each flange kit.)

# COMPANION FLANGES |

## PARTS INFORMATION

### LEAD FREE BRONZE FLANGES APPLICATION GUIDE

BRONZE MODEL	PIPE SIZE AND PART NUMBER (FOR SINGLE FLANGES/FLANGE KITS)							HARDWARE KIT #	B & G FASTERNER KIT #
	0.75"	1.0"	1.25"	1.5"	2.0"	2.5"	3.0"		
Astro 230SS/250SS/ 210/280/286/ Compass	116013-041	116012-041	116011-041	116009-041				810120-202	P15696
E7B/E8B/E9B/ E12B/E14B/ E12B-TE/E14B- TE/E15B/E17B	116013-041	116012-041	116011-041	116009-041				810120-244	P64910
E10B/E11B/ E13B/E19B/ E21B/E22B/ E23B/E24B/ Astro 290		106073-041	104300-041	104301-041				810120-204	P64940
E16B					106074-041			810120-206	F91600
E28B/E29B							105188-041	810120-208	P65129
E30B (2")/ E33B (2")					106074-041			810120-212	N/A
E30B (3")/ E33B (3")							105188-041	810120-208	P65129
H-32 AB		106073-041	104300-041	104301-041				810120-218	P64930
H-41 AB		116012-041						810120-210	P64230
H-51 AB		116012-041						810120-218	N/A
H-52 AB			116011-041					810120-218	P64910
H-53 AB				N/A				810120-218	P64930
H-54 AB					106074-041			810120-212	N/A
H-63 AB/ H-64 AB/ H-65 AB				104301-041				810120-204	N/A
H-66 AB/ H-67 AB/ H-68 AB					106074-041			810120-212	N/A
S-25 AB	116013-041	116012-041	116011-041	116009-041				810120-202	P15696
S-35 AB					105210-041			810120-206	F91600
S-45 AB						105189-041	105188-041	810120-208	P65129
S-46 AB / S-55 AB / S-57 AB							105188-041	810120-208	P65129
S-69 AB							106466-041	810120-214	P09540

(A hardware kit is included in each flange kit.)

# COMPANION FLANGES |

## PARTS INFORMATION



Job: \_\_\_\_\_

Representative: \_\_\_\_\_

Engineer: \_\_\_\_\_

Contractor: \_\_\_\_\_

Order no: \_\_\_\_\_ Date: \_\_\_\_\_

Submitted by: \_\_\_\_\_ Date: \_\_\_\_\_

Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

### INDIVIDUAL FLANGE DIMENSIONS

ARMSTRONG		BELL & GOSSETT		DIMENSION inches (mm)				DIAGRAM
CAST IRON	BRONZE	CAST IRON	BRONZE	A	B	C	D	
PART NUMBER	PART NUMBER							
104300-011	104300-041	P03300	P06660	1.25 (32)	3.44 (87)	4.75 (121)	0.50 (13)	1
104301-011	104301-041	P03410	P06690	1.50 (38)	3.44 (87)	4.75 (121)	0.50 (13)	1
105188-011	105188-041	F74000	F74800	3.00 (76)	5.06 (128)	6.00 (152)	0.56 (14)	2
105189-011	105189-041	P03560	P06750	2.50 (63)	5.06 (128)	6.00 (152)	0.56 (14)	2
105210-011	105210-041	—	—	2.00 (51)	3.75 (95)	4.88 (124)	0.56 (14)	2
106073-011	106073-041	P01500	P06620	1.00 (25)	3.44 (87)	4.75 (121)	0.50 (13)	1
106074-011	106074-041	—	—	2.00 (51)	3.16 (80)	5.13 (130)	0.63 (16)	2
116009-011	116009-041	P03430	P03450	1.50 (38)	3.16 (80)	4.25 (108)	0.50 (13)	1
116011-011	116011-041	P03250	P06640	1.25 (32)	3.16 (80)	4.25 (108)	0.50 (13)	1
116012-011	116012-041	P01510	—	1.00 (25)	3.16 (80)	4.25 (108)	0.50 (13)	1
116013-011	116013-041	P00740	—	0.75 (19)	3.16 (80)	4.25 (108)	0.50 (13)	1
133615-010	106466-041	A24600	—	3.00 (76)	6.00 (152)	7.50 (190)	0.75 (19)	2

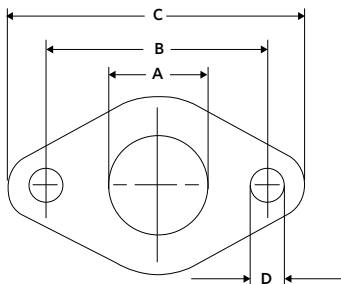


DIAGRAM 1

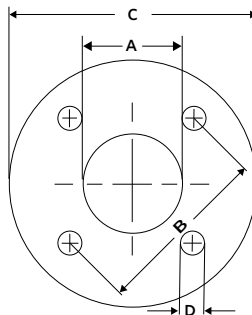


DIAGRAM 2



# FLANGE HARDWARE KITS

## APPLICATION CHARTS | PARTS INFORMATION

### HARDWARE KIT (WERE USED) CAST IRON

MODEL			PART NUMBER
S-25 BF	Flange	Hardware kit #	810120-202
		B&G Fastener kit #	P15696
S-35 BF	Flange	Hardware kit #	810120-206
		B&G Fastener kit #	F91600
S-45 BF	Flange	Hardware kit #	810120-208
		B&G Fastener kit #	P65129
S-46 BF / S-55 BF / S-57 BF	Flange	Hardware kit #	810120-208
		B&G Fastener kit #	P65129
S-69 BF	Flange	Hardware kit #	810120-214
		B&G Fastener kit #	P09540

(A hardware kit is included in each flange kit.)

### HARDWARE KIT (APPLICATION CHART) LEAD FREE BRONZE

MODEL			PART NUMBER
Astro 20B / 30B / 50B / 70B	Flange	Hardware kit #	810120-202
		B&G Fastener kit #	P15696
E7B / E8B / E9B / E12B / E14B / E12B-TE / E14B-TE / E15B / E17B	Flange	Hardware kit #	810120-244
		B&G Fastener kit #	P64910
E10B / E11B / E13B / E19B / E21B / E22B / E23B / E24B	Flange	Hardware kit #	810120-204
		B&G Fastener kit #	P64940
E16B	Flange	Hardware kit #	810120-206
		B&G Fastener kit #	F91600
E28B / E29B	Flange	Hardware kit #	810120-208
		B&G Fastener kit #	P65129
E30B (2") / E33B (2")	Flange	Hardware kit #	810120-212
		B&G Fastener kit #	N/A
E30B (3") / E33B (3")	Flange	Hardware kit #	810120-208
		B&G Fastener kit #	P65129
H-32 AB	Flange	Hardware kit #	810120-218
		B&G Fastener kit #	P64930
H-41 AB	Flange	Hardware kit #	810120-210
		B&G Fastener kit #	P64230
H-51 AB	Flange	Hardware kit #	810120-218
		B&G Fastener kit #	N/A
H-52 AB	Flange	Hardware kit #	810120-218
		B&G Fastener kit #	P64910
H-53 AB	Flange	Hardware kit #	810120-218
		B&G Fastener kit #	P64930

Continued on next page...

# FLANGE HARDWARE KITS

## APPLICATION CHARTS | PARTS INFORMATION

### HARDWARE KIT (APPLICATION CHART) LEAD FREE BRONZE

MODEL			PART NUMBER
H-54 AB	Flange	Hardware kit #	810120-212
		B&G Fastener kit #	N/A
H-63 AB / H-64 AB / H-65 AB	Flange	Hardware kit #	810120-204
		B&G Fastener kit #	N/A
H-66 AB / H-67 AB / H-68 AB	Flange	Hardware kit #	810120-212
		B&G Fastener kit #	N/A
S-25 AB	Flange	Hardware kit #	810120-202
		B&G Fastener kit #	P15696
S-35 AB	Flange	Hardware kit #	810120-206
		B&G Fastener kit #	F91600
S-45 AB	Flange	Hardware kit #	810120-208
		B&G Fastener kit #	P65129
S-46 AB / S-55 AB / S-57 AB	Flange	Hardware kit #	810120-208
		B&G Fastener kit #	P65129
S-69 AB	Flange	Hardware kit #	810120-214
		B&G Fastener kit #	

(A hardware kit is included in each flange kit.)



# FLANGE HARDWARE KITS

## CROSS REFERENCE | PARTS INFORMATION

### 810120-202 HARDWARE KIT (B&G FASTENER KITS P15696)

PART NUMBER	DESCRIPTION	QUANTITY	PUMP MODEL
116653-000	Gasket flange	2	S-25, Astro 20, Astro 30, Astro 50
911123-112	hhcs 7/16 - 14 x 1.5" lcs	4	
913523-100	hh jam nut 7/16 - 14 lcs	4	



### 810120-204 HARDWARE KIT (B&G FASTENER KITS P15696)

PART NUMBER	DESCRIPTION	QUANTITY	PUMP MODEL
104034-000	Gasket flange	2	H-63, H-64, H-65 E10, E11, E13
911123-114	hhcs 7/16 - 14 x 1.75" lcs	4	
913523-100	hh jam nut 7/16 - 14 lcs	4	

### 810120-206 HARDWARE KIT (B&G FASTENER KITS P15696)

PART NUMBER	DESCRIPTION	QUANTITY	PUMP MODEL
105209-002	Gasket flange	2	S-35 E16, E30, E33
911125-118	hhcs 1/2 - 13 x 2.25" lcs	8	
913125-100	hh nut 1/2 - 13 lcs	8	

### 810120-208 HARDWARE KIT (B&G FASTENER KITS P15696)

PART NUMBER	DESCRIPTION	QUANTITY	PUMP MODEL
105201-000	Gasket flange	2	S-45, S-46 S-55, S-57
911125-120	hhcs 1/2 - 13 x 2.5" lcs	8	
913125-100	hh nut 1/2 - 13 lcs	8	

### 810120-210 HARDWARE KIT (B&G FASTENER KITS P15696)

PART NUMBER	DESCRIPTION	QUANTITY	PUMP MODEL
105176-000	Gasket flange	2	H-41
911123-114	hhcs 7/16 - 14 x 1.75" lcs	4	
913523-100	hh jam nut 7/16 - 14 lcs	4	

# FLANGE HARDWARE KITS

## CROSS REFERENCE | PARTS INFORMATION

### 810120-212 HARDWARE KIT (B&G FASTENER KITS P15696)

PART NUMBER	DESCRIPTION	QUANTITY	PUMP MODEL
116117-000	Gasket flange	2	H-54, H-66, H-67, H-68, 4360-2B, 1050-2B
911125-118	hhcs ½ – 13 × 2.25" lcs	8	
913125-100	hh nut ½ – 13 lcs	8	

### 810120-214 HARDWARE KIT (B&G FASTENER KITS P15696)

PART NUMBER	DESCRIPTION	QUANTITY	PUMP MODEL
105201-000	Gasket flange	2	S-69
911129-120	hhcs ⅝ – 11 × 2.5" lcs	8	
913129-100	hh nut ⅝ – 11 unc	8	

### 810120-216 HARDWARE KIT (B&G FASTENER KITS P15696)

PART NUMBER	DESCRIPTION	QUANTITY	PUMP MODEL
426410-008	Gasket flange	2	1060-3D
911129-120	hhcs ⅝ – 11 × 2.5" lcs	8	
913129-100	hh nut ⅝ – 11 unc	8	

### 810120-218 HARDWARE KIT (B&G FASTENER KITS P15696)

PART NUMBER	DESCRIPTION	QUANTITY	PUMP MODEL
105176-001	Gasket flange	2	H-32, H-51, H-52, H-53 E7, E8, E9, E12, E14 4360-1.25B, 4360-1.5B, 4360-2B
911123-114	hhcs ⅞ – 14 × 1.75" lcs	4	
913523-100	hh jam nut ⅞ – 14 lcs	4	

### 810120-244 HARDWARE KIT (B&G FASTENER KITS P15696)

PART NUMBER	DESCRIPTION	QUANTITY	PUMP MODEL
105176-000	Gasket flange	2	E7, E8, E9, E12, E14
911123-112	hhcs ⅞ – 14 × 1.5" lcs	4	
913523-100	hh jam nut ⅞ – 14 lcs	4	

# FLEX FLANGE



Armstrong Flex Flange is a rotating flange designed to allow maximum installation flexibility regardless of pump flange orientation. Flex Flange units are available with a spring check valve to prevent the heating medium flowing in the wrong direction in the event of gravity circulation.

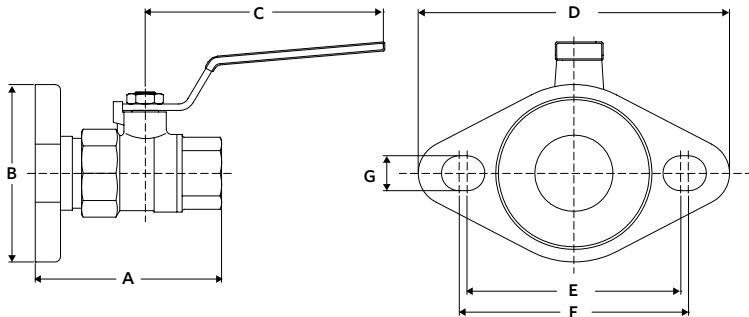
The Flex Flange integrates a 2-bolt flange connection (common to small circulating pumps) with a full-port ball valve. This practical **all-in-one** design reduces the number of plumbing connections and results in a more reliable and easily-serviced hydronic system.

## MATERIAL OF CONSTRUCTION

- Valve and stem:** Brass
- Flange:** Cast iron/Chromate
- Ball:** Chrome plated brass
- Stem o-rings:** BUNA N
- Seat:** PTFE

## MAXIMUM PUMP OPERATING CONDITIONS

150 psig at 250°F (1034 kPa at 121°C)



The Flex Flange is for industry professionals who need a fast and convenient solution for pump installation and isolation.

The Flex Flange provides value by helping plumbing installers:

- Perform quick upgrades and repairs
- Reduce downtime
- Increase client operating efficiency
- Reduce the overall hydronic system cost

The Flex Flange includes an optimized integral check valve to reduce fluid pressure drop, flow restriction and pump capacity loss.

This feature prevents gravity circulation and reverse system flow.

## DIMENSION DATA - INCHES (MM)

SIZE	TYPE	A		B	C	D	E	F	G
		ISO (WITHOUT CHECK)	ISO (WITH CHECK)						
½" (DN15)	NPT	2.56 (65)	2.77 (70)	2.70 (69)	3.54 (90)	4.63 (118)	3.18 (81)	3.41 (87)	0.53 (13)
¾" (DN20)	NPT	2.94 (75)	3.43 (87)						
1" (DN25)	NPT	3.50 (89)	4.17 (106)	2.70 (69)	4.53 (115)	4.63 (118)	3.18 (81)	3.41 (87)	0.53 (13)
1¼" (DN32)	NPT	4.03 (102)	4.94 (126)						
1½" (DN40)	NPT	4.31 (110)	5.24 (133)	2.70 (69)	5.51 (140)	4.63 (118)	3.18 (81)	3.41 (87)	0.53 (13)
½" (DN15)	Sweat	2.45 (62)	2.67 (68)						
¾" (DN20)	Sweat	3.04 (77)	3.54 (90)	2.70 (69)	4.53 (115)	4.63 (118)	3.18 (81)	3.41 (87)	0.53 (13)
1" (DN25)	Sweat	3.69 (94)	4.38 (111)						
1¼" (DN32)	Sweat	4.16 (106)	5.07 (129)	2.70 (69)	5.51 (140)	4.63 (118)	3.18 (81)	3.41 (87)	0.53 (13)
1½" (DN40)	Sweat	4.56 (116)	5.49 (139)						

All dimensions are in inches (mm)

# FLEX FLANGE

## APPLICATION CHART

CIRCULATOR		THE ARMSTRONG FLEX FLANGE KITS									
SERIES	MODELS	FF-050T / FF-050S		FF-075T / FF-075S		FF-100T / FF-100S		FF-125T / FF-125S		FF-150T / FF-150S	
		½" NPT	½" Sweat	¾" NPT	¾" Sweat	1" NPT	1" Sweat	1¼" NPT	1¼" Sweat	1½" NPT	1½" Sweat
Astro	20F/20BF	•	•	•	•	•	•				
	30/30B, 30-3/30B-3	•	•	•	•	•	•				
	50/50B, 50-3/50B-3	•	•	•	•	•	•				
	70/ 70B	•	•	•	•	•	•				
Astro 2	230SS	•	•	•	•	•	•	•	•	•	•
	250SS	•	•	•	•	•	•	•	•	•	•
E series	E7/E7B	•	•	•	•	•	•	•	•		
	E8/E8B	•	•	•	•	•	•	•	•		
	E9/E9B	•	•	•	•	•	•	•	•	•	•
	E10/E10B					•	•	•	•	•	•
	E11/E11B					•	•	•	•	•	•
	E12/E12B	•	•	•	•	•	•	•	•		
	E13/E13B					•	•	•	•	•	•
	E14/E14B	•	•	•	•	•	•	•	•		
	E15/E15B	•	•	•	•	•	•	•	•		
	E17/E17B	•	•	•	•	•	•	•	•		
	E19/E19B					•	•	•	•	•	•
	E21/E21B					•	•	•	•	•	•
	E22/E22B					•	•	•	•	•	•
	E23/E23B					•	•	•	•	•	•
	E24/E24B					•	•	•	•	•	•
	S & H series	S25	•	•	•	•	•	•			
H32						•	•	•	•	•	•
H41		•	•	•	•	•	•	•	•		
H51						•	•	•	•	•	•
H52						•	•	•	•	•	•
H53						•	•	•	•	•	•
H63						•	•	•	•	•	•
H64						•	•	•	•	•	•
H65					•	•	•	•	•	•	

## PART NUMBERS

MODEL	PART NUMBER	MODEL	PART NUMBER
FF-050T	110124-200	FF-050S	110124-250
FF-075T	110124-201	FF-075S	110124-251
FF-100T	110124-202	FF-100S	110124-252
FF-125T	110124-203	FF-125S	110124-253
FF-150T	110124-204	FF-150S	110124-254

# FLANGE KITS | PARTS INFORMATION



## CAST IRON FLANGES KITS

CAST IRON MODEL	PIPE SIZE AND PART NUMBER (FOR SINGLE FLANGES/FLANGE KITS)						
	0.75"	1.0"	1.25"	1.5"	2.0"	2.5"	3.0"
Astro 20 / 30 / 50 / 70	816013-111	816012-111	816011-111	816009-111			
Astro 230/250CI/CI-R	816013-111	816012-111	816011-111	816009-111			
E7 / E8 / E9 / E12 / E12-TE / E14 / E14-TE / E15 / E17	816013-211	816012-211	816011-211	816009-211			
E10 / E11 / E13 / E19 / E21 / E22 / E23 / E24		806073-111	804300-111	804301-111			
E16					806074-111		
E28 / E29							805188-111
E30 (2") / E33 (2")					806074-111		
E30 (3") / E33 (3")							805188-111
H-32 BF		N/A	N/A	N/A			
H-41 BF		N/A					
H-51 BF		816012-211					
H-52 BF			816011-211				
H-53 BF				816009-111			
H-54 BF					806074-111		
H-63 BF / H-64 BF / H-65 BF				804301-111			
H-66 BF / H-67 BF / H-68 BF					806074-111		
S-25 BF	816013-111	816012-111	816011-111	816009-111			
S-35 BF					N/A		
S-45 BF						N/A	N/A
S-46 BF / S-55 BF / S-57 BF							N/A
S-69 BF							N/A

(A hardware kit is included in each flange kit.)

# FLANGE KITS | PARTS INFORMATION

## LEAD FREE BRONZE FLANGES\*

BRONZE MODEL	PIPE SIZE AND PART NUMBER (FOR SINGLE FLANGES/FLANGE KITS)						
	0.75"	1.0"	1.25"	1.5"	2.0"	2.5"	3.0"
Astro 20B / 30B / 50B / 70B	816013-841	816012-841	816011-841	816009-841			
Astro 230SS/250SS/280/286	816013-841	816012-841	816011-841	816009-841			
Astro 290		806073-841	804300-841	804301-841			
E7B / E8B / E9B / E12B / E14B / E12B-TE / E14B-TE / E15B / E17B	816013-941	816012-941	816011-941	816009-941			
E10B / E11B / E13B / E19B / E21B / E22B / E23B / E24B		806073-841	804300-841	804301-841			
E16B					806074-841		
E28B / E29B							805188-841
E30B (2") / E33B (2")					806074-841		
E30B (3") / E33B (3")							805188-841
H-32 AB		N/A	N/A	N/A			
H-41 AB		N/A					
H-51 AB		816012-941					
H-52 AB			816011-941				
H-53 AB				816009-841			
H-54 AB					806074-841		
H-63 AB / H-64 AB / H-65 AB				804301-841			
H-66 AB / H-67 AB / H-68 AB					806074-841		
S-25 AB	816013-841	816012-841	816011-841	816009-841			
S-35 AB					N/A		
S-45 AB						N/A	N/A
S-46 AB / S-55 AB / S-57 AB							N/A
S-69 AB							N/A

(A hardware kit is included in each flange kit.)

\* Complies with section 116875 of the California Health and Safety Code & Vermont Act 193 (Lead content of all wetted surfaces 0.25% or less).

# FLANGE KITS | PARTS INFORMATION

## UNION FITTING SETS (CONTAIN TWO (2) HALF UNIONS AND GASKETS)

MODEL	PART NUMBER	CONNECTION	WEIGHT
Astro 20/25BU	810120-220	1.25" NPSM × 0.5" Sweat	2 (0.91)
	810120-222	1.25" NPSM × 0.75" Sweat	
	810120-224	1.25" NPSM × 0.5" FNPT	
Astro 220SSU/225SSU	810120-320	Lead free bronze* 1.25" NPSM × 0.5" Sweat	
	810120-322	Lead free bronze* 1.25" NPSM × 0.75" Sweat	
	810120-324	Lead free bronze* 1.25" NPSM × 0.5" FNPT	

All dimensions are in inches (mm) and weights are in lbs (kgs).

\*Certified <0.25 weighted average percent lead and Complies with California Health and Safety Code Section 116875 (commonly known as AB1953).





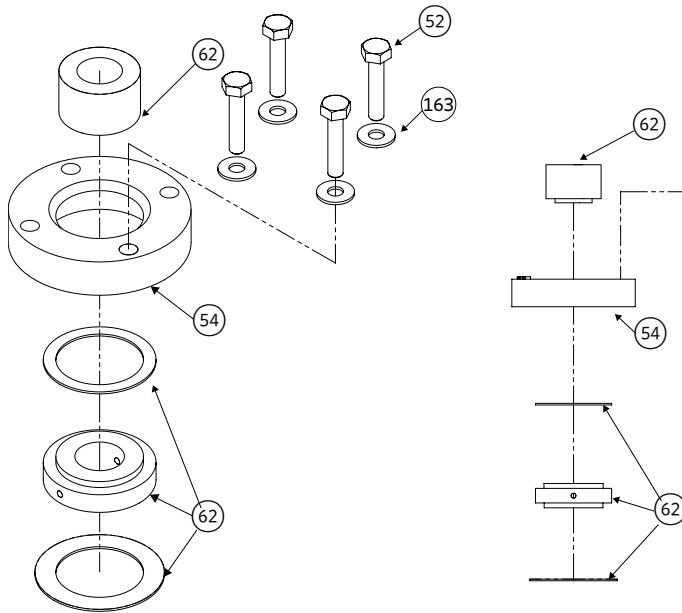
# DESIGN ENVELOPE PUMPING UNIT WITH IECM MOTOR | PARTS INFORMATION



Pipe-mounted 2-pump unit with integrated intelligent controls for space-saving installation, superior energy performance, and parallel-pumping or full redundancy operation. Saves up to 75% in energy over comparable traditional constant speed or variable frequency operated pump installations. Remote services through internet to enhance reliability and sustain optimal performance over life of pumps.

1-10 hp range standard with iECM motors that reduce losses by more than 20% over NEMA Premium efficiency. Network capable for remote performance management services.

## 4300 & 4380 PART LIST



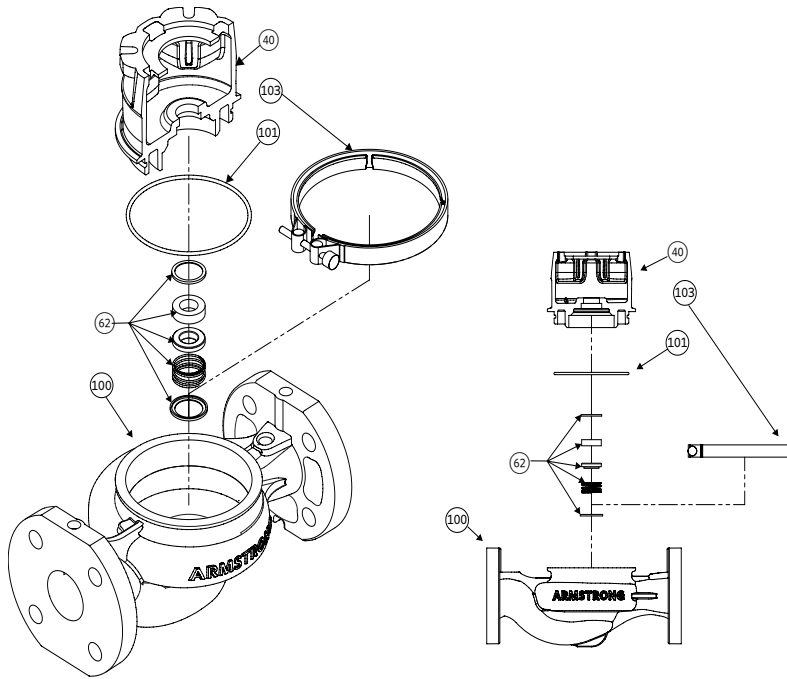
ITEM	DESCRIPTION
52	Seal Cover Capscrew
54	Seal Cover
62	Outside Mechanical Seal John Crane STD
62	Outside Mechanical Seal John Crane TC
62	Outside Mechanical Seal Duramettalic STD
62	Outside Mechanical Seal Duramettalic TC
163	Seal Cover Capscrew Washer

QTY	PART NUMBER	DESCRIPTION
	975002-324	Seal 5" 4300 Size: 0.750
1		Seal-Mech 0.750 AB2 C-SSc316-v
	975002-325	Seal 4300 5" (AC-SSC) Size: 0.750 Antimony
1		Seal-Mech 0.750 AB2 ACSSc316-v
	89975000-920	Seal Kit 5" 4380 Size: 0.750
1		Pkg Seal 0.750 2A C-SSc316EPDL
1		Clamp-V-Retainer CPLG SST 5"
1		O-ring EPDM 4¾" ID × 0.139CS
1		Box Serv Parts 6 <sup>13</sup> / <sub>16</sub> × 5 <sup>5</sup> / <sub>16</sub>
	89975000-924	Seal Kit 4380 5" (AC-SSC) Size: 0.750 Antimony
1		Pkg Seal 0.750 2A ACSSc316EPDM
1		Clamp-V-Retainer CPLG SST 5"
1		O-ring EPDM 4¾" ID × 0.139CS
1		Box Serv Parts 6 <sup>13</sup> / <sub>16</sub> × 5 <sup>5</sup> / <sub>16</sub>

QTY	PART NUMBER	DESCRIPTION
	89975000-900	Seal Kit 4380 3" Size: 0.625
1		Pkg Seal 0.625 2A C-SSc316EPDL
1		Clamp-V-Retainer CPLG SST 3"
1		O-ring EPDM 3.0" ID × 0.139CS
1		Box Serv Parts 6 <sup>13</sup> / <sub>16</sub> × 5 <sup>5</sup> / <sub>16</sub>
	89975000-904	Seal Kit 4380 3" (AC-SSC) Antimony Size: 0.625
1		Pkg Seal 0.625 2A ACSSc316EPDM
1		Clamp-V-Retainer CPLG SST 3"
1		O-ring EPDM 3.0" ID × 0.139CS
1		Box Serv Parts 6 <sup>13</sup> / <sub>16</sub> × 5 <sup>5</sup> / <sub>16</sub>

# DESIGN ENVELOPE PUMPING UNIT WITH IECM MOTOR | PARTS INFORMATION

## 4372 & 4322 PART LIST



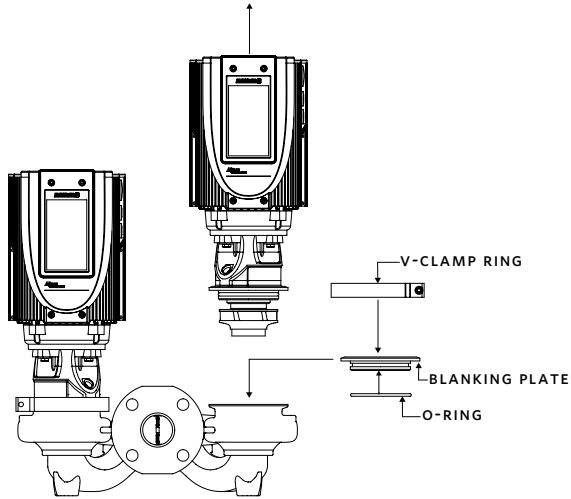
ITEM	DESCRIPTION
40	Adapter
62	Mechanical Seal Kit
100	Casing
101	Casing Gasket
103	V-Clamp Ring

QTY	PART NUMBER	DESCRIPTION
	880000-004	Seal & Blanking Plate Kit -3" 4372
1		Pkg seal 0.625 2A C-SSC316EPDL
1		Clamp-V-Retainer cplg sst 3"
1		O-ring EPDM 3.0"ID x 0.139CS
1		Blanking Plate - 3" V- Flange
1		Box Serv Parts 6 <sup>13</sup> / <sub>16</sub> x 5 <sup>5</sup> / <sub>16</sub>
	880000-005	Seal & Blanking Plate Kit (AC-SSC)-3" 4372 Antimony
1		Pkg Seal 0.625 2A ACSSC316EPDM
1		Clamp-V-Retainer CPLG SST 3"
1		O-ring EPDM 3.0"ID x 0.139CS
1		Blanking Plate - 3" V- Flange
1		Box Serv Parts 6 <sup>13</sup> / <sub>16</sub> x 5 <sup>5</sup> / <sub>16</sub>
	880000-006	Seal & Blanking Plate Kit - 5" 4372
1		Pkg Seal 0.750 2A C-SSC316EPDL
1		Clamp-V-Retainer CPLG SST 5"
1		O-ring EPDM 3.0"ID x 0.139CS
1		Blanking Plate - 5" V- Flange
1		Box Serv Parts 6 <sup>13</sup> / <sub>16</sub> x 5 <sup>5</sup> / <sub>16</sub>

QTY	PART NUMBER	DESCRIPTION
	880000-007	Seal & Blanking Plate Kit (AC-SSC)-5" 4372 Antimony
1		Pkg Seal 0.750 2A ACSSC316EPDM
1		Clamp-V-Retainer CPLG SST 5"
1		O-ring EPDM 4 <sup>3</sup> / <sub>4</sub> "ID x 0.139CS
1		Blanking Plate - 5" V- Flange
1		Box Serv Parts 6 <sup>13</sup> / <sub>16</sub> x 5 <sup>5</sup> / <sub>16</sub>
	880000-008	Seal & Blanking Plate Kit 5" 4322
1		Seal-Mech 0.750 AB2 C-SSC316-V
1		Blanking Plate - 5" V- Flange
1		Clamp-V-Retainer CPLG SST 5"
1		O-ring EPDM 4 <sup>3</sup> / <sub>4</sub> "ID x 0.139CS
1		Box Serv Parts 6 <sup>13</sup> / <sub>16</sub> x 5 <sup>5</sup> / <sub>16</sub>
	880000-009	Seal & Blanking Plate Kit (AC-SSC)-5" 4322 Antimony
1		Seal-Mech 0.750 AB2 ACSSC316-V
1		Blanking Plate - 5" V- Flange
1		Clamp-V-Retainer CPLG SST 5"
1		O-ring EPDM 4 <sup>3</sup> / <sub>4</sub> "ID x 0.139CS
1		Box Serv Parts 6 <sup>13</sup> / <sub>16</sub> x 5 <sup>5</sup> / <sub>16</sub>

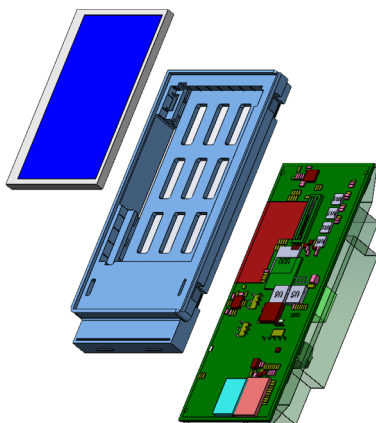
# DESIGN ENVELOPE PUMPING UNIT WITH IECM MOTOR | PARTS INFORMATION

## BLANKING PLATE KIT PARTS LIST



QTY	PART NUMBER	DESCRIPTION
	880000-001	Blanking Plate -Kit 5" 4322/4372 (Tango)
1		Blanking Plate - 5" V- Flange
1		Clamp-V-Retainer CPLG SST 5"
1		O-ring EPDM 4 3/4" ID x 0.139CS
1		Box Serv Parts 6 13/16 x 5 5/16
	880000-002	Blanking Plate - Kit 3" 4322/4372 (Tango)
1		Blanking Plate - 3" V- Flange
1		Clamp-V-Retainer CPLG SST 3"
1		O-ring EPDM 3.0" ID x 0.139CS
1		Box Serv Parts 6 13/16 x 5 5/16

## PUMP CONTROL MODULE



ITEM	PART NUMBER	DESCRIPTION
①	428612-000	Pump Control Module

# DESIGN ENVELOPE PUMPING UNIT WITH IECM MOTOR | PARTS INFORMATION

## RED PLASTIC PART ASSEMBLIES

### FULL ASSEMBLY PART # 428613-090 (IEC 90/90S)

QTY	DESCRIPTION
1	PCB
1	LCD TOUCHSCREEN
1	HOLDER
1	BRACKET SUPPORT
4	M5 HEX NUT
1	MYLAR
1	FRONT COVER GASKET
1	FRONT COVER
1	FRONT CAP COVER
1	GASKET FOR FRONT COVER
6	ROUND HEX HEAD M4-0.7 × 8MM
4	M5 × 20
2	MOUNTING BRACKET
1	BOX
1	I & O INSTRUCTIONS

#### PART #

QTY	DESCRIPTION
1	LCD TOUCHSCREEN
1	HOLDER
1	BRACKET SUPPORT
4	M5 HEX NUT
1	MYLAR
1	GASKET FOR FRONT COVER
4	M5 × 20
2	MOUNTING BRACKET
1	BOX
1	I & O INSTRUCTIONS

#### PART #

QTY	DESCRIPTION
1	FRONT COVER GASKET
1	FRONT COVER
1	FRONT CAP COVER
6	ROUND HEX HEAD M4-0.7 × 8MM
1	BOX
1	I & O INSTRUCTIONS

### FULL ASSEMBLY PART # 428613-112 (IEC 112)

QTY	DESCRIPTION
1	PCB
1	LCD TOUCHSCREEN
1	HOLDER
1	BRACKET SUPPORT
4	M5 HEX NUT
1	MYLAR
1	FRONT COVER GASKET
1	FRONT COVER
1	FRONT CAP COVER
1	GASKET FOR FRONT COVER
6	ROUND HEX HEAD M4-0.7 × 8MM
4	M5 × 20
2	MOUNTING BRACKET
1	BOX
1	I & O INSTRUCTIONS

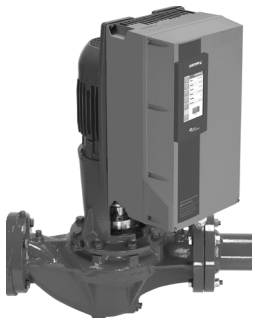
#### PART #

QTY	DESCRIPTION
1	FRONT COVER GASKET
1	FRONT COVER
1	FRONT CAP COVER
6	ROUND HEX HEAD M4-0.7 × 8MM
1	BOX
1	I & O INSTRUCTIONS

#### PART # 428612-000

QTY	DESCRIPTION
1	PCB
1	LCD TOUCHSCREEN
1	HOLDER
2	MOUNTING BRACKET
1	BOX
1	I & O INSTRUCTIONS

# DESIGN ENVELOPE PUMPING UNIT WITH IVS MOTOR | PARTS INFORMATION



Pipe-mounted 2-pump unit with integrated intelligent controls for space-saving installation, superior energy performance, and parallel-pumping or full redundancy operation. Saves up to 75% in energy over comparable traditional constant speed or variable frequency operated pump installations. Remote services through internet to enhance reliability and sustain optimal performance over life of pumps.

On-board Intelligent Variable Speed controls with Sensorless control. Split-coupling design and outside balanced or inside single spring mechanical seal. Controls enclosure UL TYPE 12 or UL TYPE 4X for outdoor applications.

## 4300 & 4380 PART LIST

### IVS CONTROLLER PARTS

QTY	PART NUMBER	DESCRIPTION
	880100-006	<b>Sub-Assy DEPC control Dcard</b>
1		Sub-Assy DEPC control card

QTY	PART NUMBER	DESCRIPTION
	880100-006	<b>Assembly-DEPC control Dcard</b>
1		Sub-Assy DEPC control card
1		Display Overlay DEPC IVS
1		Mtg-Bezel retainer IVS DEPC
1		Mounting Bezel IVS DEPC
1		Top Bezel IVS DEPC
4		Nut Inserted BRS M3×0.5 4.8mm
4		Screw PanHD Seal 18-8 M3×0.5-12

### COVER ASSEMBLY

QTY	PART NUMBER	DESCRIPTION
	880100-0A5	<b>Assy-DEPC Ctrl card w/Cvr A5</b>
1		Assembly-DEPC control card
1		Cover-IVS A5

QTY	PART NUMBER	DESCRIPTION
	880100-0B1	<b>Assy-DEPC Ctrl card w/Cvr B1</b>
1		Assembly-DEPC control card
1		Cover-IVS B1

QTY	PART NUMBER	DESCRIPTION
	880100-0B2	<b>Assy-DEPC Ctrl card w/Cvr B2</b>
1		Assembly-DEPC control card
1		Cover-IVS B2

QTY	PART NUMBER	DESCRIPTION
	880100-0C1	<b>Assy-DEPC Ctrl card w/Cvr c1</b>
1		Assembly-DEPC control card
1		Cover-IVS c1

QTY	PART NUMBER	DESCRIPTION
	880100-0C2	<b>Assy-DEPC Ctrl card w/Cvr c2</b>
1		Assembly-DEPC control card
1		Cover-IVS c2

# DESIGN ENVELOPE PUMPING UNIT WITH IVS MOTOR | PARTS INFORMATION

## POWER RANGE - CHASSIS SIZE

<b>200V—240V</b>	<b>300V—480V</b>	<b>525V—600V</b>	<b>CHASSIS SIZE</b>
1.5 - 5	1.5 - 10	1.5 - 10	A5
7.5 - 15	15 - 25	15 - 25	B1
20	30 - 40	30 - 40	B2
25 - 40	50 - 75	50 - 75	C1
50 - 60	100 - 125	100 - 125	C2

# SEAL BEARING ASSEMBLIES

WITH SEAL KIT ONLY | PARTS COMPARISON

ARMSTRONG				B&G EQUIVALENT	
MODEL	SIZE	PART #	DESCRIPTION	MODEL	PART #
S-35 H-32	2 1, 1¼, 1½	816549MF-091	Maintenance free design	HV (Manufactured prior to 4/76; Date Code DT)	N/A
S-35 For B&G Pumps Only	2 1, 1¼, 1½	816023MF-001	Maintenance free design	HV (Manufactured 4/76 or after; Date Code DT)	N/A
S-45 S-45 S-46 H-41	2½ 3 3 1	816027MF-002	Maintenance free design	HD3 1 PR	N/A
H-51 H-52 H-53 H-54	1 1¼ 1½ 2	816032MF-000	Maintenance free design	60-1 (Old), 60-11 (New) 60-2 (Old) 60-3 (Old), 60-13 (New) 60-4 (Old), 60-14 (New)	N/A
For B&G Pumps Only	—	816133-000* 816134-000*	BF AB	PD-39 60-5 to 60-10 (Old), 60-15 to 60-21 (New)	185232LF 185232LF 185234LF 185234LF 185260LF 185262LF



\* Use the B&G Impeller (with pressure balance holes) with these Bearing Assemblies. These Bearing Assemblies include the following coverplates and are supplied with the seal kit and body gasket.

## COVER PLATES FOR B&G PUMPS SBA

ARMSTRONG				B&G EQUIVALENT	
MODEL	SIZE	PART #	DESCRIPTION	MODEL	PART #
For B&G Pumps Only	—	816347-011	BF	—	
		816347-041	AB	—	

### BEARING ASSEMBLIES WITH SEAL AND NFI IMPELLER

ARMSTRONG				B&G EQUIVALENT	
MODEL	SIZE	PART #	DESCRIPTION	MODEL	PART #
S-25	¾, 1, 1¼, 1½	810119MF-001	Maintenance Free Design		N/A
S-35	2	810119MF-003	Maintenance Free Design		N/A
H-32	1, 1¼, 1½	810119MF-003	Maintenance Free Design		N/A



### BEARING ASSEMBLIES WITH MECHANICAL SEAL KIT & COVER PLATE

ARMSTRONG				B&G EQUIVALENT	
MODEL	SIZE	PART #	DESCRIPTION	MODEL	PART #
S-69	3"	816861-011	STD BF	No equivalent	No equivalent
H63-H65	1½"	816861-841	AB		



### BEARING ASSEMBLIES WITHOUT SEAL AND COVER PLATE

ARMSTRONG				B&G EQUIVALENT	
MODEL	SIZE	PART #	DESCRIPTION	MODEL	PART #
S-69	3	816366-041	STD, BF, AB	PD-39	—
H-63 to H-65	1½			60-5 to 60-7 (Old),	
H-66 to H-68	2			60-15 to 60-17 (New)	
		60-8 to 60-10 (Old),	60-18 to 60-21 (New)		

The following coverplates are used with Bearing Assemblies 816366-041 and 816366-071 and do not normally require replacement when Armstrong Bearing Assembly is changed or replaced. For a complete Armstrong Seal Bearing Assembly (including coverplate, seal and body gasket), use P/N's 816861-011 BF or 816861-841 AB.

### COVER PLATES FOR B&G PUMPS SBA

ARMSTRONG				B&G EQUIVALENT	
MODEL	SIZE	PART #	DESCRIPTION	MODEL	PART #
For B&G Pumps Only	—	816346-011	CI	—	—
		816346-841	BR		

† As of 07/01/94, a Stainless Steel faceplate is standard. For all iron applications, please contact the factory.



# SEAL BEARING MODULES

## & ACCESSORIES | PARTS COMPARISON

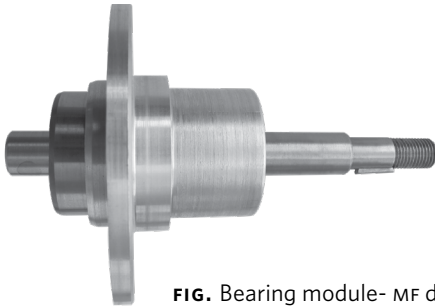


FIG. Bearing module- MF design

### SHAFT AND BEARING MODULE

ARMSTRONG				B&G EQUIVALENT	
MODEL	SIZE	PART #	DESCRIPTION	MODEL	PART #
S-25 to S-57, H-32 to H-54	½	816999MF-041	Module - MF design	75 to PD37, HV to 60-14	No equivalent

### SHAFT AND SLEEVE ASSEMBLIES\*

ARMSTRONG				B&G EQUIVALENT		
MODEL	SIZE	PART #	DESCRIPTION (SLEEVE)	MODEL	OLD PART #	NEW PART #
S-25 to S-57 H-32 to H-54	API only	816997-041	Copper	75 to PD37, HV to 60-14	No equivalent No equivalent	189035
S-69, H-63 to H-68	—	816354-041	Copper	PD39, 60-15 to 60-21	No equivalent No equivalent	—

### SHAFT KEYS\*

ARMSTRONG				B&G EQUIVALENT		
MODEL	SIZE	PART #	DESCRIPTION	MODEL	OLD PART #	NEW PART #
S-25 to S-57, H-32 to H-54	—	974507-400	#2 Woodruff	75 to PD37, HV to 60-14	P-4138	P04940
S-69, H-63 to H-68	—	974508-100 974515-100	#3 Woodruff #9 Woodruff	PD39, 60-15 to 60-21	PW1-3138 HP-606	P51760 H32550

### BEARING & CAP ASSEMBLY\*

ARMSTRONG				B&G EQUIVALENT		
MODEL	SIZE	PART #	DESCRIPTION	MODEL	OLD PART #	NEW PART #
S-69, H-63 to H-68	—	874112-000	Bearing & Cap Assembly	PD39, 60-15 to 60-21	No equivalent	—

\*Only available for sleeve design SBAS.

## OILWICKS

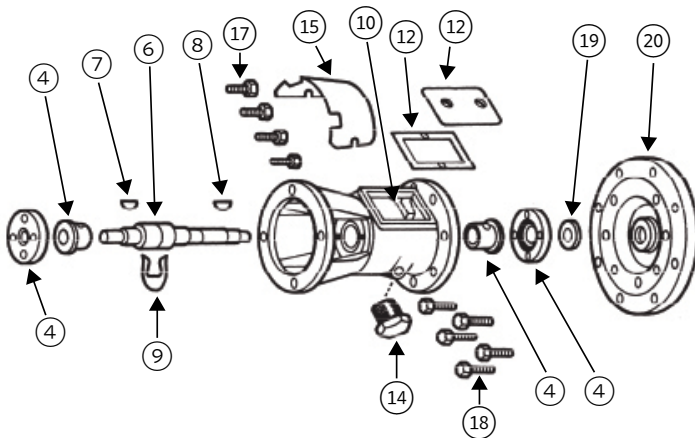
ARMSTRONG				B&G EQUIVALENT		
MODEL	SIZE	PART #	DESCRIPTION	MODEL	OLD PART #	NEW PART #
S-25 to S-46, H-32, H-41	—	806993-000	Wool	75 to 3HD, HV, 1 PR	P4-4130	118395
S-55, S-57, H-51 to H-54	—	812138-000	Wool	60-1 to 60-40, PD35, PD37	PW4-4130	118624
S-69, H-63 to H-68	—	816565-000	Wool	60-15 to 60-20, PD39	No equivalent	—

### ARMSTRONG SERIES 6 SBA

(STANDARD CONSTRUCTION IS BRONZE FITTED)

### FOR MODELS

**S69, H63-H68, 1060**



ITEM NUMBER	PART DESCRIPTION	PART NUMBER
⑩	Bearing bracket	816342-011
④	Bearing cap assembly	874112-000
⑮	Coupler guard	116114-000
⑦	Coupler key (woodruff #9)	974515-100
⑳	Coverplate (steel)	816346-041
⑱	Coverplate capscrews $\frac{5}{16}$ -18 $\times$ $\frac{3}{4}$	911119-106
⑧	Impeller key (woodruff #3)	974508-100
⑭	Oil level window	116904-001
⑨	Oil slinger	116369-000
⑫	Oil well cover assy. c/w gasket	816362-000
⑰	Res. mtd. mtr. Capscrews $\frac{3}{8}$ -16 $\times$ $\frac{5}{8}$ (4 req'd)	911121-106
⑥	Shaft & sleeve assembly	816354-041
⑥	Shaft & sleeve assy. (s/s shaft)	816354-071
⑲	Water slinger	116368-000

### REBUILD KIT FOR SERIES 6 SBA

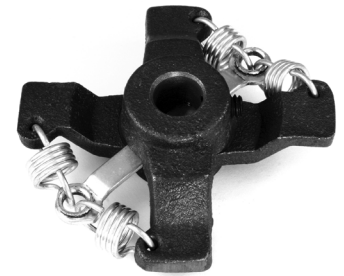
Contains items ④, ⑥, ⑦, ⑧, and ⑨ above plus seal kit, oil, and body gasket.

816366-000

# COUPLER ASSEMBLIES

## PARTS COMPARISON

COUNTER CLOCKWISE ROTATION				
ARMSTRONG			B&G EQUIVALENT	
MODEL	PART #	DESCRIPTION	MODEL	PART #
S-25, S-34, S-35, H-32, H-41	806026-001†	½ × ½	75 to 150, 1½, 2, HV, PR	118705 189110, 118712
S-45, S-46	806168-001†	½ × ½	2½, LD3, HD3	118723
CLOCKWISE ROTATION				
S-55, S-57	810120-006†† 806137-001* 806140-001	½ × ⅝ ½ × ⅝ ½ × ¾	PD35, PD37	118709 118709 118708
H-51, H-52	810120-003†† 807436-000*	½ × ½ ½ × ½	60-1, 60-2 (Old), 60-11 (New)	118473
H-53, H-54	810120-006†† 806137-000*	½ × ⅝ ½ × ⅝	60-3, 60-4 (Old), 60-13, 60-14 (New)	118709 118709
S-69, H-63 to H-68	810120-008†† 812734-000* 816665-000*	⅝ × ½ ⅝ × ½ ⅝ × ⅝	PD39, 60-5 to 60-10 (Old), 60-15 to 60-21 (New)	186410 186410 118476, P77265



### COUPLER/MOUNTING RING KIT

ARMSTRONG			B&G EQUIVALENT	
MODEL	PART #	DESCRIPTION	MODEL	PART #
For B&G Pumps Only	810120-004 810120-005		75 to 150, 2, HV, PR, 1, 1¼, 1½, 2	118706 118707

### MOTOR MOUNTING RINGS (RESILIENT MOTORS)

ARMSTRONG				
MODEL	SIZE	PART #	DESCRIPTION	PART #
48 Frame Marathon motors	1/12, 1/6, 1/4, 1/3 hp	810120-050	—	118223 (API P/N 810120-000)
56 Frame 1 Phase & 3 Phase Marathon motors	½-1 hp	874055-000	—	118227 (API P/N 810120-001)
56 Frame marathon	½, ¾ hp	874055-001	—	118228 (API P/N 810120-002)
1 Phase Double capacitor motors only	—	—	—	

\*Flexible spacer type coupling.

† 4-Spring type coupler.

†† 4-Spring type coupling. For use on B&G circulators only.



# MOTORS | PARTS COMPARISON

## MOUNTED MOTORS - 1750 RPM - SINGLE PHASE - 60 CYCLE

ARMSTRONG				B&G EQUIVALENT		
MODEL	SIZE	PART #	DESCRIPTION (VOLTS)	MODEL	OLD PART #	NEW PART #
S-25	1/12 hp	805316-010	115 CCW	70-150	P-115Z-3 P2Z-4	111034
S-35, H-32, H-41 & 1050 1B, 1.25B and 1.5B	1/8 hp	817025-001	115 CCW	1 1/2, 2, HV, PR	P-115Z-4 P4Z-4	111036, 111031
For B&G Only	1/8 hp	817025-005	115 CCW	-	-	111061
S-45	1/4 hp	817025-007	115 CCW	2 1/2, LD3	P-115Z-10 P1Z-10	111040
S-46	1/3 hp	817025-013	115 CCW	HD3	P-115Z-12 P107-6Z-496	111042
H-51	1/4 hp	816141-001	115 CW	60-11	PDH-115Z-10 PWH-314- 6Z-1296	169035
H-52	1/3 hp	816141-002	115 CW	60-2	PDH1530Z-12 PWH-937- 6Z-1296	169038
H-53, H-63, S-55	1/2 hp	811757-001*†	115/230 CW	60-13, 60-15, PD35	PDH1530Z-14 PWH-929- 6Z-1296	111044
H-54, H-64, H-66, S-57, 1050 1.5B & 2B and 1060 1.5D & 2D	3/4 hp	811757-002*†	115/230 CW	60-14, 60-16, 60-18, PD37	PDH1530Z-16 PWH-925- 6Z-1296	111047
H-65, H-67, S-69, 1060 1.5D & 2D	1 hp 1 1/2 hp	811757-007† 816678-062**	115/230 CW 115/230 CW	60-17, 60-19, PD39 60 2A	PDH1530Z-18 PD-2635Z-1296	111050 169005



# MOTORS | PARTS COMPARISON

## MOUNTED MOTORS - 1750 RPM - THREE PHASE - 60 CYCLE

ARMSTRONG				B&G EQUIVALENT		
MODEL	SIZE	PART #	DESCRIPTION (VOLTS)	MODEL	OLD PART #	NEW PART #
H-53, H-63, S-55	½ hp	831011-083** 811757-020*†	208/230/460	60-13, 60-15, PD35	PDH82040Z-14 PWH-931-6Z-1296	111046
H-54, H-64, H-66, S-57	¾ hp	831012-083** 811757-024*†	208/230/460	60-14, 60-16, 60-18, PD37	PDH82040Z-16 P922-6PDZ-1296	111049
H-65, H-67, S-69	1 hp	816676-069** 811757-028	208/230/460	60-17, 60-19, PD39	PDH82040Z-18 PD2628Z-1296	169089 111051 169090
H-68	1½ hp	816678-069**	208/230/460	60-20	PDH82040Z-20 PWH-2641Z-1296	169091 111052 169092
1000	2 hp	816681-069	208/230/460	60-21	—	169094

### Notes:

† Resilient Mounted Motors.

\* When replacing B&G motors, also replace coupler with Armstrong

806137-000 for the 5 series pumps and 816665-000 or the 6 series pumps.

\*\* Rigid mount ball bearing motor can be supplied in lieu of the Resilient mount motor.

### REAR BEARINGS

ARMSTRONG				B&G EQUIVALENT		
MODEL	SIZE	PART #	DESCRIPTION	MODEL	OLD PART #	NEW PART #
S-25 to S-57, H-32 to H-54	—	816001-000*	—	75 to PD37, HV to 60-14	P4Z-4115	118697

# SEAL KITS | PARTS COMPARISON



ARMSTRONG				B&G EQUIVALENT		
MODEL	SIZE	PART #	DESCRIPTION	MODEL	OLD PART #	NEW PART #
S-25 to S-35, S-46						
H-32 to H-41	½"	816706-021	SS with Buna	75 to PD37,	#6 Kit	118681
S-55 to S-57 & H-51 to H-54 & all 1050s	½"	816706-023	SS with Viton	HV to 60-14	No equivalent	186681
For B&G Pumps Only	¾"	810120-009	—	PD38-40, 60A BF or AB		186499
S-69,	¾"	816707-001	Buna	PD39,	No equivalent	—
H-63 to H-68	¾"	816707-003	Viton	60-15 to 60-20	No equivalent	
E (old)	¼"	880200-877				
E.2	7/16"	880202-677	SS with Viton			

# IMPELLERS | PARTS COMPARISON

ARMSTRONG				B&G EQUIVALENT		
MODEL	SIZE	PART #	DESCRIPTION	MODEL	DIA.	PART #
S-25	2¾"	812961-011	ST	100	2¾"	118840
	2¾"	812961-111	NFI		2¾"	189132LF
	2¾"	812961-041	BR		2¾"	118431LF
S-35	3¾"	816322-011	ST	2		118668
	3¾"	816322-041	BR			P07792
	3¾"	816322-111	NFI			189128LF
H-32	3¾"	816322-011	ST	HV		No equivalent
	3¾"	816322-041	BR			
	3¾"	816322-111	NFI			
	3¾"	816556-011	ST	2, HV	3¾"	118668LF
	3¾"	816556-041	BR		3¾"	P07792
	3¾"	816556-111	NFI			N/A
S-45	3⅞"	816305-028	ST	2½, LD-3	3⅞"	118676
	3⅞"	816305-058	BR		3⅞"	118440LF
	3⅞"	816305-328	NFI			
S-46	4¼"	816305-025	ST	HD-3	4¼"	118675
	4¼"	816305-055	BR		4¼"	118439LF
	4¼"	816305-325	NFI			N/A
S-55	4¾"	816304-021	ST	PD35	4¾"	118630
	4¾"	816304-051	BR		4¾"	118627
	4¾"	816304-321	NFI			N/A
S-57	5¼"	816304-017	ST	PD37	5¼"	118630
	5¼"	816304-047	BR		5¼"	118627LF
	5¼"	816304-317	NFI			N/A
S-69	5⅞"	816308-012	ST	PD39		118452
	5⅞"	816308-042	BR			118453LF
H-41	4¼"	816301-025	ST	1 PR	4¼"	118830
	4¼"	816301-055	BR		4¼"	118612LF
	4¼"	816301-325	NFI			N/A
H-51	5"	816302-019	ST	60-11	5¼"	N/A
	5"	816302-049	BR		5¼"	186359 & 18630LF
	5"	816302-319	NFI			N/A
H-52	5¼"	816302-017	ST	60-2	5¼"	N/A
	5¼"	816302-047	BR		5¼"	186359LF
	5¼"	816302-317	NFI			N/A



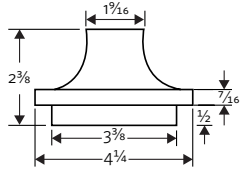


# IMPELLERS | PARTS COMPARISON

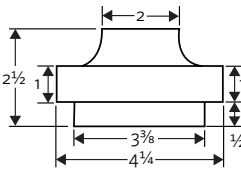
ARMSTRONG				B&G EQUIVALENT		
MODEL	SIZE	PART #	DESCRIPTION	MODEL	DIA.	NEW PART #
H-53	5¼"	816303-017	ST	60-13	5¼"	P61010
	5¼"	816303-047	BR		5¼"	186368
	5¼"	816303-317	NFI			
H-54	5¼"	816304-017	ST	60-14	5¼"	118629
	5¼"	816304-047	BR		5¼"	118626
	5¼"	816304-317	NFI			
H-63	5¾"	174058-021	CI	60-15	5¼"	—
	5¾"	874058-051	BR			
H-64	6½"	174058-015	CI	60-16	—	—
	6½"	874058-045	BR			
H-65	7"	174058-011	CI	60-17	—	—
	7"	174058-041	BR			
H-66	5⅝"	816393-052	BR	60-18	—	—
H-67	6¼"	816393-047	BR	60-19	—	—
	6¼"	816393-017ST				
H-68	6¾"	816393-043	BR	60-20	—	—
	6¾"	816393-013ST				
For B&G Pumps Only	7"	816309-041	BR	60	Various	P57445
	7"	816310-041	BR	1-½A		
	6"	816311-041	BR	60 2A		
				PD-38, 39, 40	Various	118453

# IMPELLERS | PARTS COMPARISON

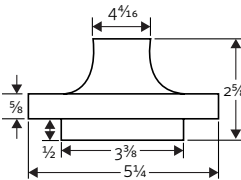
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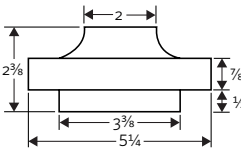
ARMSTRONG		B&G EQUIVALENT	
MODEL	PART #	MODEL	PART #
H-41	816301-025 Steel	PR	118830
	816301-055 Brass		118612 Brass



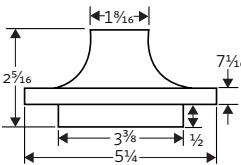
ARMSTRONG		B&G EQUIVALENT	
MODEL	PART #	MODEL	PART #
S-46	816305-025 Steel	HD-3	118675 Steel
	816305-055 Brass		118439 Brass



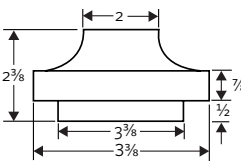
ARMSTRONG		B&G EQUIVALENT	
MODEL	PART #	MODEL	PART #
H-53	816303-047 Brass	60-13, 1 1/2AA	186368



ARMSTRONG		B&G EQUIVALENT	
MODEL	PART #	MODEL	PART #
S-57	816304-017 Steel	PD 37	118629 Steel
H-54	816304-047 Brass	60-14, 2AA	118626 Brass



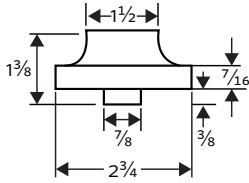
ARMSTRONG		B&G EQUIVALENT	
MODEL	PART #	MODEL	PART #
H-52	816302-047 Brass	60-11, 1AA, 1 1/4AA	186359



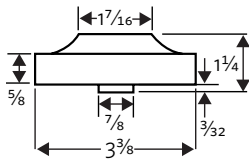
ARMSTRONG		B&G EQUIVALENT	
MODEL	PART #	MODEL	PART #
S-55	816304-021 Steel	PD35	118630 Steel
	816304-051 Brass		118627 Brass

# IMPELLERS | PARTS COMPARISON

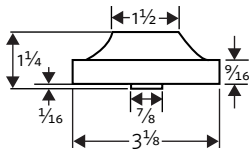
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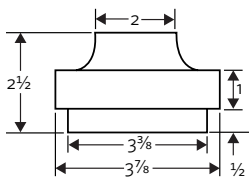
ARMSTRONG		B&G EQUIVALENT	
MODEL	PART #	MODEL	PART #
S-25	812961-011 Steel	Series 100	118431 Brass
	812961-841 Brass		118840 (Discontinued)



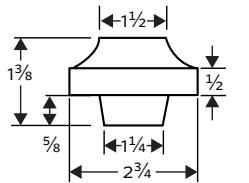
ARMSTRONG		B&G EQUIVALENT	
MODEL	PART #	MODEL	PART #
	816556-011 Steel	HV & 2" (old stlye)	118668 Steel
	816556-841 Brass		118436 Brass



ARMSTRONG		B&G EQUIVALENT	
MODEL	PART #	MODEL	PART #
	806331-111 NFI	1" & 1 1/2" (old stlye)	118665-6 Steel 118434-5 Brass



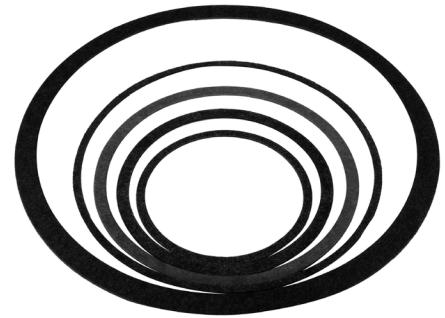
ARMSTRONG		B&G EQUIVALENT	
MODEL	PART #	MODEL	PART #
S-45 2 1/2" or 3"	816305-028 Steel	2 1/2" & LD-3	118676 Steel
	816305-058 Brass		118440 Brass



ARMSTRONG		B&G EQUIVALENT	
MODEL	PART #	MODEL	PART #
S-25	812961-111 NFI	Series 100	189132

# GASKETS | PARTS COMPARISON

<b>BEARING GASKETS</b>			
<b>ARMSTRONG</b>		<b>B&amp;G EQUIVALENT</b>	
<b>MODEL</b>	<b>PART #</b>	<b>MODEL</b>	<b>PART #</b>
S-25 to S-57, H-51 to H-54	103408-000	75 to PD-37, 60-11 to 60-14	P01830
<b>BODY GASKETS</b>			
S-25	104442-000	75 to 150	P04080
S-35, H-32	106049-000	1½, 2, HV	P04890
S-45, S-46, H-41	106050-000	2½, 3LD, 3HD, 1 PR	P05800
S-55, S-57, H-51 to H-54 & 1050	106158-000	PD35, PD37, 60-11 to 60-14	P57410
S-69, H-63 to H-68 & 1060	106592-000	PD39, 60-15 to 60-21	P57700
<b>FLANGE GASKETS</b>			
S-25	816653-000	75 to 150	118368
(Alternative wide gasket for s-25 after serial 6703)			
H-41, H-51, H-52, H-53	805176-000	1 PR, 60-11, 60-12, 60-13	118368
S-34, H-32	804034-000	1½, HV	118373
S-35	805209-000	2	118065
S-45, S-46, S-55, S-57, S-69	805201-000	2½, LD3, HD3, PD35, PD37, PD39	118129
H-54, H-66 to H-68	816117-000	60-14, 60-18 to 60-21	118378
H-63 to H-65	804034-000	60-15 to 60-17	118373




# PUMP BODIES | PARTS COMPARISON

ARMSTRONG			B&G EQUIVALENT	
MODEL	PART #	DESCRIPTION	MODEL	PART #
S-25	805482-011	CI	75 to 150	118339
	105482-841	LF Bronze		118413LF
H-32	816402-011	CI	—	
	116402-841	LF Bronze		
S-35	816327-011	CI	2	
	116327-841	LF Bronze		
S-45	805484-011	CI	2½, LD3, HD3	118644 P07610
S-46	105484-841	LF Bronze		
H-41	811240-011	CI	1PR	118637 P07570
	111240-841	LF Bronze		
S-55	804133-011	CI	PD35, PD37	118449
S-57	104133-841	LF Bronze		P09290
S-69	816339-011	CI	PD39	
	116339-841	LF Bronze		
H-51	816337-011	CI	60-1 (Old), 60-11 (New)	186384 186385
	116337-841	LF Bronze		
H-52	816337-011	CI	60-2 (Old)	186386
	116337-841	LF Bronze		
H-53	816337-011	CI	60-3 (Old), 60-13 (New)	186389 P57130
	116337-841	LF Bronze		
H-54	816338-011	CI	60-4 (Old), 60-14 (New)	186392 P57200
	116338-841	LF Bronze		
H-63 to H-65	816397-011	CI	60-5 to 60-7 (Old), 60-15 to 60-17 (New)	—
H-66 to H-68	816174-011	CI	60-8 to 60-10 (Old), 60-15 to 60-21 (New)	—
	116174-841	LF Bronze		



## **PARTS LOOK UP**

Circulators - Parts look up	135	
4030 Base Mounted Pumps - Parts Cross Reference	163	
4280 Motor Mounted Pumps - Parts Cross Reference	175	
Shell & Tube Heat Exchangers - Cross Reference	185	
4380 & 4360 VIL Pumps - Parts Cross Reference	187	



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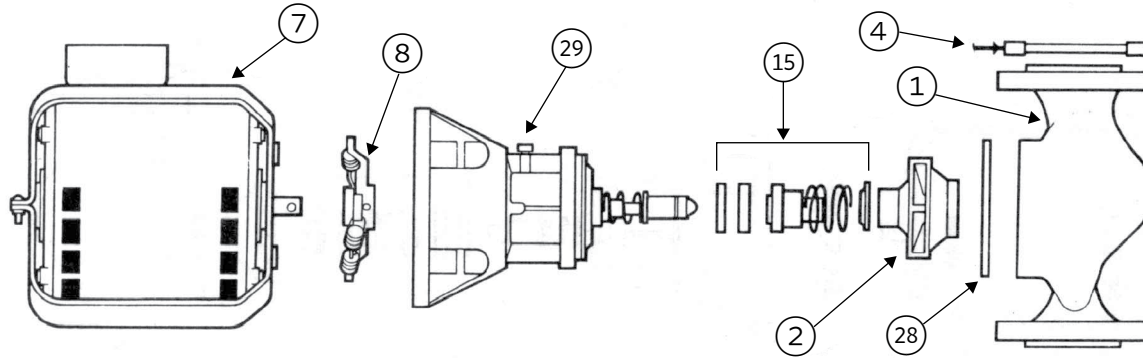
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# CIRCULATORS | PARTS LOOK UP



## MODEL NUMBER

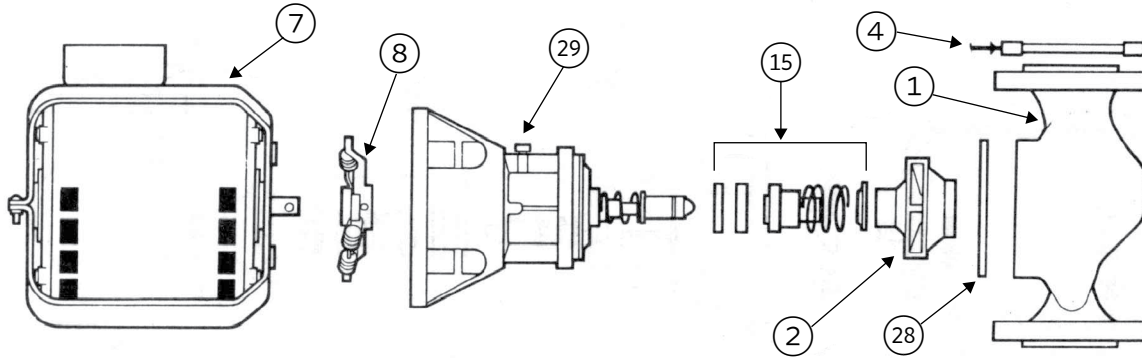
ITT/B&G 75 TO 150

ARMSTRONG S-25 STD/BF/AB

ITEM NUMBER	PART DESCRIPTION	PART NUMBER	
		ARMSTRONG	B&G
⑦	½ hp motor	805316-010	111034
②⑨	Universal seal bearing assembly (w/noryl impeller)	810119-001 (Sleeve design)	118844LF/ 189034LF
		810119-001 (MF design)	N/A
②	Bronze impeller	812961-041	118431LF
②	Steel impeller	812961-011	118840LF
②	Noryl impeller	812961-111	189132LF
⑧	Coupler	806026-001	189110/118705
②⑧	Body gasket	104442-000	P04080
④	Flange gasket	805176-000*	118368
④	Flange gasket kit	816653-000	Armstrong only
⑮	Seal kit	816706-021	118681
①	Bronze body (Lead Free)	105482-841	118413LF
①	Cast iron body	805482-011	118339

\*Gasket kit contains 2 – 116653-000 gaskets and 2 – 105176-000 gaskets.  
For flanges: See flanges cross reference sheet.

**CIRCULATORS | PARTS LOOK UP**



**ITT/B&G 2"**

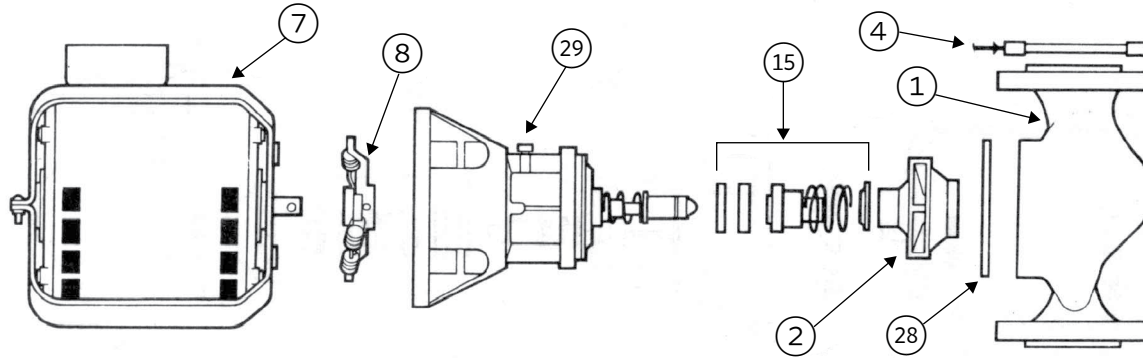
**ARMSTRONG S-35 BF/AB**

(MFTD. PRIOR TO 7/76, DATE CODE GT)

ITEM NUMBER	PART DESCRIPTION	PART NUMBER	
		ARMSTRONG	B&G
⑦	½ hp motor	817025-001	111036, 111031
②⑨	Universal seal bearing assembly (w/noryl impeller)	810119-003 (Sleeve design)	189100 189103
		810119MF-003 (MF design)	N/A
②	Bronze impeller	816556-041	P07792
②	Steel impeller	816556-011	118668
⑧	Coupler	806026-001	118705/189110
②⑧	Body gasket	106049-000	P04890
④	Flange gasket prior 1967	805209-000	118065
④	Flange gasket new	N/A	N/A
①⑤	Seal kit	816706-021	118681
①	Bronze body (Lead Free)	116327-841	N/A
①	Cast iron body	816327-011	N/A

For flanges: See flanges cross reference sheet.

# CIRCULATORS | PARTS LOOK UP



## ITT/B&G HV

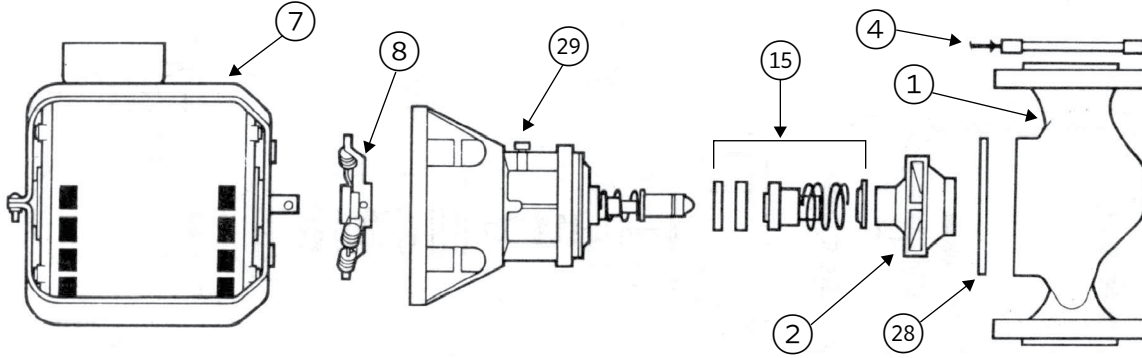
(MFTD. PRIOR TO 4/76, DATE CODE DT)

## ARMSTRONG H-32 BF/AB

ITEM NUMBER	PART DESCRIPTION	PART NUMBER	
		ARMSTRONG	B&G
⑦	½ hp motor	817025-001	111036, 111031
②⑨	Universal seal bearing assembly (w/noryl impeller)	810119-003 (Sleeve design)	189165LF/ 189166LF
②⑨		810119MF-003 (MF design)	N/A
②	Bronze impeller	816322-041	P07792
②	Steel impeller	816322-011	118668
②	Noryl impeller	816322-111	N/A
⑧	Coupler	806026-001	118705/189110
②⑧	Body gasket	106049-000	P04890
④	Flange gasket prior 1967	804034-000	118373
④	Flange gasket new	N/A	N/A
①⑤	Seal kit	816706-021	118681
①	Bronze body (Lead Free)	116402-841	118642
①	Cast iron body	816402-011	118641

For flanges: See flanges cross reference sheet.

# CIRCULATORS | PARTS LOOK UP



## ITT/B&G 2"

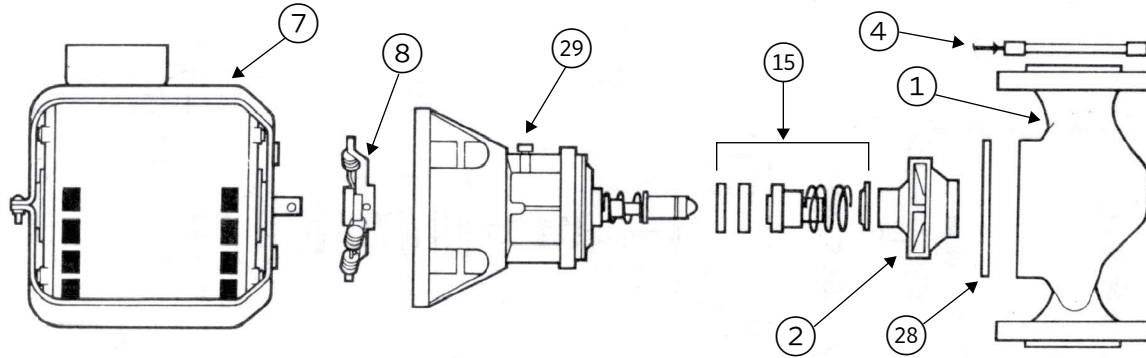
(MFTD. 7/76 OR AFTER, DATE CODE DT)

## ARMSTRONG S-35

FOR B&G PUMPS ONLY

ITEM NUMBER	PART DESCRIPTION	PART NUMBER	
		ARMSTRONG	B&G
⑦	½ hp motor	817025-005	111061
⑳	Seal bearing assembly (Sleeve design)	816023-001	189165LF/ 189166LF
⑳	Seal bearing assembly (MF design)	816023MF-001	N/A
②	Bronze impeller	N/A	189128
②	Steel impeller	N/A	P07792
②	Noryl impeller	N/A	N/A
⑧	Coupler	806026-001	118705/189110
㉘	Body gasket	106049-000	P04890
④	Flange gasket	805209-000	118065
④	Flange gasket new	N/A	N/A
⑮	Seal kit	816706-021	118681
①	Bronze body	N/A	189127
①	Cast iron body	N/A	189126

# CIRCULATORS | PARTS LOOK UP

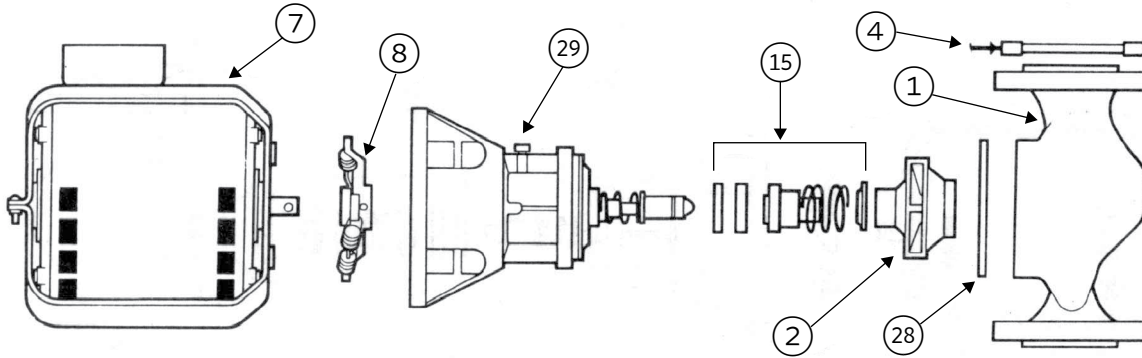


ITT/B&G 2½"

ARMSTRONG S-45 BF 2½" FLANGE

ITEM NUMBER	PART DESCRIPTION	PART NUMBER	
		ARMSTRONG	B&G
⑦	¼ hp motor	817025-007	111040
⑲	Seal bearing assembly (Sleeve design)	816027-002	189105LF
⑲	Seal bearing assembly (MF design)	816027MF-002	N/A
②	Bronze impeller	816305-058	118440LF
②	Steel impeller	816305-028	118676
②	Noryl impeller	816305-328	N/A
⑧	Coupler	806168-001	118723
⑳	Body gasket	106050-000	P05800
④	Flange gasket	805201-000	118129
④	Flange gasket new	N/A	N/A
⑮	Seal kit	816706-021	118681
①	Bronze body (Lead Free)	105484-841	P07610
①	Cast iron body	805484-011	118644

**CIRCULATORS | PARTS LOOK UP**



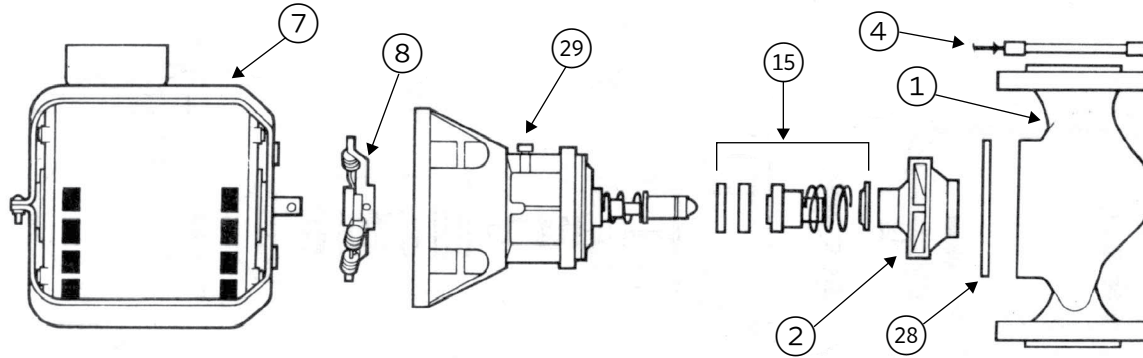
**ITT/B&G LD3**

**ARMSTRONG S-45 BF 3" FLANGE**

ITEM NUMBER	PART DESCRIPTION	PART NUMBER	
		ARMSTRONG	B&G
⑦	¼ hp motor	817025-007	111040
⑲	Seal bearing assembly (Sleeve design)	816027-002	189105LF
⑲	Seal bearing assembly (MF design)	816027MF-002	N/A
②	Bronze impeller	816305-058	118440LF
②	Steel impeller	816305-028	118676
②	Noryl impeller	816305-328	N/A
⑧	Coupler	806168-001	118723
⑳	Body gasket	106050-000	P05800
④	Flange gasket	805201-000	118129
④	Flange gasket new	N/A	N/A
⑮	Seal kit	816706-021	118681
①	Bronze body (Lead Free)	105484-841	P07610
①	Cast iron body	805484-011	118644

For flanges: See flanges cross reference sheet.

# CIRCULATORS | PARTS LOOK UP

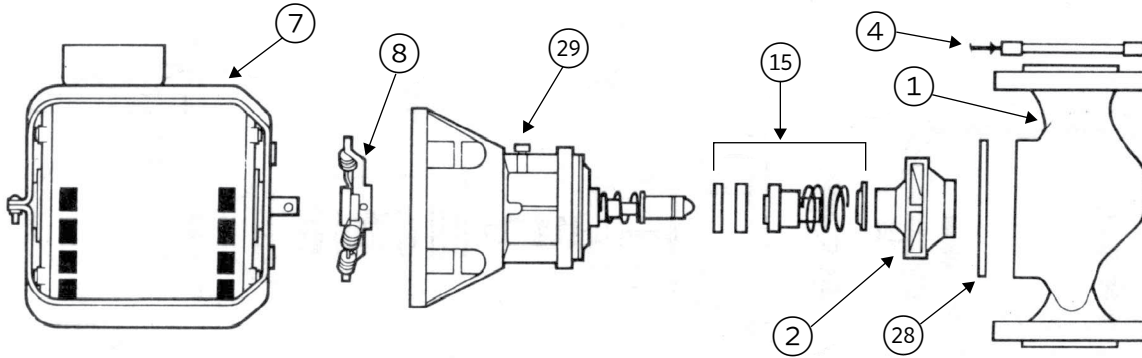


## ITT/B&G HD3

## ARMSTRONG S-46

ITEM NUMBER	PART DESCRIPTION	PART NUMBER	
		ARMSTRONG	B&G
⑦	½ hp motor	817025-013	111042
②⑨	Seal bearing assembly (Sleeve design)	816027-002	189105LF
②⑨	Seal bearing assembly (MF design)	816027MF-002	N/A
②	Bronze impeller	816305-055	118439LF
②	Steel impeller	816305-025	118675
②	Noryl impeller	816305-328	N/A
⑧	Coupler	806168-001	118723
②⑧	Body gasket	106050-000	P05800
④	Flange gasket	805201-000	118129
④	Flange gasket new	N/A	N/A
①⑤	Seal kit	816706-021	118681
①	Bronze body (Lead Free)	105484-841	P07610
①	Cast iron body	805484-011	118644

**CIRCULATORS | PARTS LOOK UP**



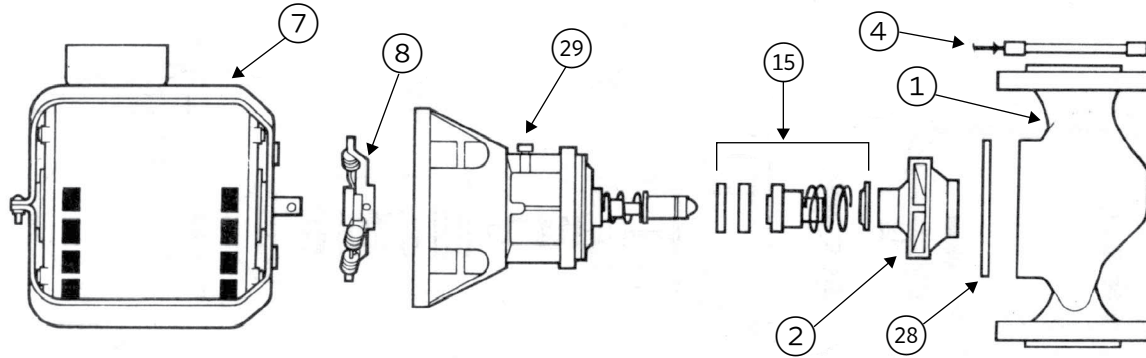
**ITT/B&G 1 PR**

**ARMSTRONG H-41 BF & AB**

ITEM NUMBER	PART DESCRIPTION	PART NUMBER	
		ARMSTRONG	B&G
⑦	½ hp motor	817025-001	111036/111031
⑲	Seal bearing assembly (Sleeve design)	816027-002	189105LF
⑲	Seal bearing assembly (MF design)	816027MF-002	N/A
②	Bronze impeller	816301-055	118612LF
②	Steel impeller	816301-025	118830
②	Noryl impeller	816301-325	N/A
⑧	Coupler	806026-001	118705/189110
⑳	Body gasket	106050-000	P05800
④	Flange gasket	805176-000	118368
④	Flange gasket new	N/A	N/A
⑮	Seal kit	816706-021	118681
①	Bronze body (Lead Free)	111240-841	P07570
①	Cast iron body	811240-011	118637



# CIRCULATORS | PARTS LOOK UP



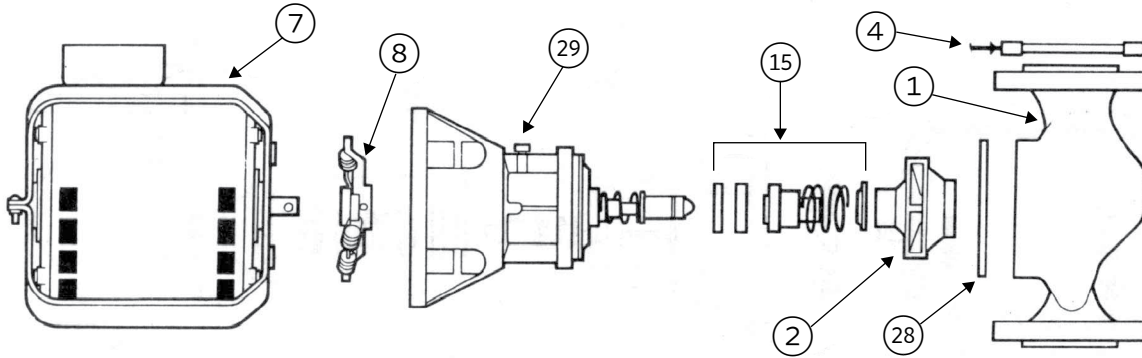
## ITT/B&G PD-35

## ARMSTRONG S-55

(STANDARD CONSTRUCTION IS BRONZE FITTED)

ITEM NUMBER	PART DESCRIPTION	PART NUMBER	
		ARMSTRONG	B&G
⑦	½ hp motor 1PH/60/115/230	811757-001	111044
⑦	½ hp motor 3PH/60/208/230/460	811757-020	111046
⑲	Seal bearing assembly (Sleeve design)	816032-000	186863LF/186864LF
⑲	Seal bearing assembly (MF design)	816032MF-000	N/A
②	Bronze impeller	816304-051	118627
②	Steel impeller	816304-021	118630
②	Noryl impeller	816304-321	N/A
⑧	Coupler ½" × ⅝"	806137-000	118709
⑧	Coupler ½" × ¾"	806140-000	118708
⑳	Body gasket	106158-000	P57410
④	Flange gasket	805201-000	118129
⑮	Seal kit	816706-021	118681
①	Bronze body (Lead Free)	104133-841	P09290
①	Cast iron body	804133-011	118449

**CIRCULATORS | PARTS LOOK UP**



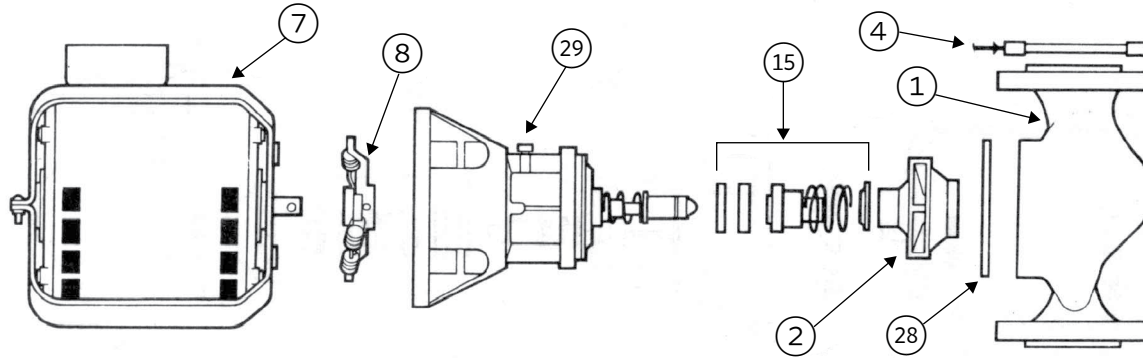
**ITT/B&G PD-37**

**ARMSTRONG S-57**

(STANDARD CONSTRUCTION IS BRONZE FITTED)

ITEM NUMBER	PART DESCRIPTION	PART NUMBER	
		ARMSTRONG	B&G
⑦	¾ hp motor 1PH/60/115/230	811757-002	111047
⑦	¾ hp motor 1PH/60/115/230	831010-062	
⑦	¾ hp motor 3PH/60/208/230/460	831012-083	111049
⑦	¾ hp motor 3PH/60/575	811757-006	
⑲	Seal bearing assembly (Sleeve design)	816032-000	186863LF/186864LF
⑲	Seal bearing assembly (MF design)	816032MF-000	N/A
②	Bronze impeller	816304-047	118626
②	Steel impeller	816304-027	118629
②	Noryl impeller	816304-317	N/A
⑧	Coupler ½" × ⅝"	806137-000	118709
⑧	Coupler ½" × ¾"	806140-000	118708
⑳	Body gasket	106158-000	P57410
④	Flange gasket	805201-000	118129
⑮	Seal kit	816706-021	118681
①	Bronze body (Lead Free)	104133-841	P09290
①	Cast iron body	804133-011	118449

# CIRCULATORS | PARTS LOOK UP



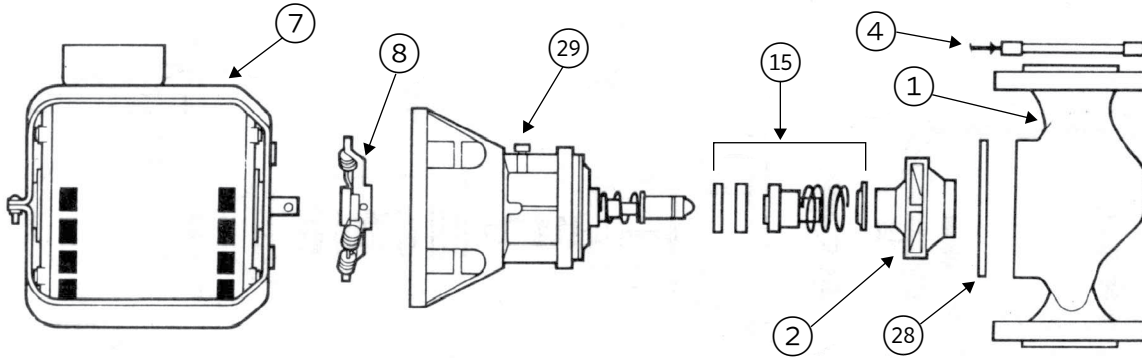
**ITT/B&G 60-1 (OLD), 60-11 (NEW)**

**ARMSTRONG H-51**

(STANDARD CONSTRUCTION IS BRONZE FITTED)

ITEM NUMBER	PART DESCRIPTION	PART NUMBER	
		ARMSTRONG	B&G
⑦	¼ hp motor 1PH/60/115/230	816141-001	111040
⑲	Seal bearing assembly (Sleeve design)	816032-000	186863LF/186864LF
⑲	Seal bearing assembly (MF design)	816032MF-000	N/A
②	Bronze impeller	816302-049	186359/186360LF
②	Steel impeller	816302-019	186441
②	Noryl impeller	816302-319	N/A
⑧	Coupler	807436-000	118473
⑳	Body gasket	106158-000	P57410
④	Flange gasket	805176-000	118368
⑮	Seal kit	816706-021	118681
①	Bronze body (Lead free)	116337-841	186385
①	Cast iron body	816337-011	186384

**CIRCULATORS | PARTS LOOK UP**



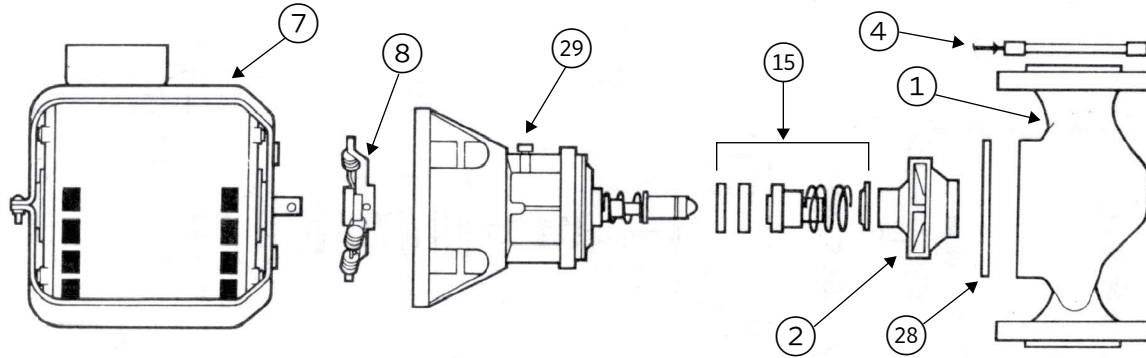
**ITT/B&G 60-2 (OLD)**

**ARMSTRONG H-52 BF SINGLE PHASE**

(STANDARD CONSTRUCTION IS BRONZE FITTED)

ITEM NUMBER	PART DESCRIPTION	PART NUMBER	
		ARMSTRONG	B&G
⑦	½ hp motor 1PH/60/115/230	816141-002	169038
⑲	Seal bearing assembly (Sleeve design)	816032-000	186863LF/186864LF
⑲	Seal bearing assembly (MF design)	816032MF-000	N/A
②	Bronze impeller	816302-047	186359
②	Steel impeller	816302-017	186441
②	Noryl impeller	816302-317	N/A
⑧	Coupler	807436-000	118473
⑳	Body gasket	106158-000	P57410
④	Flange gasket	805176-000	118368
⑮	Seal kit	816706-023	118681
①	Bronze body (Lead Free)	116337-841	N/A
①	Cast iron body	816337-011	186386

# CIRCULATORS | PARTS LOOK UP



## ITT/B&G 60-3 (OLD), 60-13 (NEW)

## ARMSTRONG H-53 BF & AB

(STANDARD CONSTRUCTION IS BRONZE FITTED)

ITEM NUMBER	PART DESCRIPTION	PART NUMBER	
		ARMSTRONG	B&G
⑦	½ hp motor 1PH/60/115/230	811757-001	111044
⑦	½ hp motor 3PH/60/208/230/460	831011-083	111046
⑦	½ hp motor 3PH/60/575	811757-004	
②⑨	Seal bearing assembly (Sleeve design)	816032-000	186863LF/186864LF
②⑨	Seal bearing assembly (MF design)	816032MF-000	N/A
②	Bronze impeller	816303-047	186368
②	Steel impeller	816303-017	P61010
②	Noryl impeller	816303-317	N/A
⑧	Coupler ½" × ⅝"	806137-000	118709
②⑧	Body gasket	106158-000	P57410
④	Flange gasket	805176-000	118368
①⑤	Seal kit	816706-021	118681
①	Bronze body (Lead Free)	116337-841	N/A
①	Cast iron body	816337-011	186386

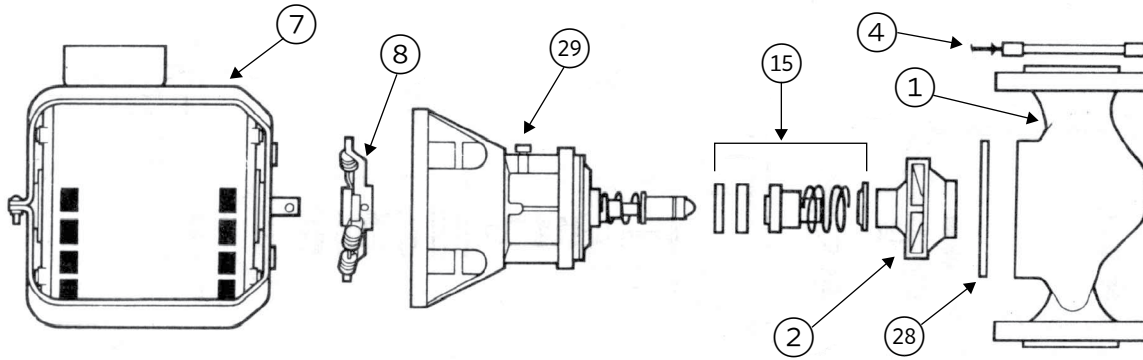
**Note:**

When replacing B&G with Armstrong equivalent for ½ and ¾ you must also change the coupler

B&G has ½" motor shaft

Armstrong has ⅝" motor shaft

# CIRCULATORS | PARTS LOOK UP



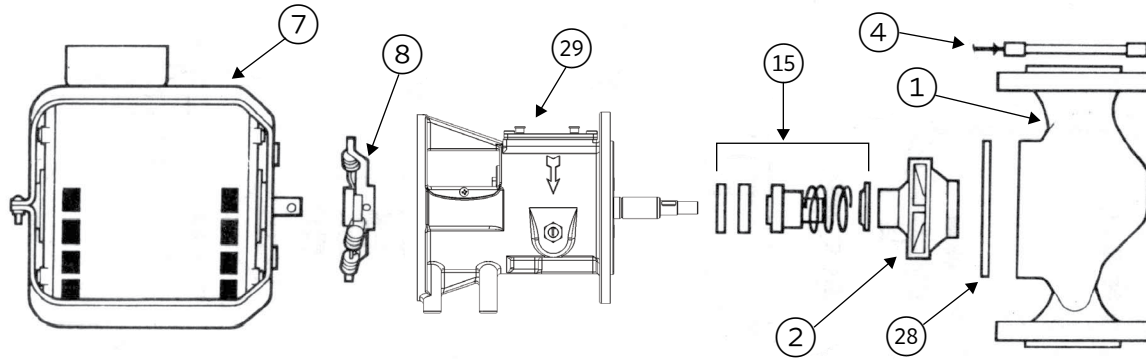
## ITT/B&G 60-4 (OLD), 60-14 (NEW)

## ARMSTRONG H-54 BF & AB

(STANDARD CONSTRUCTION IS BRONZE FITTED)

ITEM NUMBER	PART DESCRIPTION	PART NUMBER	
		ARMSTRONG	B&G
⑦	¾ hp motor 1PH/60/115/230	811757-002	111047
⑦	¾ hp motor 3PH/60/208/230/460	831012-083	111049
⑦	¾ hp motor 3PH/60/575	811757-006	
⑲	Seal bearing assembly (Sleeve design)	816032-000	186863LF/186864LF
⑲	Seal bearing assembly (MF design)	816032MF-000	N/A
②	Bronze impeller	816304-047	118626
②	Steel impeller	816304-017	118629
②	Noryl impeller	816304-317	N/A
⑧	Coupler ½" × ⅝"	806137-000	118709
⑳	Body gasket	106158-000	P57410
④	Flange gasket	816117-000	118378
⑮	Seal kit	816706-021	118681
①	Bronze body (Lead Free)	116338-841	P57200
①	Cast iron body	816338-011	186392

**CIRCULATORS | PARTS LOOK UP**



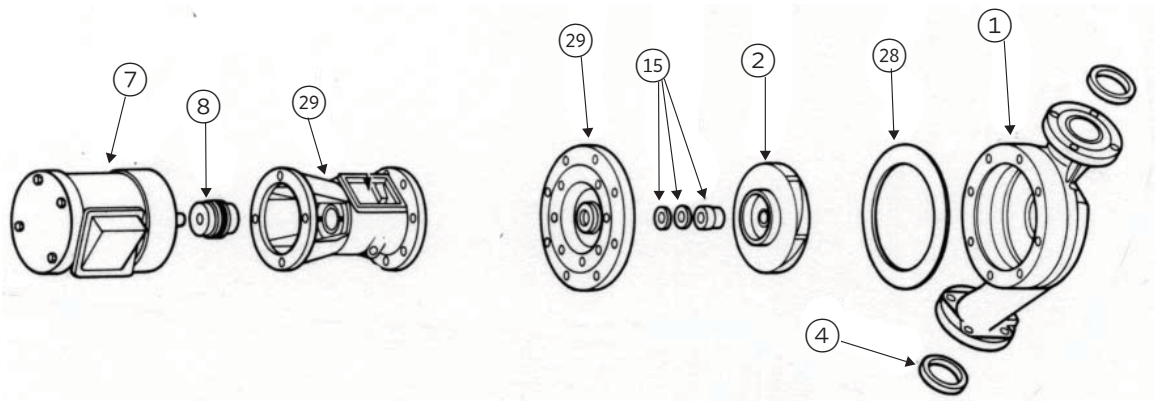
**ITT/B&G PD-38, PD-40**

**ARMSTRONG S-69**

(STANDARD CONSTRUCTION IS BRONZE FITTED)

ITEM NUMBER	PART DESCRIPTION	PART NUMBER	
		ARMSTRONG	B&G
⑦	1 hp motor 1ph/60/115/230	816676-062	169232
⑦	1 hp motor 3ph/60/208/230/460	816676-069	169233
⑦	1 hp motor 3ph/60/575	811757-009	
②⑨	Seal bearing assembly (Sleeve design)	816366-041	185260/185262
②	Bronze impeller	816308-042	P08690
②	Steel impeller	816308-012	P08709
⑧	Coupler assembly/flexible 5/8 x 5/8	816665-000	186004/186003
②⑧	Body gasket	106592-000	118129
④	Flange gasket	105201-000	
①⑤	Seal kit	816707-001	186433
①	Bronze body	816339-011	

# CIRCULATORS | PARTS LOOK UP



## MODEL NUMBER

**ITT/B&G PD-39**

**ARMSTRONG - NO EQUIVALENT**

(MFTD. PRIOR TO 10/77, DATE CODED KU)

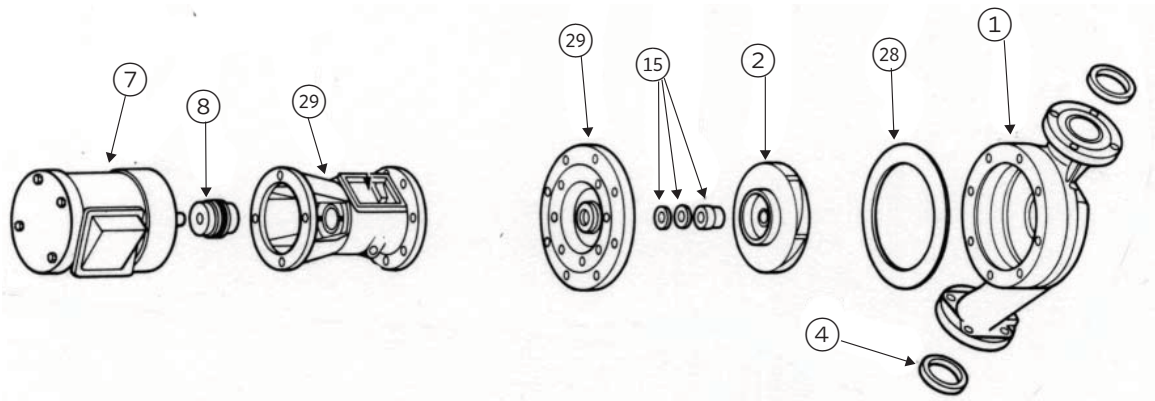
ITEM NUMBER	PART DESCRIPTION	PART NUMBER	
		ARMSTRONG	B&G
⑦	1 hp motor 1PH/60/115/230	811757-007	111050
⑦	1 hp motor 3PH/60/208/230/460	811757-028	111051
⑳	Seal bearing assembly (STD./B.F.)	816133-000**	185232
⑳	Seal bearing assembly (A.B.)	816134-000**	185234
②	Bronze impeller	816311-041	118453
②	Steel impeller	N/A	N/A
⑧	Coupler 5/8" x 1/2"	812734-000	186410
⑧	Coupler 5/8" x 5/8"	816665-000	118476/P77265
㉘	Body gasket	106592-000	P57700
④	Flange gasket	805201-000	118129
⑮	Seal kit	810120-009	186499

**\*\*NOTE:** Use the B&G Impeller (with pressure balance holes) with these Bearing Assemblies. These Bearing Assemblies include the following Cover Plates and are supplied with Part Number 817607-001 Seal Kit and Body Gasket:

#20 FOR STD. & B.F.      816347-011  
 #20 FOR A.B.              816347-041



# CIRCULATORS | PARTS LOOK UP



## ITT/B&G PD-39

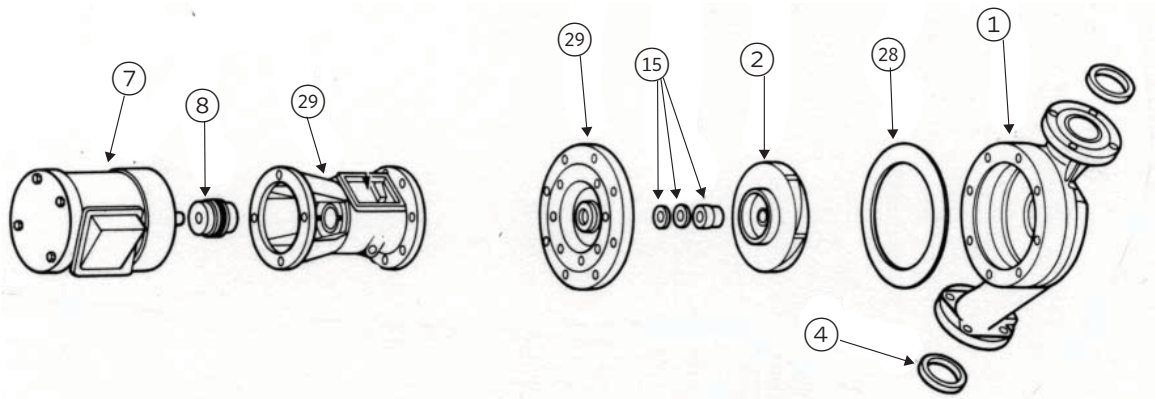
## ARMSTRONG - NO EQUIVALENT

(MFTD. PRIOR TO 10/77 OR AFTER , DATE CODED KU)

(STANDARD CONSTRUCTION IS BRONZE FITTED)

ITEM NUMBER	PART DESCRIPTION	PART NUMBER	
		ARMSTRONG	B&G
⑦	1 hp motor 1PH/60/115/230	811757-007	111050
⑦	1 hp motor 3PH/60/208/230/460	811757-028	111051
②⑨	Seal bearing assembly (STD./B.F.)	816133-000**	185260
②⑨	Seal bearing assembly (A.B.)	816134-000**	185262
②	Bronze impeller	816311-041	118453
②	Steel impeller	N/A	N/A
⑧	Coupler 5/8" x 1/2"	810120-008	186410
⑧	Coupler 5/8" x 5/8"	816665-000	118476/P77265
②⑧	Body gasket	106592-000	P57700
④	Flange gasket	805201-000	118129
①⑤	Seal kit	810120-009	186499

# CIRCULATORS | PARTS LOOK UP



**ITT/B&G 60-5 (OLD), 60-15 (NEW)      ARMSTRONG - NO EQUIVALENT**  
 (MFTD. PRIOR TO 10/77 OR AFTER, DATE CODED KU)

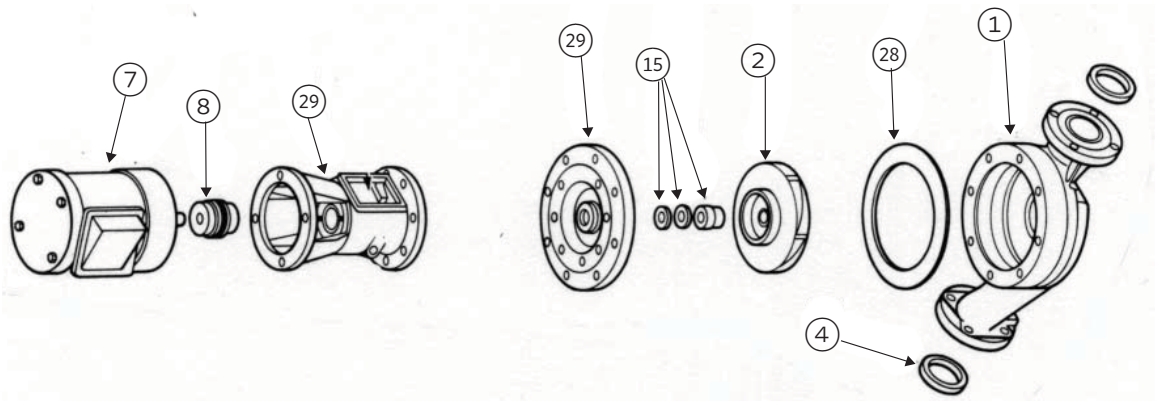
(STANDARD CONSTRUCTION IS BRONZE FITTED)

ITEM NUMBER	PART DESCRIPTION	PART NUMBER	
		ARMSTRONG	B & G
⑦	½ hp motor 1PH/60/115/230	811757-001	111044
⑦	½ hp motor 3PH/60/208/230/460	811757-020	111046
②⑨	Seal bearing assembly (STD./B.F.)	816133-000**	185232
②⑨	Seal bearing assembly (A.B.)	816134-000**	185234
②	Bronze impeller	816309-041	P57445
②	Steel impeller	N/A	N/A
⑧	Coupler ⅝" × ½"	810120-008	186410
⑧	Coupler ⅝" × ⅝"	816665-000	118476/P77265
②⑧	Body gasket	106592-000	P57700
④	Flange gasket	804034-000	118373
①⑤	Seal kit	810120-009	186499

**\*\*NOTE:** Use the B&G Impeller (with pressure balance holes) with these Bearing Assemblies. These Bearing Assemblies include the following Cover Plates and are supplied with Part Number 817607-001 Seal Kit and Body Gasket:

#20 FOR STD. & B.F.      816347-011  
 #20 FOR A.B.              816347-041

# CIRCULATORS | PARTS LOOK UP



## ITT/B&G 60-6 (OLD), 60-16 (NEW)

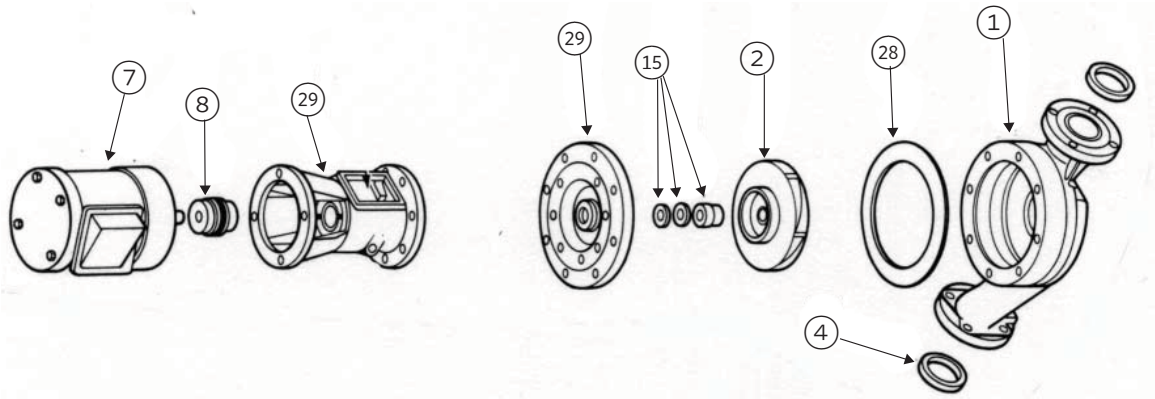
**ARMSTRONG - NO EQUIVALENT**

(MFTD. PRIOR TO 10/77, DATE CODED KU)

(STANDARD CONSTRUCTION IS BRONZE FITTED)

ITEM NUMBER	PART DESCRIPTION	PART NUMBER	
		ARMSTRONG	B&G
⑦	¾ hp motor 1PH/60/115/230	811757-002	111047
⑦	¾ hp motor 3PH/60/208/230/460	831012-083	111049
⑳	Seal bearing assembly (STD./B.F.)	816133-000**	185232
⑳	Seal bearing assembly (A.B.)	816134-000**	185234
②	Bronze impeller	816309-041	P57445
②	Steel impeller	N/A	N/A
⑧	Coupler ⅝" × ½"	810120-008	186410
⑧	Coupler ⅝" × ⅝"	816665-000	118476/P77265
㉘	Body gasket	106592-000	P57700
④	Flange gasket	804034-000	118373
⑮	Seal kit	810120-009	186499

# CIRCULATORS | PARTS LOOK UP



## ITT/B&G 60-9 (OLD), 60-19 (NEW)

(MFTD. PRIOR TO 10/77, DATE CODED KU)

## ARMSTRONG - NO EQUIVALENT

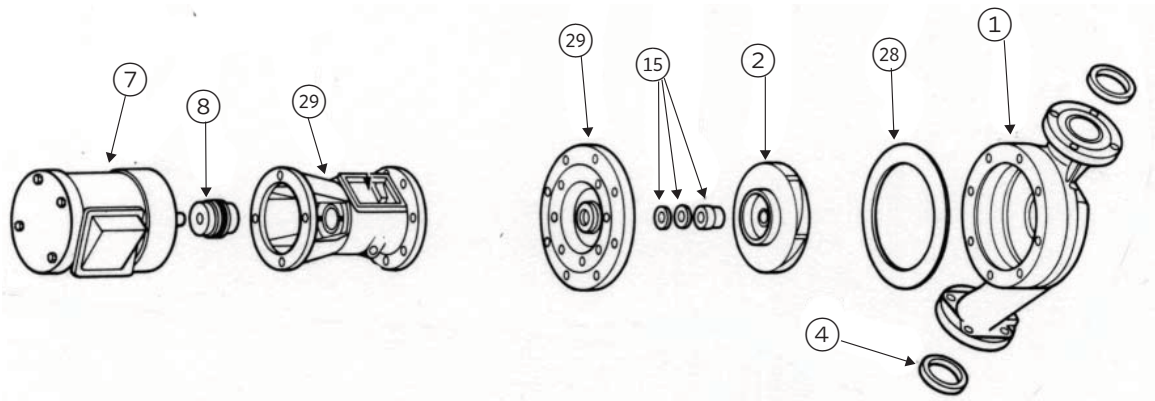
(STANDARD CONSTRUCTION IS BRONZE FITTED)

ITEM NUMBER	PART DESCRIPTION	PART NUMBER	
		ARMSTRONG	B&G
⑦	1 hp motor 1PH/60/115/230	811757-007	111050
⑦	1 hp motor 3PH/60/208/230/460	811757-028	111051
②⑨	Seal bearing assembly (STD./B.F.)	816133-000**	185232
②⑨	Seal bearing assembly (A.B.)	816134-000**	185234
②	Bronze impeller	816310-041	P57450
②	Steel impeller	N/A	N/A
⑧	Coupler 5/8" x 1/2"	810120-008	186410
⑧	Coupler 5/8" x 5/8"	816665-000	118476/P77265
②⑧	Body gasket	106592-000	P57700
④	Flange gasket	816117-000	118378
①⑤	Seal kit	810120-009	186499

**\*\*NOTE:** Use the B&G Impeller (with pressure balance holes) with these Bearing Assemblies. These Bearing Assemblies include the following Cover Plates and are supplied with Part Number 817607-001 Seal Kit and Body Gasket:

#20 FOR STD. & B.F.      816347-011  
 #20 FOR A.B.              816347-041

# CIRCULATORS | PARTS LOOK UP



## ITT/B&G 60-7 (OLD), 60-17 (NEW)

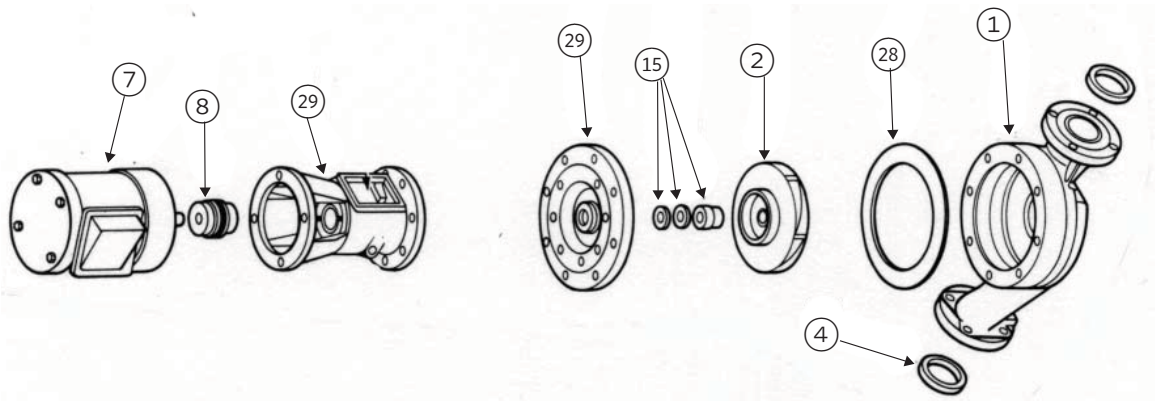
(MFTD. PRIOR TO 10/77, DATE CODED KU)

## ARMSTRONG - NO EQUIVALENT

(STANDARD CONSTRUCTION IS BRONZE FITTED)

ITEM NUMBER	PART DESCRIPTION	PART NUMBER	
		ARMSTRONG	B&G
⑦	1 hp motor 1PH/60/115/230	811757-007	111050
⑦	1 hp motor 3PH/60/208/230/460	811757-028	111051
⑳	Seal bearing assembly (STD./B.F.)	816133-000**	185232
⑳	Seal bearing assembly (A.B.)	816134-000**	185234
②	Bronze impeller	816309-041	P57445
②	Steel impeller	N/A	N/A
⑧	Coupler 5/8" x 1/2"	810120-008	186410
⑧	Coupler 5/8" x 5/8"	816665-000	118476/P77265
㉘	Body gasket	106592-000	P57700
④	Flange gasket	804034-000	118373
⑮	Seal kit	810120-009	186499

# CIRCULATORS | PARTS LOOK UP



## ITT/B&G 60-10 (OLD), 60-20 (NEW)

(MFTD. PRIOR TO 10/77, DATE CODED KU)

## ARMSTRONG - NO EQUIVALENT

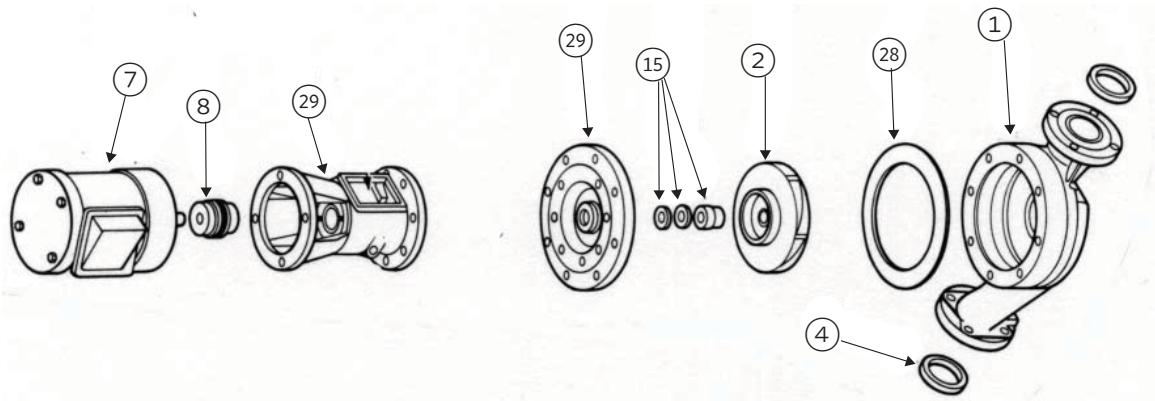
(STANDARD CONSTRUCTION IS BRONZE FITTED)

ITEM NUMBER	PART DESCRIPTION	PART NUMBER	
		ARMSTRONG	B&G
⑦	1½ hp motor 1PH/60/115/230	816678-062	169005
⑦	1½ hp motor 3PH/60/208/230/460	816678-069	169091/169092
⑳	Seal bearing assembly (STD./B.F.)	816133-000**	185232
⑳	Seal bearing assembly (A.B.)	816134-000**	185234
②	Bronze impeller	816310-041	P57450
②	Steel impeller	N/A	N/A
⑧	Coupler ⅝" × ½"	810120-008	186410
⑧	Coupler ⅝" × ⅝"	816665-000	118476/P77265
㉘	Body gasket	106592-000	P57700
④	Flange gasket	804034-000	118373
⑮	Seal kit	810120-009	186499

\*\*NOTE: Use the B&G Impeller (with pressure balance holes) with these Bearing Assemblies. These Bearing Assemblies include the following Cover Plates and are supplied with Part Number 817607-001 Seal Kit and Body Gasket:

#20 FOR STD. & B.F.      816347-011  
 #20 FOR A.B.              816347-041

# CIRCULATORS | PARTS LOOK UP



## ITT/B&G 60-6 (OLD), 60-16 (NEW)

**ARMSTRONG - NO EQUIVALENT**

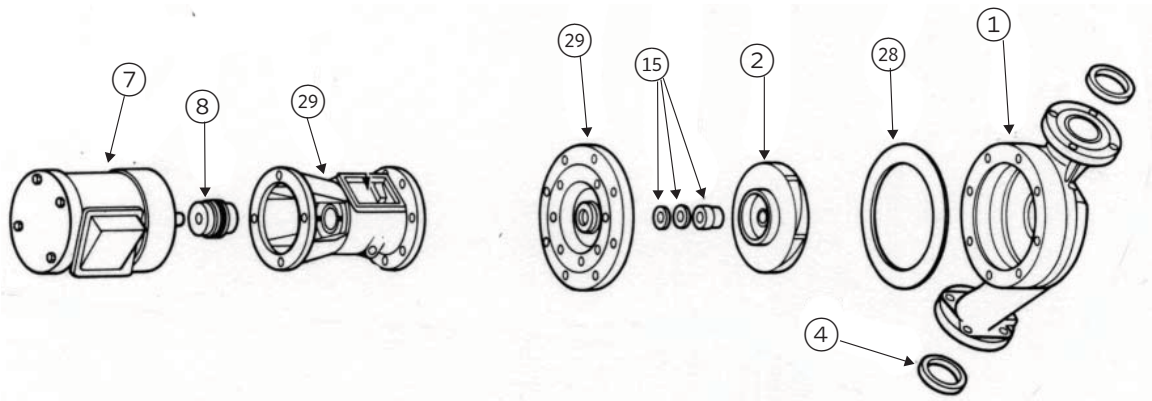
(MFTD. PRIOR TO 10/77 OR AFTER, DATE CODED KU)

(STANDARD CONSTRUCTION IS BRONZE FITTED)

ITEM NUMBER	PART DESCRIPTION	PART NUMBER	
		ARMSTRONG	B&G
⑦	¾ hp motor 1PH/60/115/230	811757-002	111047
⑦	¾ hp motor 3PH/60/208/230/460	831012-083	111049
⑲	Seal bearing assembly (STD./B.F.)	816133-000**	185260
⑲	Seal bearing assembly (A.B.)	816134-000**	185262
②	Bronze impeller	816309-041	P57445
②	Steel impeller	N/A	N/A
⑧	Coupler ⅝" × ½"	810120-008	186410
⑧	Coupler ⅝" × ⅝"	816665-000	118476/P77265
⑳	Body gasket	106592-000	P57700
④	Flange gasket	804034-000	118373
⑮	Seal kit	810120-009	186499



# CIRCULATORS | PARTS LOOK UP



**ITT/B&G 60-7 (OLD), 60-17 (NEW)**  
 (MFTD. PRIOR TO 10/77 OR AFTER, DATE CODED KU)

**ARMSTRONG - NO EQUIVALENT**

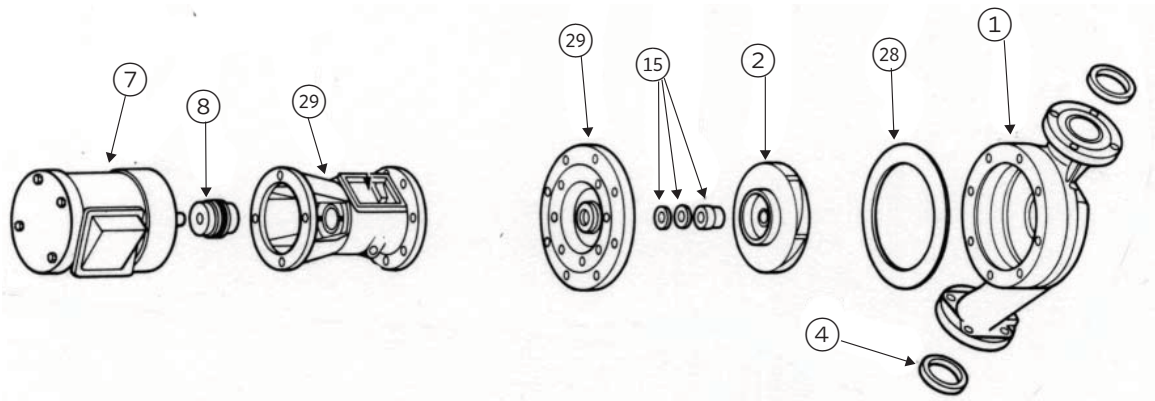
ITEM NUMBER	PART DESCRIPTION	PART NUMBER	
		ARMSTRONG	B&G
⑦	1 hp motor 1PH/60/115/230	811757-007	111050
⑦	1 hp motor 3PH/60/208/230/460	811757-028	111051
⑳	Seal bearing assembly (STD./B.F.) (STANDARD CONSTRUCTION IS BRONZE FITTED)	816133-000**	185260
⑳	Seal bearing assembly (A.B.)	816134-000**	185262
②	Bronze impeller	816309-041	P57445
②	Steel impeller	N/A	N/A
⑧	Coupler 5/8" x 1/2"	810120-008	186410
⑧	Coupler 5/8" x 5/8"	816665-000	118476/P77265
㉘	Body gasket	106592-000	P57700
④	Flange gasket	804034-000	118373
⑮	Seal kit	810120-009	186499

**\*\*NOTE:** Use the B&G Impeller (with pressure balance holes) with these Bearing Assemblies. These Bearing Assemblies include the following Cover Plates and are supplied with Part Number 817607-001 Seal Kit and Body Gasket:

#20 FOR STD. & B.F.      816347-011  
 #20 FOR A.B.              816347-041



# CIRCULATORS | PARTS LOOK UP



## ITT/B&G 60-9 (OLD), 60-19 (NEW)

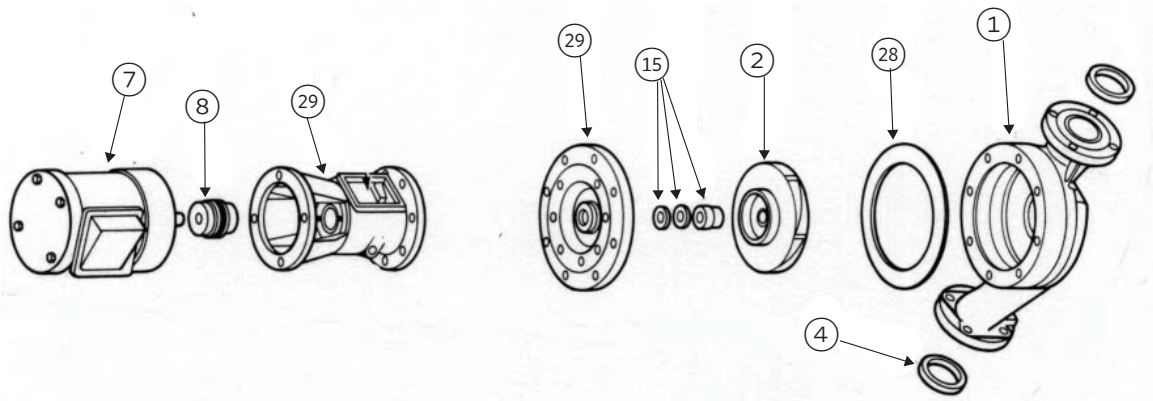
**ARMSTRONG - NO EQUIVALENT**

(MFTD. PRIOR TO 10/77 OR AFTER, DATE CODED KU)

(STANDARD CONSTRUCTION IS BRONZE FITTED)

ITEM NUMBER	PART DESCRIPTION	PART NUMBER	
		ARMSTRONG	B&G
⑦	1 hp motor 1PH/60/115/230	811757-007	111050
⑦	1 hp motor 3PH/60/208/230/460	811757-028	111051
⑳	Seal bearing assembly (STD./B.F.)	816133-000**	185260
⑳	Seal bearing assembly (A.B.)	816134-000**	185262
②	Bronze impeller	816310-041	P57450
②	Steel impeller	N/A	N/A
⑧	Coupler 5/8" x 1/2"	810120-008	186410
⑧	Coupler 5/8" x 5/8"	816665-000	118476/P77265
㉘	Body gasket	106592-000	P57700
④	Flange gasket	816117-000	118378
⑮	Seal kit	810120-009	186499

# CIRCULATORS | PARTS LOOK UP



## ITT/B&G 60-10 (OLD), 60-20 (NEW)      ARMSTRONG - NO EQUIVALENT

(MFTD. PRIOR TO 10/77 OR AFTER, DATE CODED KU)

(STANDARD CONSTRUCTION IS BRONZE FITTED)

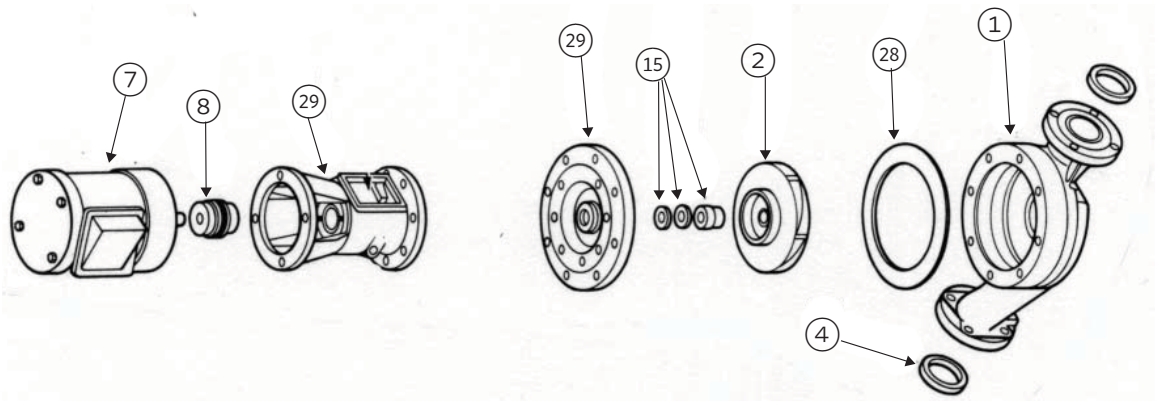
ITEM NUMBER	PART DESCRIPTION	PART NUMBER	
		ARMSTRONG	B&G
⑦	1½ hp motor 1PH/60/115/230	816678-062	169005
⑦	1½ hp motor 3PH/60/208/230/460	816678-069	169091/169092 111052
⑳	Seal bearing assembly (STD./B.F.)	816133-000**	185260
⑳	Seal bearing assembly (A.B.)	816134-000**	185262
②	Bronze impeller	816310-041	P57450
②	Steel impeller	N/A	N/A
⑧	Coupler 5/8" × 1/2"	810120-008	186410
⑧	Coupler 5/8" × 5/8"	816665-000	118476/P77265
㉘	Body gasket	106592-000	P57700
④	Flange gasket	804034-000	118373
⑮	Seal kit	810120-009	186499

\*\*NOTE: Use the B&G Impeller (with pressure balance holes) with these Bearing Assemblies. These Bearing Assemblies include the following Cover Plates and are supplied with Part Number 817607-001 Seal Kit and Body Gasket:

#20 FOR STD. & B.F.      816347-011

#20 FOR A.B.      816347-041

# CIRCULATORS | PARTS LOOK UP



**FOR B&G PUMPS ONLY**

DESCRIPTION	PART NUMBER	
	ARMSTRONG	B&G
2" - SBA	816023-001	189129-189120
2" - 1/8 HP MOTOR	817025-005	111061
SBA for PD-39, 60-5, 60-6, 60-7, 60-9 & 60-10 60-15, 60-16, 60-17, 60-19 & 60-20	816133-000***	185260 Std/BF Old #PD26Z-12351 185232 Std/BF Old #PD25Z-12351
Same as above	816134-000***	185262 AB 185234 AB
HD3 - 1/8 HP MOTOR	816025-013	111042

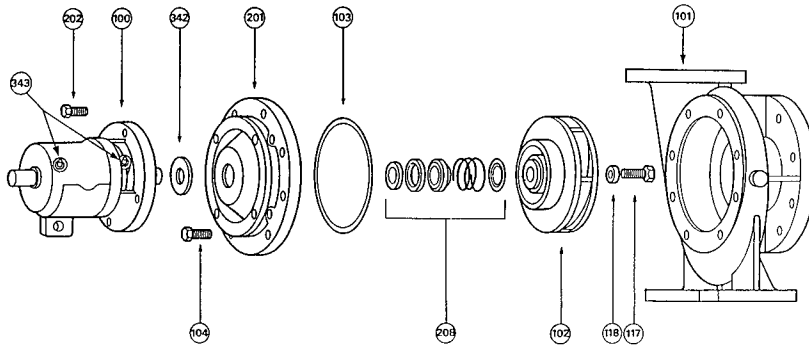
**\*\*NOTE:** Use the B&G Impeller (with pressure balance holes) with these bearing assemblies. These seal bearing assemblies include the 816366-041 bearing assembly, 816707-001 seal kit, and either the 816347-011 Std./B.F. cover plate of the 816347-041 A.B.



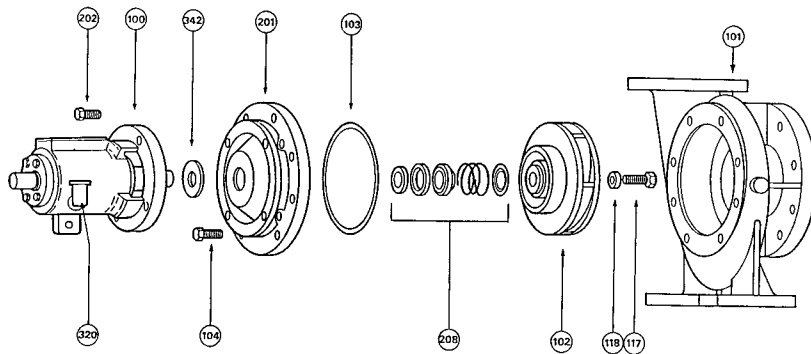
# 4030 & 4020 BASE MOUNTED PUMPS

## END SUCTION | PARTS CROSS REFERENCE

### MODEL 4030



### MODEL 4020



ITEM	DESCRIPTION
100	Bearing frame assembly
101	Volute
102	Impeller
103	Volute gasket
104	Volute capscrew
117	Impeller capscrew
118	Impeller washer
201	Volute cover plate

ITEM	DESCRIPTION
202	Cover plate capscrew
208	Mechanical seal assembly
320	
342	Water slinger
343	
401	Coupler selection table (wooden type)
407	Coupler insert selection table (wooden type)

# 4030 & 4020 BASE MOUNTED PUMPS

## END SUCTION | PARTS CROSS REFERENCE

### MODEL NUMBER

**B&G MODEL 1510 | ARMSTRONG MODEL 4030 BEARING FRAMES, ALL SPEEDS**

MOTOR HP AND SPEED	1200RPM	½	¾	1	1½	2	3	5	7½	10	-	-	15	20	-	-	25	30	-
	1800RPM	¾	1	1½ & 2	3	5	7½	10	15	20	-	-	25	30	-	-	40	50	-
	3600RPM	-	-	-	5	7½	10	15	20	25	30	40	-	-	50	60	-	-	75
FRAME SIZE	1954 RERATE	56	182	184	213	215	254U	256U	284U	286U	324S	326S	324U	326U	364US	365US	364U	365U	404US
	1964 RERATE	56	143T	145T	182T	184T	213T	215T	254T	256T	284TS	286TS	284T	286T	324TS	326TS	324T	326T	364TS
PUMP SIZE																			
B&G	ARMSTRONG																		
1¼A	1¼D	S	S	S	S	S	S	S	-	-	-	-	-	-	-	-	-	-	-
1½A	1½D	S	S	S	S	S	S	S	M	M	-	-	-	-	-	-	-	-	-
2A	2D	S	S	S	S	S	S	S	M	M	-	-	-	-	-	-	-	-	-
2½A	2½D	S	S	S	S	S	S	S	M	M	M	M	-	-	-	-	-	-	-
3A	3D	-	S	S	S	S	S	S	M	M	M	M	-	-	-	-	-	-	-
4A	4D	-	S	S	S	S	S	S	M	M	M	M	-	-	-	-	-	-	-
1¼BB	1¼E	-	S	S	S	S	S	S	M	M	M	M	-	-	-	-	-	-	-
1½BB	1½E	-	S	S	S	S	S	S	M	M	M	M	-	-	-	-	-	-	-
2BB	2E	-	S	S	S	S	S	S	M	M	M	M	-	-	M	M	-	-	-
2½B	2½E	-	-	-	S	S	S	S	-	-	-	-	-	-	-	-	-	-	-
3BB	3E	-	-	-	S	S	S	S	M	-	-	-	-	-	-	-	-	-	-
4BB	4E	-	-	-	-	S	S	S	M	M	-	-	-	-	-	-	-	-	-
5BB	5E	-	-	-	-	-	S	S	M	M	-	-	M	-	-	-	-	-	-
6BB	6E	-	-	-	-	-	-	-	M	M	-	-	M	-	-	-	-	-	-
2C	2G	-	-	-	-	M	M	M	-	-	-	-	-	-	-	-	-	-	-
3C	3G	-	-	-	-	-	M	M	M	M	-	-	-	-	-	-	-	-	-
4C	4G	-	-	-	-	-	-	M	M	M	-	-	M	M	-	-	-	-	-
6C	6G	-	-	-	-	-	-	-	-	M	-	-	M	M	-	-	M	M	M

**s** designation - 7/8" impeller bore, 1¼" mechanical seal

**m** designation - 1¼" impeller bore, 1½" mechanical seal

# 4030 & 4020 BASE MOUNTED PUMPS

## END SUCTION | PARTS CROSS REFERENCE

<b>MODEL NUMBER</b>									
<b>B&amp;G MODEL UNIVERSAL</b>		<b>ARMSTRONG MODEL 4020 BEARING FRAMES, 1750 RPM</b>							
<b>MOTOR HP AND SPEED</b>	<b>1750RPM</b>	<b>½ &amp; ¾</b>	<b>1</b>	<b>1½ &amp; 2</b>	<b>3</b>	<b>5</b>	<b>7½</b>	<b>10</b>	<b>15</b>
<b>FRAME SIZE</b>	<b>1954 RERATE</b>	56	182	184	213	215	254U	256U	284U
	<b>1964 RERATE</b>	56	143T	145T	182T	184T	213T	215T	254T
<b>PUMP SIZE</b>									
<b>B&amp;G</b>	<b>ARMSTRONG</b>								
U1¼A	1¼D	S	S	S	-	-	-	-	-
U1½A	1½D	S	S	S	-	-	-	-	-
U2A	2D	S	S	S	-	-	-	-	-
U2½A	2½D	S	S	S	S	-	-	-	-
U3A	3D	-	S	S	S	-	-	-	-
U4A	4D	-	-	S	S	S	-	-	-
U1¼B	1¼E	-	S	S	S	S	-	-	-
U1½B	1½E	-	-	S	S	S	-	-	-
U2B	2E	-	-	S	S	S	S	-	-
U2½B	2½E	-	-	-	S	S	S	S	-
U3B	3E	-	-	-	-	S	S	S	-
U4B	4E	-	-	-	-	S	S	S	S
U5B	5E	-	-	-	-	-	S	S	S

**s** designation - 7/8" impeller bore, 1¼" mechanical seal

when replacing the bearing frame assembly on pumps with these motor frame sizes, use the 1510/4030 bearing frame assembly. part no. 819359-002

# 4030 & 4020 BASE MOUNTED PUMPS

## END SUCTION | PARTS CROSS REFERENCE

### ITEM 101 VOLUTE

PUMP SIZE		MATERIAL	PART NUMBER	
B&G	ARMSTRONG		B&G	ARMSTRONG
1¼AB & U1¼A	1¼D	Cast iron	P41240**	415291-011
		Bronze	P41260**	415291-041
1½AB & U1½A	1½D	Cast iron	P41690	415293-011
		Bronze	P41710	415293-041
2AB & U2A	2D	Cast iron	P42070**	425141-011
		Bronze	P42090**	425141-041
2½A & U2½A	2½D	Cast iron	P42360**	425143-011
3A & U3A***	3D	Cast iron	PW-121 <sup>39</sup> **	425145-011
		Bronze	PWB-121**	425145-041
4AB & U4A	4D	Cast iron	P43250**	415299-011
		Bronze	P55280**	415299-041
U1¼B & 1¼BB	1¼E	Cast iron	P41410**	416168-011
		Bronze	P41430**	416168-041
U1½B & 1½BB	1½E	Cast iron	P41780	425147-011
		Cast iron	P14120**	419153-011
U2B & 2BB	2E	Bronze	P42160**	419153-041
		Cast iron	P42480	415297-011
U2½B & 2½B	2½E	Bronze	P55190**	415297-041
		Cast iron	P42740	416180-011
U3B & 3BB	3E	Bronze	P42770	416180-041
		Cast iron	P43310**	415301-011
U4B & 4BB	4E	Bronze	P55320**	415301-041
		Cast iron	P43620**	415303-011
U5B & 5BB	5E	Bronze	P55360**	415303-041
		Cast iron	P43730**	416188-011
U6B & 6BB	6E	Cast iron	P42865	419544-011
		Bronze	—	419544-041
2C	2G	Cast iron	P42880	419003-011
		Bronze	—	419003-041
3C	3G	Cast iron	—	419004-041
		Bronze	—	419004-041
4C	4G	Cast iron	P43810	419542-011
		Bronze	—	419542-041
6C	6G	Cast iron	—	419542-041
		Bronze	—	419542-041

**NOTES:** \*\* These volutes are no longer available from B&G. 'STOCK AT ARMSTRONG'

\*\*\*For pumps built prior to 1964 (serial no. DD) only, use only with impeller part numbers 411868-011 & 411868-041 (7/8" bore) and 419234-011 & 419234-041 (1¼" bore).



# 4030 & 4020 BASE MOUNTED PUMPS

## END SUCTION | PARTS CROSS REFERENCE

### ITEM 102 IMPELLER 7/8" BORE

PUMP SIZE		MATERIAL	PART NUMBER		IMPELLER BORE IN INCHES	MAXIMUM DIAMETER IN INCHES
B&G	ARMSTRONG		B&G	ARMSTRONG		
1¼AB	1¼D	Bronze	P46630	411852-041	7/8	7
		Cast iron	P46510	411852-011	7/8	7
1½AB	1½D	Bronze	P47950	411860-041	7/8	7
		Cast iron	P47810	411860-011	7/8	7
2AB	2D	Bronze	P47950	411860-041	7/8	7
		Cast iron	P47810	411860-011	7/8	7
2½A	2½D	Bronze	P48770	406642-041	7/8	7
		Cast iron	P49000	406642-011	7/8	7
3A***	3D	Bronze	P49480	411868-041	7/8	7
		Cast iron	P49500	411868-011	7/8	7
4AB	4D	Bronze	P56140	411874-041	7/8	7
		Cast iron	P50270	411874-041	7/8	7
1¼BB	1¼E	Bronze	P78523	407922-041	7/8	9½
		Cast iron	P78253	407922-011	7/8	9½
1½BB	1½E	Bronze	P78523	407922-041	7/8	9½
		Cast iron	P78253	407922-011	7/8	9½
2BB	2E	Bronze	P78525	411881-041	7/8	9½
		Cast iron	P78486	411881-011	7/8	9½
2½B	2½E	Bronze	P78525	411881-041	7/8	9½
		Cast iron	P78486	411881-011	7/8	9½
3BB	3E	Bronze	P49620	419465-041	7/8	9½
		Cast iron	P49600	419465-011	7/8	9½
4BB	4E	Bronze	P50550	411940-041	7/8	9½
		Cast iron	P50390	411940-011	7/8	9½
5BB	5E	Bronze	P50930	411941-041	7/8	9½
		Cast iron	P50910	411941-011	7/8	9½

**NOTES:** \*\*\* For pumps built prior to 1964 (Serial no. DD) only, use only with casing part numbers: PW-121 for cast iron and PWB-121 for all bronze

# 4030 & 4020 BASE MOUNTED PUMPS

## END SUCTION | PARTS CROSS REFERENCE

### ITEM 102 IMPELLER 1¼" BORE

PUMP SIZE		MATERIAL	PART NUMBER		IMPELLER BORE IN INCHES	MAXIMUM DIAMETER IN INCHES
B&G	ARMSTRONG		B&G	ARMSTRONG		
1½AB	1½D	Bronze	P48070	419229-041	1¼	7
		Cast iron	P48050	419229-011	1¼	7
2AB	2D	Bronze	P48070	419229-041	1¼	7
		Cast iron	P48050	419229-011	1¼	7
2½A	2½D	Bronze	P49040	419232-041	1¼	7
		Cast iron	P48980	419232-011	1¼	7
3A***	3D	Bronze	P49480	419234-041	1¼	7
		Cast iron	P49500	419234-011	1¼	7
4AB	4D	Bronze	P50310	419236-041	1¼	7
		Cast iron	P50290	419236-011	1¼	7
1¼BB	1¼E	Bronze	P78251	419238-041	1¼	9½
		Cast iron	P78522	419238-011	1¼	9½
1½BB	1½E	Bronze	P78251	419238-041	1¼	9½
		Cast iron	P78522	419238-011	1¼	9½
2BB	2E	Bronze	P78525	419239-041	1¼	9½
		Cast iron	P78257	419239-011	1¼	9½
2½B	2½E	Bronze	P78255	419239-041	1¼	9½
		Cast iron	P78257	419239-011	1¼	9½
3BB	3E	Bronze	P49640	419241-041	1¼	9½
		Cast iron	P49660	419241-011	1¼	9½
4BB	4E	Bronze	P50570	419243-041	1¼	9½
		Cast iron	P50330	419243-011	1¼	9½
5BB	5E	Bronze	P50970	419245-041	1¼	9½
		Cast iron	P50950	419245-011	1¼	9½
6BB	6E	Bronze	P51290	419247-041	1¼	9½
		Cast iron	P51270	419247-011	1¼	9½
2C	2G	Bronze	P77497	419543-041	1¼	12½
		Cast iron	P77499	419543-011	1¼	12½
3C	3G	Bronze	P49700	419008-041	1¼	12½
		Cast iron	P49680	419008-011	1¼	12½
4C	4G	Bronze	P50450	419009-041	1¼	12½
		Cast iron	P50430	419009-011	1¼	12½
6C**	6G	Bronze	P51370	419541-041	1¼	12½
		Cast iron	P51350	419541-011	1¼	12½

**NOTES:** \*\* 6 C & 6G Are mechanically interchangeable, providing both the volute and impeller are of the correct size for the capacity conditions at the same time.

6 G 4030 has a possible capacity equivalent of a B&G 8 C, depending on the selection of the proper impeller diameter and motor of adequate capacity.

\*\*\* For pumps built prior to 1964 (serial no. 00) only, use only with casing part numbers: PW-121 for cast iron and PWB-121 for all bronze

# 4030 & 4020 BASE MOUNTED PUMPS

## END SUCTION | PARTS CROSS REFERENCE

### ITEM 102 IMPELLER 7/8" BORE & 1 1/4" BORE (CUSTOM SIZE)

PUMP SIZE		MATERIAL	PART NUMBER		IMPELLER BORE IN INCHES	MAXIMUM DIAMETER IN INCHES
B&G	ARMSTRONG		B&G	ARMSTRONG		
U1 1/4 A	1 1/4 D	Bronze	P46630	411852-041	7/8	7
		Cast iron	P46510	411852-011	7/8	7
U1 1/2 A	1 1/2 D	Bronze	P47950	411860-041	7/8	7
		Cast iron	P47810	411860-011	7/8	7
U2 A	2 D	Bronze	P47950	411860-041	7/8	7
		Cast iron	P47810	411860-011	7/8	7
U2 1/2 A	2 1/2 D	Bronze	P48770	406642-041	7/8	7
		Cast iron	P49000	406642-011	7/8	7
3 A***	3 D	Bronze	P49480	411868-041	7/8	7
		Cast iron	P49500	411868-011	7/8	7
U4 A	4 D	Cast iron	P50270	411874-041	7/8	7
U1 1/4 B	1 1/4 E	Bronze	P78523	407922-041	7/8	9 1/2
		Cast iron	P78253	407922-011	7/8	9 1/2
U1 1/2 B	1 1/2 E	Bronze	P78523	407922-041	7/8	9 1/2
		Cast iron	P78253	407922-011	7/8	9 1/2
U2 B	2 E	Bronze	P78525	411881-041	7/8	9 1/2
		Cast iron	P78486	411881-011	7/8	9 1/2
U2 1/2 B	2 1/2 E	Bronze	P78525	411881-041	7/8	9 1/2
		Cast iron	P78486	411881-011	7/8	9 1/2
U3 B	3 E	Bronze	P49620	419465-041	7/8	9 1/2
		Cast iron	P49600	419465-011	7/8	9 1/2
U4 B	4 E	Bronze	P50550	411940-041	7/8	9 1/2
		Cast iron	P50390	411940-011	7/8	9 1/2
U5 B	5 E	Bronze	P50930	411941-041	7/8	9 1/2
		Cast iron	P50910	411941-011	7/8	9 1/2
U6 B	N/A	Bronze	P51290	419247-041	1 1/4	9 1/2
		Cast iron	P51270	419247-011	1 1/4	9 1/2

NOTES: \*\*\* For pumps built prior to 1964 (Serial no. DD) only, use only with casing part numbers: PW-121 for cast iron and PWB-121 for all bronze

# 4030 & 4020 BASE MOUNTED PUMPS

## END SUCTION | PARTS CROSS REFERENCE

### ITEM 102 IMPELLER 7/8" BORE & 1 1/4" BORE (STOCK SIZE)

PUMP SIZE		MATERIAL	PART NUMBER		IMPELLER BORE IN INCHES	MAXIMUM DIAMETER IN INCHES
B&G	ARMSTRONG		B&G	ARMSTRONG		
U1T	D141	Bronze	P48770	406642-041	7/8	5 1/4
		Cast iron	P49000	406642-011	7/8	5 1/4
U2T	D142	Bronze	P48770	406642-041	7/8	6
		Cast iron	P49000	406642-011	7/8	6
U3T	D143	Bronze	P48770	406642-041	7/8	6 1/2
		Cast iron	P49000	406642-011	7/8	6 1/2
U4T	D144	Bronze	P48770	406642-041	7/8	6 7/8
		Cast iron	P49000	406642-011	7/8	6 7/8
U5T	D145	Bronze	P78525	411881-041	7/8	7 1/4
		Cast iron	P78486	411881-011	7/8	7 1/4
U6T	D146	Bronze	P56140	411874-041	7/8	6 1/2
		Cast iron	P50270	411874-041	7/8	6 1/2
U7T	D147	Bronze	P78525	411881-041	7/8	8
		Cast iron	P78486	411881-011	7/8	8
U8T	D148	Bronze	P50930	411941-041	7/8	7 1/4
		Cast iron	P50910	411941-011	7/8	7 1/4
U9T	1 1/4D	Bronze	P78525	411881-041	7/8	9
		Cast iron	P78486	411881-011	7/8	9
U10T	1 1/2D	Bronze	P50930	411941-041	7/8	7 1/4
		Cast iron	P50910	411941-011	7/8	7 1/4
U11T	2D	Bronze	P50550	411940-041	7/8	8 3/4
		Cast iron	P50390	411940-011	7/8	8 3/4
U12T	2 1/2D	Bronze	P50930	411941-041	7/8	9 1/2
		Cast iron	P50910	411941-011	7/8	9 1/2
U13 or 14T	N/A	Bronze	P51290	419247-041	1 1/4	9 1/2
		Cast iron	P51270	419247-011	1 1/4	9 1/2

NOTES: \*\*\* For pumps built prior to 1964 (Serial no. DD) only, use only with casing part numbers: PW-121 for cast iron and PWB-121 for all bronze

### ITEM 117 IMPELLER CAPSCREW

PUMP SIZE	IMPELLER BORE IN INCHES	CONSTRUCTION	PART NUMBER	
			B&G	ARMSTRONG
All sizes	7/8	BF-AB	P52320	911900-108
	7/8	AB	P52350	911900-114
	1 1/4	BF-AB	P13800	911900-113
	1 1/4	AB	P13800	911900-115

# 4030 & 4020 BASE MOUNTED PUMPS

## END SUCTION | PARTS CROSS REFERENCE

### ITEM 118 IMPELLER WASHER

PUMP SIZE	IMPELLER BORE IN INCHES	CONSTRUCTION	PART NUMBER	
			B&G	ARMSTRONG
All sizes	7/8	BF-AI	P46390	406614-000
	7/8	AB	P46380	406677-000
	1 1/4	BF-AI	P51250	425742-003
	1 1/4	AB	P51230	425742-003

### ITEM 100 BEARING FRAME ASSEMBLY

PART NUMBER			SEAL SIZE	CONSTRUCTION		STYLE
B&G		ARMSTRONG		B&G	ARMSTRONG	
OLD	NEW					
<b>(B&amp;G MODEL 1510B — ARMSTRONG MODEL 4030)</b>						
P77075	185011	819359-002	1 1/4"	BF	BF-AI	BALL BRG.
P77222	185012	819359-002	1 1/4"	AI	BF-AI	BALL BRG.
P77226	185013	819360-002	1 1/4"	AB&BFS	AB	BALL BRG.
P77074	185014	819310-071	1 5/8"	BF	BF-AI-AB	BALL BRG.
P77228	185015	819310-071	1 5/8"	AI	BF-AI-AB	BALL BRG.
<b>(B&amp;G MODEL UNIVERSAL — ARMSTRONG MODEL 4020)</b>						
P14770	186660	806617-000	1 1/4"	BF	BF-AI-AB	SLEEVE BRG.

### ITEM 208 MECHANICAL SEAL ASSEMBLY

PART NUMBER			SEAL SIZE	CONSTRUCTION	
B&G		ARMSTRONG		B&G	ARMSTRONG
OLD	NEW				
#1 KIT	186862	825458-001	1 1/4"	BF - AB	BF-AB- AI
#4 KIT	186860	825458-001	1 1/4"	AI	BF-AB- AI
#8 KIT	186543	811339-000	1 5/8"	BF - AB	BF - AB
#9 KIT	186544	811866-000	1 5/8"	AI	AI

# 4030 & 4020 BASE MOUNTED PUMPS

## END SUCTION | PARTS CROSS REFERENCE

### ITEM 201 VOLUTE COVERPLATE

PUMP SIZE		SEAL SIZE	MATERIAL	PART NUMBER	
B&G	ARMSTRONG			B&G	ARMSTRONG
1¼A to 4AB	1¼D to 4D	1¼"	Cast iron	186482	409564-011
1¼A to 4AB	1¼D to 4D	1¼"	Bronze	P56779	409564-041
1¼BB to 5BB	1¼E to 5E	1¼"	Cast iron	186495	409563-011
1¼BB to 5BB	1¼E to 5E	1¼"	Bronze	P56799	409563-041
3A to 4AB	2D to 4D	1½"	Cast iron	P49940	414498-011
3A to 4AB	2D to 4D	1½"	Bronze	P49960	414498-041
1¼BB to 6BB	1¼E to 6E	1½"	Cast iron	P51540	411896-011
1¼BB to 6BB	1¼E to 6E	1½"	Bronze	P51560	411896-041
2C to 8C	2G to 8G	1½"	Cast iron	P50670	419467-011

### ITEM 103 VOLUTE GASKET

PUMP SIZE		SEAL SIZE	CONSTRUCTION	PART NUMBER	
B&G	ARMSTRONG			B&G	ARMSTRONG
1¼A to 4AB	1¼D to 4D	1¼" and 1½"	BF,AI,AB	P57700	106592-000
1¼BB to 5BB	1¼E to 5E		BF,AI,AB	P48690	406604-000
1¼BB to 6BB	1¼E to 6E		BF,AI,AB	P48690	406604-000
2C to 8C	2G to 8G		BF,AI,AB	P57770	419016-000

### ITEM 104 VOLUTE CAPSCREW

PUMP SIZE		CONSTRUCTION	NO. REQUIRED SIZE	PART NUMBER	
B&G	ARMSTRONG			B&G	ARMSTRONG
<b>'S' SIZE 7/8" IMPELLER BORE - 1" SHAFT DIAMETER AT COUPLER</b>					
1¼AB to 4AB	1¼D to 4D	All	8 REQUIRED ¾-16NCx1"	P40020	911121-108
1¼BB to 5BB	1¼E to 5E	All	12 REQUIRED 7/16-14NCx1"	S03980	911123-108
<b>'M' SIZE 1¼" IMPELLER BORE - 1¼" SHAFT DIAMETER AT COUPLER</b>					
1¼AB to 4AB	1¼D to 4D	All	8 REQUIRED ¾-16x2½"	P44250	911121-120
1¼BB to 5BB	1¼E to 5E	All	12 REQUIRED 7/16-14NCx1¼"	P03470	911123-110
2C to 8C	2G to 8G	All	12 REQUIRED ½-13NCx1½"	P13780	911125-116

# 4030 & 4020 BASE MOUNTED PUMPS

## END SUCTION | PARTS CROSS REFERENCE

### ITEM 342 WATER SLINGER

PUMP SHAFT DIAMETER	PART NUMBER	
	B&G	ARMSTRONG
1¼"	PW - 6286	406622-000
1½"	PW - 8286	419315-000

### ITEM 202 COVERPLATE CAPSCREW

PUMP SIZE		CONSTRUCTION	NO. REQUIRED SIZE	PART NUMBER	
B&G	ARMSTRONG			B&G	ARMSTRONG
<b>'S' SIZE 7/8" IMPELLER BORE - 1" SHAFT DIAMETER AT COUPLER</b>					
1¼AB to 4AB	1¼D to 4D	All	4 REQUIRED ¾-16NCx1"	P40020	911121-108
1¼BB to 5BB	1¼E to 5E				
<b>'M' SIZE 1¼" IMPELLER BORE - 1¼" SHAFT DIAMETER AT COUPLER</b>					
1¼AB to 4AB	1¼D to 4D	All	4 REQUIRED ¾-16x1¼"	P55420	911121-110
1¼BB to 5BB	1¼E to 5E				
2C to 8C	2G to 8G				

### ITEM 401 COUPLER SELECTION TABLE ( WOODS TYPE )

PUMP SHAFT SIZE	MOTOR FRAME SIZE	MOTOR SHAFT SIZE	COUPLER PART NUMBER		WOODS SIZE
			B&G	ARMSTRONG	
1"	56	5/8"	186868	819340-002	4J
1"	143T - 145T	7/8"	186869	819341-002	4J
	182 - 184				
1"	182T - 184T	1 1/8"	186870	819342-002	5J
	213 - 215				
1"	213T - 215T	1 3/8"	186871	819344-002	6J
	254U - 256U				
1"	254T - 256T	1 5/8"	186873	819347-002	7J
	284U				
1¼"	254U - 256U	1 3/8"	186872	819344-012	6J
	213T - 215T				
1¼"	254T - 256T	1 5/8"	P63239	819348-002	7J
	284U				
	284T - 286T				
1¼"	324U	1 7/8"	P63242	819349-002	8J
1¼"	324T - 326T	2 1/8"	P63245	819350-002	9E

# 4030 & 4020 BASE MOUNTED PUMPS

## END SUCTION | PARTS CROSS REFERENCE

### ITEM 407 COUPLER INSERT SELECTION TABLE ( WOODS TYPE )

INSERT SIZE 'WOODS'	PART NUMBER	
	B&G	ARMSTRONG
4J	P78804	875000-801
5J	P78729	875000-802
6J	P78791	875000-803
7J	P78792	875000-804
9J	PP78796	875000-807



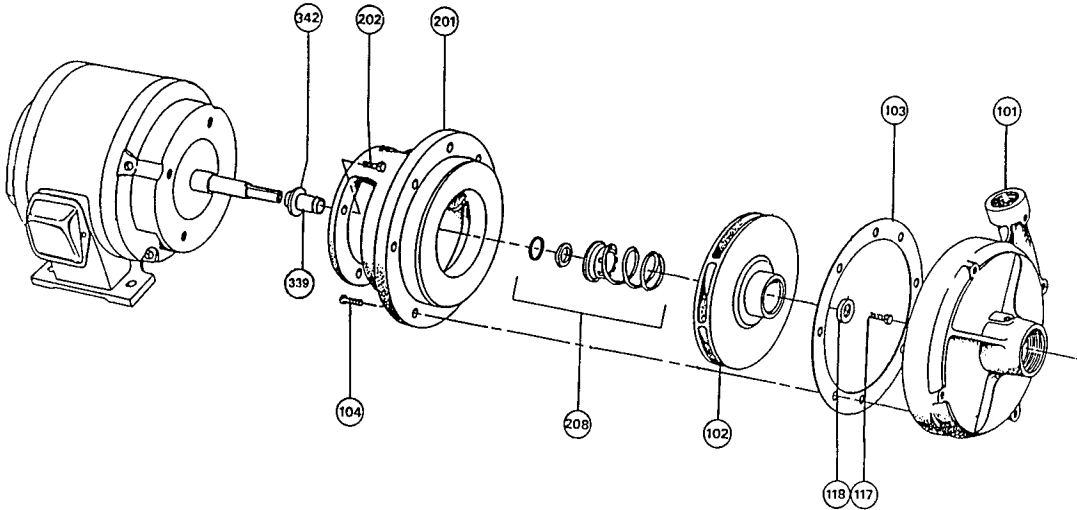
# 4280 MOTOR MOUNTED PUMPS

## CLOSE COUPLED | PARTS CROSS REFERENCE

**MODEL NUMBER**

B&G MODEL 1531

ARMSTRONG 4280 OLD STYLE, TANGENTIAL, MOTOR MOUNTED PUMPS



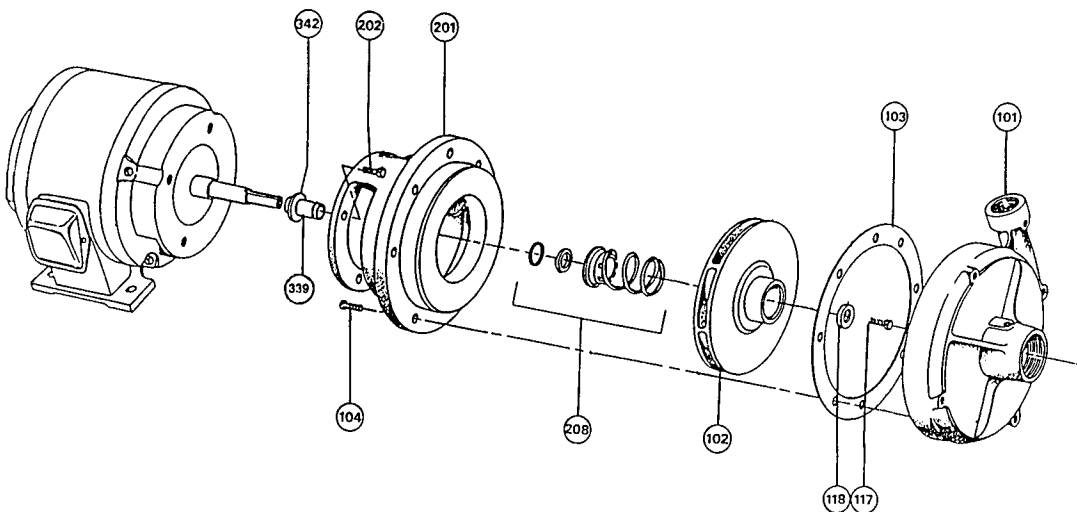
ITEM	DESCRIPTION
101	Volute
102	Impeller
103	Volute gasket
104	Volute capscrew
117	Impeller capscrew
118	Impeller washer

ITEM	DESCRIPTION
201	Volute cover plate
202	M/P bracket capscrew
208	Mechanical seal assembly
339	Shaft sleeve kit
342	Water slinger

**MODEL NUMBER**

B&G MODEL 1531B

ARMSTRONG MODEL, 4280 POWER FRAMES, ALL SPEEDS



# 4280 MOTOR MOUNTED PUMPS

## CLOSE COUPLED | PARTS CROSS REFERENCE

### MODEL NUMBER

**B&G MODEL 1531B | ARMSTRONG MODEL, 4280 POWER FRAMES, ALL SPEEDS**

MOTOR HP AND SPEED	1800RPM	½, ¾ & 1	1½&2	3	5	7½	10	15	20	25	30	40	50
	3600RPM	1½	2&3	5	7½	10	15	20	25	30	40	50	60
FRAME SIZE	1954 RERATE	182C	184C	213C	215C	254UC	256UC	284UC	286UC	324UC	326SC		
	1964 RERATE	143JM	145JM	182JM	184JM	213JM	215JM	254JM	256JM	284JM	286JM		
	WEST COAST							254TCZ	256TCZ	284TCZ	286TCZ	324TCZ	326TCZ
	1972 RERATE							254JP	256JP	284JP	286JP	324JP	326JP
PUMP SIZE													
B&G	ARMSTRONG												
1¼AB	1¼D	S	S	S	S	S	-	-	-	-	-	-	-
1½AB	1½D	S	S	S	S	S	S	-	-	-	-	-	-
2AB	2D	S	S	S	S	S	S	-	-	-	-	-	-
2½A	2½D	S	S	S	S	S	S	M	-	-	-	-	-
3A	3D	S	S	S	-	S	S	M	M	-	-	-	-
4AB	4D	-	S	S	S	-	S	M	M	M	M	-	-
1¼BB	1¼E	-	S	S	S	-	S	M	M	M	-	-	-
1½BB	1½E	-	S	S	S	-	S	M	M	M	M	-	-
2BB	2E	-	S	S	S	S	-	M	M	M	M	M	-
2½BB	2½E	-	-	S	S	S	-	-	-	-	-	-	-
3BB	3E	-	-	-	S	S	-	-	-	-	-	-	-
4BB	4E	-	-	-	S	S	S	M	-	-	-	-	-
5BB	5E	-	-	-	-	S	S	M	M	-	-	-	-
6BB	6E	-	-	-	-	-	-	M	M	M	-	-	-

**S** designation - 7/8" impeller bore, 1¼" mechanical seal

**M** designation - 1¼" impeller bore, 1½" mechanical seal

# 4280 MOTOR MOUNTED PUMPS

## CLOSE COUPLED | PARTS CROSS REFERENCE

### ITEM 101 VOLUTE

PUMP SIZE		MATERIAL	PART NUMBER	
B&G	ARMSTRONG		B&G	ARMSTRONG
1¼AB	1¼D	Cast iron	P41200**	415290-011
		Bronze	P41220**	415290-041
1½AB	1½D	Cast iron	P41690	415293-011
		Bronze	P41710	415293-041
2AB	2D	Cast iron	P42070**	425141-011
		Bronze	P42090**	425141-041
2½A	2½D	Cast iron	P42360**	425143-011
		Bronze	P42360**	425143-011
3A***	3D	Cast iron	PW-121CI**	425145-011
		Bronze	PWB-121**	425145-041
4AB	4D	Cast iron	P43250**	415299-011
		Bronze	P55280**	415299-041
1¼BB	1¼E	Cast iron	P41410**	416168-011
		Bronze	P41430**	416168-041
1½BB	1½E	Cast iron	P41780	425147-011
2BB	2E	Cast iron	P14120**	419153-011
		Bronze	P42160**	419153-041
2½B	2½E	Cast iron	P42480	415297-011
		Bronze	P55190**	415297-041
3BB	3E	Cast iron	P42740	416180-011
		Bronze	P42770	416180-041
4BB	4E	Cast iron	P43310**	415301-011
		Bronze	P55320**	415301-041
5BB	5E	Cast iron	P43620**	415303-011
		Bronze	P55360**	415303-041
6BB	6E	Cast iron	P43730**	416188-011
2C	2G	Cast iron	P42865	419544-011
		Bronze	—	419544-041
3C	3G	Cast iron	P42880	419003-011
		Bronze	—	419003-041
4C	4G	Bronze	—	419004-041
6C	6G	Cast iron	P43810	419542-011
		Bronze	—	419542-041

**NOTES:** \*\* These volutes are no longer available from B&G. 'STOCK AT ARMSTRONG'

\*\*\*For pumps built prior to 1964 (serial no. DD) only, use only with impeller part numbers 411868-011 & 411868-041 (7/8" bore) and 419234-011 & 419234-041 (1¼" bore).

# 4280 MOTOR MOUNTED PUMPS

## CLOSE COUPLED | PARTS CROSS REFERENCE

### ITEM 102 IMPELLER 7/8" BORE

PUMP SIZE		MATERIAL	PART NUMBER		IMPELLER BORE IN INCHES	MAXIMUM DIAMETER IN INCHES
B&G	ARMSTRONG		B&G	ARMSTRONG		
1¼AB	1¼D	Bronze	P46630	411852-041	7/8	7
		Cast iron	P46510	411852-011	7/8	7
1½AB	1½D	Bronze	P47950	411860-041	7/8	7
		Cast iron	P47810	411860-011	7/8	7
2AB	2D	Bronze	P47950	411860-041	7/8	7
		Cast iron	P47810	411860-011	7/8	7
2½A	2½D	Bronze	P49000	406642-041	7/8	7
		Cast iron	P48770	406642-011	7/8	7
3A***	3D	Bronze	P49480	411868-041	7/8	7
		Cast iron	P49500	411868-011	7/8	7
4AB	4D	Bronze	P56140	411874-041	7/8	7
		Cast iron	P50270	411874-041	7/8	7
1¼BB	1¼E	Bronze	P78523	407922-041	7/8	9½
		Cast iron	P78253	407922-011	7/8	9½
1½BB	1½E	Bronze	P78523	407922-041	7/8	9½
		Cast iron	P78253	407922-011	7/8	9½
2BB	2E	Bronze	P78525	411881-041	7/8	9½
		Cast iron	P78486	411881-011	7/8	9½
2½B	2½E	Bronze	P78525	411881-041	7/8	9½
		Cast iron	P78486	411881-011	7/8	9½
3BB	3E	Bronze	P49620	419465-041	7/8	9½
		Cast iron	P49600	419465-011	7/8	9½
4BB	4E	Bronze	P50550	411940-041	7/8	9½
		Cast iron	P50390	411940-011	7/8	9½
5BB	5E	Bronze	P50930	411941-041	7/8	9½
		Cast iron	P50910	411941-011	7/8	9½

**NOTES:** \*\*\* For pumps built prior to 1964 (Serial no. DD) only, use only with casing part numbers: PW1-121CI for cast iron and PW1-121CB for all bronze

# 4280 MOTOR MOUNTED PUMPS

## CLOSE COUPLED | PARTS CROSS REFERENCE

### ITEM 102 IMPELLER 1¼" BORE

PUMP SIZE		MATERIAL	PART NUMBER		IMPELLER BORE IN INCHES	MAXIMUM DIAMETER IN INCHES
B&G	ARMSTRONG		B&G	ARMSTRONG		
2½A	2½D	Bronze	P49040	419232-041	1¼	7
		Cast iron	P48980	419232-011	1¼	7
3A***	3D	Bronze	P49480	419234-041	1¼	7
		Cast iron	P49500	419234-011	1¼	7
4AB	4D	Bronze	P50310	419236-041	1¼	7
		Cast iron	P50290	419236-011	1¼	7
1¼BB	1¼E	Bronze	P78251	419238-041	1¼	9½
		Cast iron	P78522	419238-011	1¼	9½
1½BB	1½E	Bronze	P78251	419238-041	1¼	9½
		Cast iron	P78522	419238-011	1¼	9½
2BB	2E	Bronze	P78255	419239-041	1¼	9½
		Cast iron	P78257	419239-011	1¼	9½
3BB	3E	Bronze	P49640	419241-041	1¼	9½
		Cast iron	P49660	419241-011	1¼	9½
4BB	4E	Bronze	P50570	411940-041	1¼	9½
		Cast iron	P50330	411940-011	1¼	9½
5BB	5E	Bronze	P50970	419245-041	1¼	9½
		Cast iron	P50950	419245-011	1¼	9½
6BB	6E	Bronze	P51290	419247-041	1¼	9½
		Cast iron	P51270	419247-011	1¼	9½

**NOTES:** \*\*\* For pumps built prior to 1964 (serial no. DD) only, use only with casing part numbers: PW1-121CI for cast iron and PW1-121CB for all bronze

# 4280 MOTOR MOUNTED PUMPS

## CLOSE COUPLED | PARTS CROSS REFERENCE

### ITEM 201 MOTOR/PUMP BRACKETS

PUMP SIZE		MOTOR FRAME SIZE	SEAL SIZE	CONSTRUCTION	PART NUMBER	
B&G	ARMSTRONG				B&G	ARMSTRONG
1¼AB to 4AB	1¼D to 4D	143T-145T 143JM-145JM 182-184 182JM-184JM	1¼"	BF-AI	186526	409026-012
1¼AB to 4AB	1¼D to 4D	143T-145T 143JM-145JM 182-184 182JM-184JM	1¼"	AB	P56929	409026-042
1¼AB to 4AB	1¼D to 4D	213-215 182T-184T 254U-256U 213T-215T 213JM-215JM	1¼"	BF-AI	186528	406931-012
1¼AB to 4AB	1¼D to 4D	213-215 182T-184T 254U-256U 213T-215T 213JM-215JM	1¼"	AB	P56939	406931-042
1¼BB to 5BB	1¼E to 5E	143T-145T 143JM-145JM 182-184 182JM-184JM	1¼"	BF-AI	186533	409023-012
1¼BB to 5BB	1¼E to 5E	143JM-145JM 182-184 182JM-184JM	1¼"	AB	P56969	409023-042
1¼BB to 5BB	1¼E to 5E	213-215 182T-184T 254U-256U 213T-215T 213JM-215JM	1¼"	BF-AI	186530	406948-012
1¼BB to 5BB	1¼E to 5E	213-215 182T-184T 254U-256U 213T-215T 213JM-215JM	1¼"	AB	P56949	406953-042
1¼AB to 4AB	1¼D to 4D	254T-256T 254JP-256JP	1⅝"	BF-AI	P77076	425392-012
1¼AB to 4AB	1¼D to 4D	254T-256T 254JP-256JP	1⅝"	AB	P77073	425392-042

# 4280 MOTOR MOUNTED PUMPS

## CLOSE COUPLED | PARTS CROSS REFERENCE

### ITEM 201 MOTOR/PUMP BRACKETS

PUMP SIZE		MOTOR FRAME SIZE	SEAL SIZE	CONSTRUCTION	PART NUMBER	
B&G	ARMSTRONG				B&G	ARMSTRONG
1¼AB to 4AB	1¼D to 4D	284U-286U 284T-286T	1½"	BF-AI	P53690	419164-012
1¼AB to 4AB	1¼D to 4D	284U-286U 284T-286T	1½"	AB	P53710	419168-042
1¼AB to 4AB	1¼D to 4D	284JP-286JP 324U-326U 324T-326T 324JP-326JP 364T-365T 364JP-365JP 404-405	1½"	BF-AI	P53880	419165-012
1¼AB to 4AB	1¼D to 4D	284JP-286JP 324U-326U 324T-326T 324JP-326JP 364T-365T 364JP-365JP 404-405	1½"	AB	P53900	419165-042
1¼BB to 6BB	1¼E to 6E	254T-256T 254JP-256JP	1½"	BF-AI	P77166	425393-012
1¼BB to 6BB	1¼E to 6E	254T-256T 254JP-256JP	1½"	AB	P77169	425393-042
1¼BB to 6BB	1¼E to 6E	284U-286U 284T-286T	1½"	BF-AI	P53020	419166-012
1¼BB to 6BB	1¼E to 6E	284U-286U 284T-286T	1½"	AB	P53040	419170-042
1¼BB to 6BB	1¼E to 6E	284JP-286JP 324U-326U 324T-326T 324JP-326JP 364T-365T 364JP-365JP 404-405	1½"	BF-AI	P53500	411883-012
1¼BB to 6BB	1¼E to 6E	284JP-286JP 324U-326U 324T-326T 324JP-326JP 364T-365T 364JP-365JP 404-405	1½"	BF-AI	P53540	419171-042

# 4280 MOTOR MOUNTED PUMPS

## CLOSE COUPLED | PARTS CROSS REFERENCE

### ITEM 117 IMPELLER CAPSCREW

MOTOR FRAME SIZE	IMPELLER BORE IN INCHES	CONSTRUCTION	PART NUMBER	
			B&G	ARMSTRONG
143T TO 215T 143JM TO 215JM 254U TO 256U	7/8	BF-AB	P52320	911900-108
143T TO 215T 143JM TO 215JM 254U TO 256U	7/8	AI	P52350	911900-114
254T TO 365T 254JP TO 365JP 284U TO 326U	1 1/4	BF-AB	P13800	911900-113
254T TO 365T 254JP TO 365JP 284U TO 326U	1 1/4	AI	P13800	911900-115

### ITEM 118 IMPELLER WASHER

MOTOR FRAME SIZE	IMPELLER BORE IN INCHES	CONSTRUCTION	PART NUMBER	
			B&G	ARMSTRONG
143T TO 215T 143JM TO 215JM 254U TO 256U	7/8	BF-AI	P46930	406614-000
143T TO 215T 143JM TO 215JM 254U TO 256U	7/8	AB	P46380	406677-000
254T TO 365T 254JP TO 365JP 284U TO 326U	1 1/4	BF-AI	P51250	425742-003
254T TO 365T 254JP TO 365JP 284U TO 326U	1 1/4	AB	P51230	425742-003

### ITEM 103 VOLUTE GASKET

PUMP SIZE		SEAL SIZE	CONSTRUCTION	PART NUMBER	
B&G	ARMSTRONG			B&G	ARMSTRONG
1 1/4 A to 4 AB	1 1/4 D to 4 D	1 1/4 " and 1 5/8 "	BF,AI,AB	P57700	106592-000
1 1/4 BB to 5 BB	1 1/4 E to 5 E		BF,AI,AB	P48690	406604-000
3 A to 4 AB	2 D to 4 D		BF,AI,AB	P57700	106592-000
1 1/4 BB to 6 BB	1 1/4 E to 6 E		BF,AI,AB	P48690	406604-000



# 4280 MOTOR MOUNTED PUMPS

## CLOSE COUPLED | PARTS CROSS REFERENCE

### ITEM 208 MECHANICAL SEAL ASSEMBLY

PART NUMBER			SEAL SIZE	CONSTRUCTION
B&G		ARMSTRONG		
OLD	NEW			
#1 KIT	186862	825458-001	1¼"	BF - AB
#4 KIT	186860	825458-001	1¼"	AI
#8 KIT	186543	811339-000	1⅝"	BF - AB
#9 KIT	186544	811866-000	1⅝"	AI

### ITEM 339 SHAFT SLEEVE & SPACER KIT

MOTOR FRAME SIZE	IMPELLER BORE IN INCHES	CONSTRUCTION	PART NUMBER	
			B&G KIT	ARMSTRONG
143T TO 215T 143JM TO 215JM 254U TO 256U	1¼	BF-AB	185024	835085-001
143T TO 215T 143JM TO 215JM 254U TO 256U	1¼	AI	185025	835085-002
254T TO 365T 254JP TO 365JP 284U TO 326U	1⅝	BF-AB	185021	810150-152
254T TO 365T 254JP TO 365JP 284U TO 326U	1⅝	AI	185022	810150-153

### ITEM 104 VOLUTE CAPSCREW

PUMP SIZE		CONSTRUCTION	NO. REQUIRED SIZE	PART NUMBER	
B&G	ARMSTRONG			B&G	ARMSTRONG
1¼AB to 4AB	1¼D to 4D	All	8 REQUIRED ⅜-16NCx1"	P40020	911121-108
1¼BB to 6BB	1¼E to 6E	All	12 REQUIRED 7/16-14NCx1"	P03470	911123-108

# 4280 MOTOR MOUNTED PUMPS

## CLOSE COUPLED | PARTS CROSS REFERENCE

### ITEM 202 MOTOR CAPSCREW

MOTOR FRAME SIZE	CONSTRUCTION	NUMBER REQUIRED SIZE	PART NUMBER	
			B&G	ARMSTRONG
143T-145T 143JM-145JM 182-184 182JM-184JM	All	4 REQUIRED 3/8-16NCx1 1/4"	P46930	406614-000
213C-256UC 213T-256T 213JM-215JM 254U-256U 284U-286U 284JP-286JP	All	4 REQUIRED 1/2-13NCx1 1/4"	P46380	406677-000
324UC-405UC 324JP-326JP 404-405	All	4 REQUIRED 5/8-11NCx1 1/4"	P51250	425742-003

### ITEM 342 WATER SLINGER

PUMP SHAFT DIAMETER	PART NUMBER	
	B&G	ARMSTRONG
1 1/4"	PW - 6286	406622-000
1 5/8"	PW - 8286	419315-000

# SHELL & TUBE HEAT EXCHANGERS

## PARTS CROSS REFERENCE

### PART NUMBERS

HEAT EXCHANGER		TUBE BUNDLE		SHELL GASKET	HEAD GASKET
GRAINGER	ARMSTRONG	GRAINGER	ARMSTRONG		
2P861	WS-0403-2-1	2P862	RTB WS-0403-2-1	691300-001	691301-001
2P863	WS-0404-2-1	2P864	RTB WS-0404-2-1	691300-001	691301-001
2P865	WS-0603-2-1	2P866	RTB WS-0603-2-1	691300-002	691301-002
2P867	WS-0604-2-1	2P868	RTB WS-0604-2-1	691300-002	691301-002
2P869	WS-0605-2-1	2P870	RTB WS-0605-2-1	691300-002	691301-002
2P871	WS-0804-2-1	2P872	RTB WS-0804-2-1	691300-003	691301-003



# 4380 & 4360 VIL PUMPS

## CENTRIFUGAL CLOSE-COUPLED | PARTS CROSS REFERENCE

MODEL NUMBER	
TEEL / GRAINGER 4P934, 4P935, 4P936, 4P937, 4P938	ARMSTRONG MODEL 4380 BF

### PART NUMBERS

DESCRIPTION	2×2×8	3×3×8	4×4×8	4×4×10	6×6×8
Casing	427027-011	427151-011	427053-011	427063-011	427055-011
Motor	3HP/1750/60/3/ 208/230/460- 182JM FRAME	5HP/1750/60/3/ 208/230/460- 184JM FRAME	7.5HP/1750/60/3/ 208/230/460- 213JP FRAME	10HP/1750/60/3/ 208/230/460- 215JP FRAME	15HP/1750/60/3/ 208/230/460- 254JM FRAME
Motor bracket/adaptor	426749-011	426749-011	426750-011	426754-015	426751-015
Impeller	427121-041 8" Max. od.	427129-041 8" Max. od.	427138-041 8" Max. od.	427150-041 10" Max. od.	427140-041 8" Max. od.
Seal kit	975000-991	975000-991	975000-993	975000-993	975000-993
Sleeve and spacer	810150-150	810150-150	810150-152	810150-152	810150-154
Casing gasket	426401-003	426401-003	426401-003	426401-004	426401-004
Water slinger	406622-000	406622-000	406622-000	406622-000	406622-000
Impeller washer	425742-001	425742-001	425742-003	425742-003	425742-003
Impeller capscrew	911900-114	911900-114	911900-119	911900-119	911900-119

MODEL NUMBER	
TEEL / GRAINGER 4P930, 4P931, 4P932, 4P933	ARMSTRONG 'D' SERIES 4360 BF

### PART NUMBERS

DESCRIPTION	1½ D		2 D		3 D	
Casing	116397-011 c.i.	116397-041 Bronze	116174-011 c.i.	116174-041 Bronze	116646-011 c.i.	116646-041 Bronze
Impeller 7/8" bore	426993-011 Steel	426993-041 Bronze	411860-011 Steel	411860-041 Bronze	426994-041 Bronze	
Flanges	104301-011 c.i.	104301-041 Bronze	106074-011 c.i.	106074-041 Bronze	133615-011 c.i.	133615-041 Bronze
Flange gasket	104034-000		116117-000		125606-106	


# 4380 & 4360 VIL PUMPS

## CENTRIFUGAL CLOSE-COUPLED | PARTS CROSS REFERENCE

### COMMON PARTS

DESCRIPTION	PART NUMBER
Casing gasket	106592-000
Seal kit	825458-001
Sleeve and spacer	835085-001
Water slinger	406622-000
Impeller washer	425742-001
Impeller capscrew	911900-114
Adapter/Motor bracket	426991-011 (pumps built prior to serial no. 99808) 426989-011 (pumps built after serial no. 99807)
Flush line	1 ea. 997531-004 3/8" x 12" x .032 wall copper tube 2 ea. 939001-114 3/8" x 1/4" NPT elbow

## COMPETITION CROSS REFERENCE

Design Envelope Compass Circulators Cross Reference	191	
S&H Circulators Cross Reference	192	
E.2 Circulators Cross Reference	193	
Astro 2 Circulators Cross Reference	195	
Design Envelope Cross Reference	197	
Design Envelope Interchangeability Chart	200	
Product Solution Outlines/Brochures	203	



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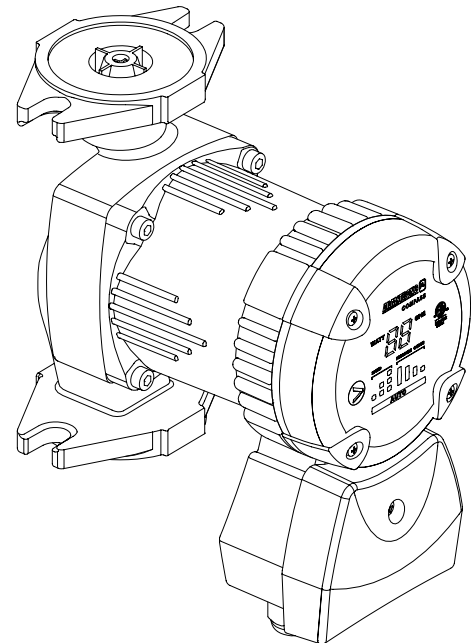
# DESIGN ENVELOPE COMPASS CIRCULATORS

## CROSS REFERENCE

MODELS	ARMSTRONG	PART NUMBER	SPEED	B & G	GRUNDFOS	WILO	TACO
Cast iron	COMPASS 20-20 CI	180203-606	vs <sup>3</sup>	Ecocirc Auto / Vario	ALPHA 15-55F/F-LC, ALPHA 15-55FR/FR-LC <sup>2</sup>	Stratos ECO 16F/RFC, 16FX <sup>2</sup>	Bumble bee (HEC-2)
			1	—	UPS 15-42F S1, UPS 15-58FC S1, UP 15-10F, UPS 26-99FC S1	STAR S 16F S1	—
			2	NRF-25 S1, NRF-9F/LW <sup>2</sup>	UPS 15-42F S2, UPS 15-58FC S2	STAR S 16F S2, STAR S 21F S1	005-F2-3-IFC <sup>2</sup> , 006-F4/-F7-IFC, 007-F5-5/-8-IFC <sup>2</sup> , OOR/O015-F61 IFC/ MSF2-1 IFC S1
			3	NRF-22 <sup>2</sup> , NRF-25 S2 <sup>1</sup>	UP 15-42F, UPS 15-42F S3, UPS 15-58FC S3, UPS 26-99FC S1, UPS 43-44FC S1	STAR S 16F S3, STAR 16F, STAR S 21F S2 & S3	008-F6-1-IFC, OOR-F6-1-IFC, OOR/O015-MSF2-1 IFC S2 & S3
Stainless steel	COMPASS 20-20 SS	180203-607	vs <sup>3</sup>	—	ALPHA 15-55SF/SF-LC	Stratos ECO 16BFX <sup>2</sup>	—
			1	—	—	STAR 5 BU <sup>1</sup> , STAR S 16BF S1	003-SC4-1/FC
			2	NBF/SSF-9U/LW <sup>1</sup> , NBF/SSF-12U/LW <sup>1</sup> , NBF/SSF-12F/LW <sup>2</sup> , NBF-25 S1	UP 15-18BUC 5/7 <sup>1</sup> , UP 15-29SU <sup>1</sup> , UP 15-35SUC, UPS 15-35SUC S2 <sup>1</sup> , UPS 15-35SFC S1 & S2, UP 15-18SF, UPS 15-55SFC S1 <sup>2</sup>	STAR 8 <sup>1</sup> , STAR S 16BF S2, STAR S 21BFX S1	005-BF2/-1-IFC <sup>2</sup> , 005-SF2/-IFC <sup>2</sup> , 006-BC4-1, 006-B7-IFC, 006-SC4-1, 006-SC7-1FC, 007-BF5/-1-IFC <sup>2</sup> , 007-SF5/-IFC <sup>2</sup>
			3	NBF/SSF-22 <sup>2</sup> , NBF-25 S2 <sup>1</sup>	UPS 15-35SFC S3, UPS 15-55SFC S2 & S3 <sup>2</sup> , UP 15-42SF, UP 25-64SF, UPS 26-99BFC S1, UPS 43-44BFC S1	STAR 11 BU <sup>1</sup> , STAR S 16BF S3, STAR 16BF, STAR S 21BFX S2 & S3	008-BC6, 008-BC6-IFC, 008-SF6/-IFC <sup>2</sup> , OOR/O015-SF6-IFC, OOR/O015-SF6-1-IFC <sup>2</sup>

**NOTES:**

- 1 Dimension and connection may vary.
  - 2 Flange orientation may vary.
  - 3 Variable speed operation mode.
- Compass can functionally replace fixed speed as well as variable speed products.



# S&H CIRCULATORS | CROSS REFERENCE

ARMSTRONG	B&G	GRUNDFOS	TACO	PORT TO PORT LENGTH (INCHES)				MOTOR SIZE (NOMINAL HP)			
				ARMSTRONG	B&G	GRUNDFOS	TACO	ARMSTRONG	B&G	GRUNDFOS	TACO
S-25	Series 100	UP 26-64F	#110	6½	6¾	6½	6 <sup>5</sup> / <sub>16</sub>	1/12	1/12	1/12	1/12
S-35	2"	UP 50-44F	#120	8½	8½	8½	11	1/6	1/6	1/6	1/6
S-45	2½", LD3	—	#121, #122	10	10	—	11¾	¼	¼	—	¼
S-46	HD3	—	#131	10	10	—	13¾	1/3	1/3	—	1/3
S-55	PD-35	—	#132	12	12	—	13¾	1/2	1/2	—	1/2
S-57	PD-37	—	#133	12	12	—	13¾	¾	¾	—	¾
S-69	PD-38, 40	—	#138	14¼	14½	—	13¾	1	1, 1½	—	1
H-32	HV	UP 43-44	#111	8½	8½	8½	8¾	1/6	1/6	1/6	1/6
H-41	1"PR	UP 26-64F	#113	8½	8½	6½	8½	1/6	1/6	1/12	1/8
H-52	60-11	UPS 32-80	#1600	11½	11	11	10¾	¼	¼	1/2	¼
S-35	—	UPS 40-40	#1610	11½	—	13½	10¾	1/3	—	1/3	1/3
H-53	60-13	UPS 40-160	#1612	11½	11½	13½	13½	1/2	1/2	¾	1/2
H-54	60-14	UPS 50-80/2	#1632	11½	11½	11½	13½	¾	¾	¾	¾
H-63	60-15	UPS 32-160	#1612	13½	13½	13½	13½	1/2	1/2	¾	1/2
H-64	60-16	UPS 32-160	#1614	13½	13½	13½	13½	¾	¾	¾	¾
H-65	60-17	UPS 40-240	#1616	13½	13½	13½	14½	1	1	1/2	1
H-66	60-18	UPS 40-160	#1632	14	13½	11½	13½	¾	¾	¾	¾
H-67	60-19	UPS 50-160	#1634	14	14	14	13½	1	1	1/2	1
H-68	60-20	UPS 50-160	#1636	14	14	14	16½	1½	1½	1½	1½
2D 1060	60-21	UPS 50-240	—	11½	14	14	—	2	2	2	—

**Connection type:** Flanged

**NOTE:** All three-piece circulators are available in both bronze and bronze-fitted construction.

# E.2 CIRCULATORS | CROSS REFERENCE

MODELS	ARMSTRONG		B&G				GRUNDFOS	TACO			
	E.2 SERIES	CONNECTION	3-PIECE	OLD 60	NEW 60	PL	WET ROTOR	3-PIECE	WET ROTOR	1400 SERIES	
OPEN SYSTEMS	E7.2B	FLANGED, 2 BOLT	1¼"	—	—	—	PL30B	UP 26-96B	—	0011	—
	E8.2B	FLANGED, 2 BOLT	1¼"	—	—	—	—	UP 26-99B	—	0013	—
	E9.2B	FLANGED, 2 BOLT	1¼"	—	—	—	PL36B	UP 26-116B	—	—	1400-20
	E10.2B	FLANGED, 2 BOLT	1½"	HV	—	—	—	UP 43-75B	—	—	—
	E11.2B	FLANGED, 2 BOLT	1½"	—	—	—	PL45B	—	—	—	1400-30
	E12.2B	FLANGED, 2 BOLT	1¼"	—	—	—	PL55B	—	—	—	1400-50
	E13.2B	FLANGED, 2 BOLT	1½"	—	—	—	PL50B	UP 43-44B	—	—	1400-40
	E14.2B	FLANGED, 2 BOLT	1¼"	—	—	—	—	—	—	—	—
	E15.2B	FLANGED, 2 BOLT	1¼"	—	—	601B	—	—	—	—	—
	E16.2B	FLANGED, 4 BOLT	2"	2	—	—	PL75B	UPS 40-40B	120	0012	1400-60
	E17.2B	FLANGED, 2 BOLT	1¼"	—	60-11B	602B	—	UPS 32-80B	—	—	—
	E19.2B	FLANGED, 2 BOLT	1½"	—	—	—	—	—	1600	—	—
	E21.2B	FLANGED, 2 BOLT	1½"	—	—	605B	—	—	1610	—	—
	E22.2B	FLANGED, 2 BOLT	1½"	—	—	622B	—	UPS 32-160B	1614	—	—
	E23.2B	FLANGED, 2 BOLT	1½"	—	60-11B	—	—	UPS 43-110B	1612	—	—
	E24.2B	FLANGED, 2 BOLT	1½"	—	60-15B	606B	—	UPS 40-80/2B	—	—	—
	E28.2B	FLANGED, 4 BOLT	3"	2½AB/LD3AB	60-13B	—	—	—	121, 122	—	—
	E29.2B	FLANGED, 4 BOLT	3"	HD3AB	—	—	—	—	131	—	—
	E30.2B	FLANGED, 4 BOLT	2"	—	—	—	PL130B-2"	—	1630	—	—
	E30.2B	FLANGED, 4 BOLT	3"	PD-35AB	—	—	PL130B-3"	—	132	—	—
E33.2B	FLANGED, 4 BOLT	2"	—	60-14B	615B	—	UPS 50-80/2B	1632	—	1400-70	
E33.2B	FLANGED, 4 BOLT	3"	—	—	—	—	—	133	—	—	
CLOSED SYSTEMS	E7.2	FLANGED, 2 BOLT	1¼"	—	—	—	PL30	UP 26-96F	—	0011	—
	E8.2	FLANGED, 2 BOLT	1¼"	—	—	—	—	UP 26-96F	—	0013	—
	E9.2	FLANGED, 2 BOLT	1¼"	—	—	—	PL36	UP 26-116F	—	—	1400-20
	E10.2	FLANGED, 2 BOLT	1½"	HV	—	—	—	UP 43-75F	112	—	—
	E11.2	FLANGED, 2 BOLT	1½"	—	—	—	PL45	—	—	—	1400-30
	E12.2	FLANGED, 2 BOLT	1¼"	—	—	—	PL55	—	—	—	1400-50
	E13.2	FLANGED, 2 BOLT	1½"	—	—	—	PL50	UP 43-44F	—	0012	1400-40
	E14.2	FLANGED, 2 BOLT	1¼"	—	—	—	—	—	—	—	—
	E15.2	FLANGED, 2 BOLT	1¼"	—	—	—	—	—	—	—	—
	E16.2	FLANGED, 4 BOLT	2"	2	—	—	PL75	UPS 40-40	120	0012	1400-60
	E17.2	FLANGED, 2 BOLT	1¼"	—	—	—	—	UPS 32-80	—	—	—
	E19.2	FLANGED, 2 BOLT	1½"	—	—	—	—	UP 43-70	1600	—	—
	E21.2	FLANGED, 2 BOLT	1½"	—	—	—	—	—	1610	—	—
	E22.2	FLANGED, 2 BOLT	1½"	—	—	—	—	UPS 32-160	1614	—	—
	E23.2	FLANGED, 2 BOLT	1½"	—	—	—	—	UP 43-110	1612	—	—
	E24.2	FLANGED, 2 BOLT	1½"	—	—	—	—	UPS 40-80/2	—	—	—
	E24.2	FLANGED, 2 BOLT	1½"	—	—	—	—	UPS 40-80/2	—	—	—
	E28.2	FLANGED, 4 BOLT	3"	2½/LD3	—	—	—	—	121, 122	—	—
	E29.2	FLANGED, 4 BOLT	3"	HD3	—	—	—	—	131	—	—
	E30.2	FLANGED, 4 BOLT	2"	—	—	—	PL130-2"	—	1630	—	—
E30.2	FLANGED, 4 BOLT	3"	PD-35	—	—	PL130-2"	—	132	—	—	
E30.2	FLANGED, 4 BOLT	3"	PD-35	—	—	PL130-2"	—	132	—	—	
E33.2	FLANGED, 4 BOLT	2"	—	—	—	—	UPS 50-80/2	1632	—	1400-70	
E33.2	FLANGED, 4 BOLT	2"	—	—	—	—	UPS 50-80/2	1632	—	1400-70	
E33.2	FLANGED, 4 BOLT	3"	—	—	—	—	—	133	—	—	

# E.2 CIRCULATORS | CROSS REFERENCE

MODELS	PORT TO PORT LENGTH (INCHES)									
	E.2 SERIES	ARMSTRONG	B&G	ESP*	GRUNDFOS	ESP*	TACO	ESP*	S & H	ESP*
OPEN SYSTEMS	E7.2B	6 <sup>3</sup> / <sub>8</sub> "	6 <sup>3</sup> / <sub>8</sub> "	—	6 <sup>1</sup> / <sub>2</sub> "	—	6 <sup>1</sup> / <sub>2</sub> "	—	—	—
	E8.2B	6 <sup>3</sup> / <sub>8</sub> "	—	—	6 <sup>1</sup> / <sub>2</sub> "	—	6 <sup>1</sup> / <sub>2</sub> "	—	—	—
	E9.2B	6 <sup>3</sup> / <sub>8</sub> "	6 <sup>3</sup> / <sub>8</sub> "	—	6 <sup>1</sup> / <sub>2</sub> "	—	6 <sup>3</sup> / <sub>8</sub> "	—	—	—
	E10.2B	8 <sup>1</sup> / <sub>2</sub> "	8 <sup>1</sup> / <sub>2</sub> "	—	8 <sup>1</sup> / <sub>2</sub> "	—	—	—	8 <sup>1</sup> / <sub>2</sub> "	—
	E11.2B	8 <sup>1</sup> / <sub>2</sub> "	8 <sup>1</sup> / <sub>2</sub> "	—	—	—	6 <sup>1</sup> / <sub>2</sub> "	—	—	—
	E12.2B	6 <sup>3</sup> / <sub>8</sub> "	6 <sup>3</sup> / <sub>8</sub> "	—	—	—	6 <sup>3</sup> / <sub>8</sub> "	—	—	—
	E13.2B	8 <sup>1</sup> / <sub>2</sub> "	8 <sup>1</sup> / <sub>2</sub> "	—	—	—	8 <sup>1</sup> / <sub>2</sub> "	—	—	—
	E14.2B	6 <sup>3</sup> / <sub>8</sub> "	—	—	—	—	—	—	—	—
	E15.2B	8 <sup>1</sup> / <sub>2</sub> "	11"	—	—	—	—	—	11 <sup>1</sup> / <sub>2</sub> "	—
	E16.2B	8 <sup>1</sup> / <sub>2</sub> "	8 1/2"	—	13 <sup>1</sup> / <sub>2</sub> "	—	8 <sup>1</sup> / <sub>2</sub> "	—	8 <sup>1</sup> / <sub>2</sub> "	—
	E17.2B	8 <sup>1</sup> / <sub>2</sub> "	11"	—	11"	—	—	—	11 <sup>1</sup> / <sub>2</sub> "	—
	E19.2B	8 <sup>1</sup> / <sub>2</sub> "	—	—	—	—	—	—	13 <sup>1</sup> / <sub>2</sub> "	—
	E21.2B	8 <sup>1</sup> / <sub>2</sub> "	11"	—	—	—	10 <sup>1</sup> / <sub>4</sub> "	—	—	—
	E22.2B	8 <sup>1</sup> / <sub>2</sub> "	13 <sup>1</sup> / <sub>2</sub> "	—	11"	—	13 <sup>1</sup> / <sub>2</sub> "	—	—	—
	E23.2B	8 <sup>1</sup> / <sub>2</sub> "	13 <sup>1</sup> / <sub>2</sub> "	—	8 <sup>1</sup> / <sub>2</sub> "	—	13 <sup>1</sup> / <sub>2</sub> "	—	13 <sup>1</sup> / <sub>2</sub> "	—
	E24.2B	8 <sup>1</sup> / <sub>2</sub> "	11 <sup>1</sup> / <sub>2</sub> " / 11"	—	13 <sup>1</sup> / <sub>2</sub> "	—	—	—	11 <sup>1</sup> / <sub>2</sub> "	—
	E28.2B	8 <sup>1</sup> / <sub>2</sub> "	10"	—	—	—	11 <sup>1</sup> / <sub>8</sub> "	—	10"	—
	E29.2B	8 <sup>1</sup> / <sub>2</sub> "	10"	—	—	—	13 <sup>3</sup> / <sub>8</sub> "	—	10"	—
	E30.2B	8 <sup>1</sup> / <sub>2</sub> "	8 <sup>1</sup> / <sub>2</sub> "	—	—	—	13 <sup>1</sup> / <sub>2</sub> "	—	—	—
	E30.2B	8 <sup>1</sup> / <sub>2</sub> "	12" / 8 <sup>1</sup> / <sub>2</sub> "	—	—	—	13 <sup>3</sup> / <sub>8</sub> "	—	12"	—
E33.2B	8 <sup>1</sup> / <sub>2</sub> "	11 <sup>1</sup> / <sub>2</sub> " / 13 <sup>1</sup> / <sub>2</sub> "	—	14"	—	8 <sup>1</sup> / <sub>2</sub> "	—	11 <sup>1</sup> / <sub>2</sub> "	—	
E33.2B	8 <sup>1</sup> / <sub>2</sub> "	—	—	—	—	13 <sup>3</sup> / <sub>8</sub> "	—	—	—	
CLOSED SYSTEMS	E7.2	6 <sup>3</sup> / <sub>8</sub> "	6 <sup>3</sup> / <sub>8</sub> "	—	6 <sup>1</sup> / <sub>2</sub> "	—	6 <sup>1</sup> / <sub>2</sub> "	—	—	—
	E8.2	6 <sup>3</sup> / <sub>8</sub> "	—	—	6 <sup>1</sup> / <sub>2</sub> "	—	6 <sup>1</sup> / <sub>2</sub> "	—	—	—
	E9.2	6 <sup>3</sup> / <sub>8</sub> "	6 <sup>3</sup> / <sub>8</sub> "	—	6 <sup>1</sup> / <sub>2</sub> "	—	6 <sup>3</sup> / <sub>8</sub> "	—	—	—
	E10.2	8 <sup>1</sup> / <sub>2</sub> "	8 <sup>1</sup> / <sub>2</sub> "	—	8 <sup>1</sup> / <sub>2</sub> "	—	—	—	8 <sup>1</sup> / <sub>2</sub> "	—
	E11.2	8 <sup>1</sup> / <sub>2</sub> "	8 <sup>1</sup> / <sub>2</sub> "	—	—	—	8 <sup>1</sup> / <sub>2</sub> "	—	—	—
	E12.2	6 <sup>3</sup> / <sub>8</sub> "	6 <sup>3</sup> / <sub>8</sub> "	—	—	—	6 <sup>3</sup> / <sub>8</sub> "	—	—	—
	E13.2	8 <sup>1</sup> / <sub>2</sub> "	8 <sup>1</sup> / <sub>2</sub> "	—	—	—	8 <sup>1</sup> / <sub>2</sub> "	—	—	—
	E14.2	6 <sup>3</sup> / <sub>8</sub> "	—	—	—	—	—	—	—	—
	E15.2	8 <sup>1</sup> / <sub>2</sub> "	11"	ESP-2	—	—	—	—	11 <sup>1</sup> / <sub>2</sub> "	ESP-1
	E16.2	8 <sup>1</sup> / <sub>2</sub> "	8 <sup>1</sup> / <sub>2</sub> "	—	13 <sup>1</sup> / <sub>2</sub> "	—	8 <sup>1</sup> / <sub>2</sub> "	—	8 <sup>1</sup> / <sub>2</sub> "	—
	E17.2	8 <sup>1</sup> / <sub>2</sub> "	11"	ESP-2	11"	ESP-2	—	—	11 <sup>1</sup> / <sub>2</sub> "	ESP-1
	E19.2	8 <sup>1</sup> / <sub>2</sub> "	11 <sup>1</sup> / <sub>2</sub> "	ESP-4	8 <sup>1</sup> / <sub>2</sub> "	—	10 <sup>1</sup> / <sub>4</sub> "	—	13 <sup>1</sup> / <sub>2</sub> "	—
	E21.2	8 <sup>1</sup> / <sub>2</sub> "	11"	ESP-2	—	—	10 <sup>1</sup> / <sub>4</sub> "	—	—	—
	E22.2	8 <sup>1</sup> / <sub>2</sub> "	13 <sup>1</sup> / <sub>2</sub> "	ESP-5	11"	ESP-11	13 <sup>1</sup> / <sub>2</sub> "	—	—	—
	E23.2	8 <sup>1</sup> / <sub>2</sub> "	13 <sup>1</sup> / <sub>2</sub> "	ESP-5	8 <sup>1</sup> / <sub>2</sub> "	—	13 <sup>1</sup> / <sub>2</sub> "	—	13 <sup>1</sup> / <sub>2</sub> "	ESP-5
	E24.2	8 <sup>1</sup> / <sub>2</sub> "	11 <sup>1</sup> / <sub>2</sub> "	ESP-4	13 <sup>1</sup> / <sub>2</sub> "	ESP-5	—	—	11 <sup>1</sup> / <sub>2</sub> "	ESP-4
	E24.2	8 <sup>1</sup> / <sub>2</sub> "	11"	ESP-11	13 <sup>1</sup> / <sub>2</sub> "	ESP-5	—	—	11 <sup>1</sup> / <sub>2</sub> "	ESP-4
	E28.2	8 <sup>1</sup> / <sub>2</sub> "	10"	ESP-6	—	—	11 <sup>1</sup> / <sub>8</sub> "	ESP-7	10"	ESP-6
	E29.2	8 <sup>1</sup> / <sub>2</sub> "	10"	ESP-6	—	—	13 <sup>3</sup> / <sub>8</sub> "	ESP-9	10"	ESP-6
	E30.2	8 <sup>1</sup> / <sub>2</sub> "	8 <sup>1</sup> / <sub>2</sub> "	—	—	—	13 <sup>1</sup> / <sub>2</sub> "	—	—	—
E30.2	8 <sup>1</sup> / <sub>2</sub> "	12"	ESP-8	—	—	13 <sup>3</sup> / <sub>8</sub> "	ESP-9	12"	ESP-8	
E30.2	8 <sup>1</sup> / <sub>2</sub> "	8 <sup>1</sup> / <sub>2</sub> "	ESP-8	—	—	13 <sup>3</sup> / <sub>8</sub> "	ESP-9	12"	ESP-8	
E33.2	8 <sup>1</sup> / <sub>2</sub> "	11 <sup>1</sup> / <sub>2</sub> "	ESP-12	11 <sup>1</sup> / <sub>2</sub> "	ESP-12	8 <sup>1</sup> / <sub>2</sub> "	—	11 <sup>1</sup> / <sub>2</sub> "	ESP-12	
E33.2	8 <sup>1</sup> / <sub>2</sub> "	13 <sup>1</sup> / <sub>2</sub> "	ESP-10	11 <sup>1</sup> / <sub>2</sub> "	ESP-12	8 <sup>1</sup> / <sub>2</sub> "	—	11 <sup>1</sup> / <sub>2</sub> "	ESP-12	
E33.2	8 <sup>1</sup> / <sub>2</sub> "	—	—	—	—	13 <sup>3</sup> / <sub>8</sub> "	ESP-9	—	—	

**NOTE:** \* Use the listed spool piece models (ESP) to match E.2 series circulator port to port dimensions for a faster cleaner, pre-painted installation.

# ASTRO 2 CIRCULATORS | CROSS REFERENCE

MODELS	ARMSTRONG	SPEED	B & G	GRUNDFOS	WILO	TACO
ASTRO 220SSU	1	—	—	—	—	—
	2	—	—	UP 15-10 BUC <sup>5</sup> , UP 15-10 B5 <sup>4</sup> , UP 15-10 B7 <sup>5</sup>	STAR 3 BS 5 <sup>4</sup> , STAR 3 BS 7 <sup>5</sup>	003-BC4-1, 003-B4-2-IFC, 003-BC4 <sup>4</sup> , 003-B4 <sup>5</sup> , 003-SC4-1/FC, 003-BC4-1-1FC <sup>4</sup> , 003-BC4-1FC <sup>5</sup>
	3	—	—	UP 15-10 BUC7 <sup>5</sup>	STAR 5 BU	—
ASTRO 225SSU	1	—	NBF-9U/LW, SSF-9U/LW, NBF-18S <sup>4</sup>	UPS 15-35SUC <sup>(S2)</sup>	—	—
	2	—	—	UP 15-29SU	—	006-BC4-1, 006-B7-IFC, 006-SC4-1, 006-SC7-1FC
	3	—	NBF-12U/LW, SSF-12U/LW	UP 15-35SUC, UPS 15-35SUC <sup>(S3)</sup> , UP 15-18BUC 5/7 <sup>1</sup>	STAR 11 BU	—
ASTRO 230SS	1	—	—	UPS 15-35SFC <sup>(S2)</sup> , UP 15-18SF <sup>2</sup>	STAR S 16BFX <sup>(S1)</sup>	005-BF2/-1-IFC, 005-SF2/-IFC
	2	—	NBF-12F/LW	UPS 15-35SFC <sup>(S2)</sup>	STAR S 16BFX <sup>(S2)</sup>	007-BF5/-1-IFC, 007-SF5/-IFC, 008-BC6, 008-BC6-IFC <sup>2</sup> , 008-SF6/-IFC
	3	—	SSF-22, NBF-22	UP 15-42SF <sup>2</sup> , UP 25-64SF <sup>2</sup>	STAR S 16BFX <sup>(S3)</sup> , STAR 16BFX	00R/0015-SF6-IFC, 00R/0015-SF6-1-IFC
ASTRO 250SS	1	—	NBF-25 <sup>(S1)</sup>	UPS 15-55SFC <sup>(S1)</sup>	STAR S 21BFX <sup>(S1)</sup>	—
	2	—	NBF-25 <sup>(S2)</sup>	UPS 15-55SFC <sup>(S2)</sup>	STAR S 21BFX <sup>(S2)</sup>	—
	3	—	NBF-25 <sup>(S3)</sup>	UPS 15-55SFC <sup>(S3)</sup>	STAR S 21BFX <sup>(S3)</sup> , STAR 21BFX	—
ASTRO 280SS	1	—	LR-15BWR <sup>2</sup>	UPS 26-99BFC <sup>(S1)</sup>	—	—
	2	—	SERIES PR B <sup>2</sup> (8.5"), PL-30B, NBF-36 <sup>(S1)</sup> , NBF-45 <sup>(S1)</sup> , SERIES 100	UPS 26-99BFC <sup>(S2)</sup> , UP 26-96BF	STAR 30BU <sup>1</sup>	0011-BF4-4 IFC, 0011-SF4 IFC, 0011-SF4, 0014-BFI-1 IFC, 0014-SFI-IFC, 0014-SFI, 113B (8.5")
	3	—	NBF-36 <sup>(S2)</sup> , NBF-45 <sup>(S2)</sup>	UP 26-99BF, UPS 26-99BFC <sup>(S3)</sup>	—	0013-BF3, 0013-SF3, 0013-SF3-IFC, 1400-10B
ASTRO 280SS 230V	1	—	—	UPS 26-99BFC <sup>(S1)</sup>	—	—
	2	—	—	UPS 26-99BFC <sup>(S2)</sup> , UP 26-96BF	—	0011-BF4-4 IFC, 0011-SF4-IFC, 0011-SF4, 0014-BFI-1 IFC, 0014-SFI-IFC, 0014-SFI
	3	—	—	UP 26-99BF, UPS 26-99BFC <sup>(S3)</sup>	—	—
ASTRO 286SS	—	—	NBF-45 <sup>(S3)</sup> , PL-36B	UP 26-116BF	PL-36B	0013-BF3, 0013-SF3, 0013-SF3-IFC, 112B
ASTRO 210SS	1	—	—	—	—	—
	2	—	LR-15BWR <sup>(S2)</sup>	—	—	0010-BF3/SF3(-IFC)
	3	—	NBF-33	—	—	—
ASTRO 290SS	1	—	—	UPS 43-44BFC <sup>(S1)</sup>	—	—
	2	—	—	UPS 43-44BFC <sup>(S2)</sup>	—	111B <sup>2</sup>
	3	—	SERIES HV B <sup>2</sup>	UPS 43-44BFC <sup>(S3)</sup> , UP 43-44BF	TOP-Z 1.5X15 <sup>2</sup>	0012-BF4-IFC, 0012-SF4-IFC, 111B (8.75"), 113B

STAINLESS STEEL

# ASTRO 2 CIRCULATORS | CROSS REFERENCE

MODELS	ARMSTRONG	SPEED	B & G	GRUNDFOS	WILO	TACO
LEAD-FREE BRONZE	ASTRO 225BS ½" SWT	1	NBF-8S/LW	—	—	—
		2	—	—	—	—
		3	NBF-10S/LW	UP 15-18B5	STAR 8 BS 5	006-BC4, 006-BC7-1 IFC
	ASTRO 225BS ¾" SWT	1	—	—	—	—
		2	—	—	—	—
		3	—	UP 15-18B7	STAR 8 BS 7	006-B4, 006-BC7-IFC
ASTRO 230CI	1	NRF-9F/LW	UPS 15-42FR <sup>(S1)</sup> , UPS 15-58FRC <sup>(S1)</sup> , UP 15-10FR	STAR S 16FX <sup>(S1)</sup>	005-F2, 005-F2-2-IFC	
	2	—	UPS 15-42FR <sup>(S2)</sup> , UPS 15-58FRC <sup>(S2)</sup>	STAR S 16FX <sup>(S2)</sup>	007-F5/-7-IFC, 008-F6	
	3	NRF-22	UP 15-42FR, UPS 15-42FR <sup>(S3)</sup> , UPS 15-58FRC <sup>(S3)</sup>	STAR S 16FX <sup>(S3)</sup> , STAR 16FX	—	
ASTRO 230CI-R	1	—	UPS 15-42F <sup>(S1)</sup> , UPS 15-58FC <sup>(S1)</sup> , UP 15-10F	STAR S 16F <sup>(S1)</sup>	005-F2-3-IFC, 006-F4, 006-F7-IFC	
	2	—	UPS 15-42F <sup>(S2)</sup> , UPS 15-58FC <sup>(S2)</sup>	STAR S 16F <sup>(S2)</sup>	007-F5-5/-8-IFC, 008-F6-1-IFC, 00R/0015-F6I IFC	
	3	—	UP 15-42F, UPS 15-42F <sup>(S3)</sup> , UPS 15-58FC <sup>(S3)</sup>	STAR S 16F <sup>(S3)</sup> , STAR 16F	00R-F6-1-IFC	
ASTRO 250CI	1	—	—	STAR S 21FX <sup>(S1)</sup>	00R/0015-MSFI-IFC <sup>(S1)</sup>	
	2	—	—	STAR S 21FX <sup>(S2)</sup>	00R/0015-MSFI-IFC <sup>(S2)</sup>	
	3	—	—	STAR S 21FX <sup>(S3)</sup> , STAR 21FX	00R/0015-MSFI-IFC <sup>(S3)</sup>	
ASTRO 250CI-R	1	NRF-25 <sup>(S1)</sup>	—	STAR S 21F <sup>(S1)</sup>	00R/0015-MSFI-I IFC <sup>(S1)</sup>	
	2	NRF-25 <sup>(S2)</sup>	—	STAR S 21F <sup>(S2)</sup>	00R/0015-MSFI-I IFC <sup>(S2)</sup>	
	3	NRF-25 <sup>(S3)</sup> , NRF-36 <sup>(S1)</sup>	—	STAR S 21F <sup>(S3)</sup> , STAR 21F	00R/0015-MSFI-I IFC <sup>(S3)</sup>	
ASTRO 280CI	1	LR-20WR	UPS 26-99FC <sup>(S1)</sup>	—	—	
	2	100 <sup>2</sup> , PL-30, PR <sup>2</sup> (8.5"), NRF-36 <sup>2</sup> <sup>(S1)</sup> , NRF-45 <sup>2</sup> <sup>(S1)</sup>	UPS 26-99FC <sup>(S2)</sup> , UP 26-64F, UP 26-96F	STAR 30F, TOP-S 1.25x15	0011-F4-2 IFC, 0011-F4, 0014-FI-1 IFC, 0014-FI, 113 <sup>2</sup> (8.5")	
	3	NRF-36 <sup>2</sup> <sup>(S2)</sup> , NRF-45 <sup>2</sup> <sup>(S2)</sup>	UP 26-99F, UPS 26-99FC <sup>(S3)</sup>	TOP-S 1.25x25	0013-F3, 0013-F3-1 IFC, 1400-10	
ASTRO 280CI 230V	1	—	UPS 26-99FC <sup>(S1)</sup>	—	—	
	2	—	UPS 26-99FC <sup>(S2)</sup> , UP 26-64F, UP 26-96F	TOP-S 1.25x15	0011-F4-2 IFC, 0011-F4, 0014-FI-1 IFC, 0014-FI	
	3	—	UPS 26-99FC <sup>(S3)</sup>	TOP-S 1.25x25	—	
ASTRO 286CI	—	NRF-45 <sup>(S3)2</sup> , PL-36	UP 26-116F	—	0013-F3, 0013-F3-1 IFC, 112 <sup>2</sup>	
ASTRO 210CI	1	—	—	—	—	
	2	LR-20WR <sup>2</sup>	—	—	0010-MSF1-IFC <sup>(S2)</sup> , 0010-F3(-IFC)	
	3	NRF-33	—	—	0010-MSF1-IFC <sup>(S3)</sup> , 110	
ASTRO 290CI	1	—	UPS 43-44FC <sup>(S1)</sup>	—	—	
	2	HV <sup>2</sup>	UPS 43-44FC <sup>(S2)</sup>	—	111 <sup>2</sup>	
	3	—	UPS 43-44FC <sup>(S3)</sup> , UP 43-44F	STAR 17FX <sup>2</sup>	0012-F4-IFC, 0012-F4, 120 <sup>2</sup> (11")	

NOTE: <sup>1</sup> Dimension and connection may vary.      <sup>(S1)</sup> Speed 1.  
<sup>2</sup> Flange orientation may vary.                      <sup>(S2)</sup> Speed 2.  
<sup>3</sup> Supply voltage may vary.                            <sup>(S3)</sup> Speed 3.  
<sup>4</sup> Connection with ½" sweat adaptor(s).  
<sup>5</sup> Connection with ¾" sweat adaptor(s).

# DESIGN ENVELOPE | CROSS REFERENCE

## ARMSTRONG DESIGN ENVELOPE VIL PUMPS VS. TACO VIL PUMPS

ARMSTRONG DESIGN ENVELOPE VIL PUMPS					TACO VIL				
SERIES	MODEL#	PORT-TO-PORT LENGTH (IN)	SIZE (IN)	HP	SERIES	MODEL#	PORT-TO-PORT LENGTH (IN)	SIZE (IN)	HP
DE 4380	1503-001.0	9.96	1.50	1	KV	—	—	1.50	1
	1503-001.5	9.96	1.50	1.5	KV	1506	15.00	1.50	1.5
						1507	16.00		
DE 4380/ DE 4300	0205-001.5	13.14	2.00	1.5	KV/KS	2006	15.50	2.00	1.5
						2007	17.00		
						2009	19.00		
						2011	21.35		
	0205-002.0	13.14	2.00	2	KV/KS	2006	15.50	2.00	2
						2007	17.00		
						2009	19.00		
						2011	21.35		
	0205-003.0	13.14	2.00	3	KV/KS	2006	15.50	2.00	3
						2007	17.00		
						2009	19.00		
						2011	21.35		
	0205-005.0	13.14	2.00	5	KV/KS	2006	15.50	2.00	5
						2007	17.00		
						2009	19.00		
						2011	21.35		
	0205-007.5	13.14	2.00	7.5	KV/KS	2006	15.50	2.00	7.5
						2007	17.00		
						2009	19.00		
						2011	21.35		
	0205-010.0	13.14	2.00	10	KV/KS	2006	15.50	2.00	10
						2007	17.00		
						2009	19.00		
						2011	21.35		
2505-001.5	15.43	2.50	1.5	KV/KS	—	—	2.50	1.5	
2505-002.0	15.43	2.50	2	KV/KS	—	—	2.50	2	
2505-003.0	15.43	2.50	3	KV/KS	—	—	2.50	3	
0305-003.0	17.40	3.00	3	KV/KS	3006	18.50	3.00	3	
					3007	20.00			
					3009	21.00			
					3011	24.50			
0305-005.0	17.40	3.00	5	KV/KS	3006	18.50	3.00	5	
					3007	20.00			
					3009	21.00			
					3011	24.50			

NOTE: Please consult Armstrong Representative to verify Hydraulics.

# DESIGN ENVELOPE | CROSS REFERENCE

## ARMSTRONG DESIGN ENVELOPE VIL PUMPS VS. TACO VIL PUMPS

ARMSTRONG DESIGN ENVELOPE VIL PUMPS					TACO VIL				
SERIES	MODEL#	PORT-TO-PORT LENGTH (IN)	SIZE (IN)	HP	SERIES	MODEL#	PORT-TO-PORT LENGTH (IN)	SIZE (IN)	HP
DE 4380/ DE 4300	0305-007.5	17.40	3.00	7.5	KV/KS	3006	18.50	3.00	7.5
						3007	20.00		
						3009	21.00		
						3011	24.50		
	0305-010.0	17.40	3.00	10	KV/KS	3006	18.50	3.00	10
						3007	20.00		
						3009	21.00		
						3011	24.50		

**NOTE:** Please consult Armstrong Representative to verify Hydraulics.

## ARMSTRONG DESIGN ENVELOPE VIL PUMPS VS. WILO VIL PUMPS

ARMSTRONG DESIGN ENVELOPE VIL PUMPS					WILO VIL					
SERIES	MODEL#	PORT-TO-PORT LENGTH (IN)	SIZE (IN)	HP	SERIES	MODEL#	PORT-TO-PORT LENGTH (IN)	SIZE (IN)	HP	
DE 4380	1503-001.0	9.96	1.50	1	Stratos	GIGA 1.5x3 - 80/105/125/145/165	11.50	1.50	up to approx 5.8	
	1503-001.5	9.96	1.50	1.5			11.50	1.50		
DE 4380/ DE 4300	0205-001.5	13.14	2.00	1.5	Stratos	GIGA 2x3 - 120/140/160	12.00	2.00	up to approx 5.8	
	0205-002.0	13.14	2.00	2			12.00	2.00		
	0205-003.0	13.14	2.00	3			12.00	2.00		
	0205-005.0	13.14	2.00	5			12.00	2.00		
	0205-007.5	13.14	2.00	7.5			12.00	2.00		
	0205-010.0	13.14	2.00	10			12.00	2.00		
	2505-001.5	15.43	2.50	1.5		GIGA 2.5x3 - 70/87	15.00	2.50	up to approx 3.9	
	2505-002.0	15.43	2.50	2			15.00	2.50		
	2505-003.0	15.43	2.50	3			15.00	2.50		
	0305-003.0	17.40	3.00	3		—	—	—	—	—
	0305-005.0	17.40	3.00	5		—	—	—	—	—
	0305-007.5	17.40	3.00	7.5		—	—	—	—	—
0305-010.0	17.40	3.00	10	—	—	—	—	—		

**NOTE:** Please consult Armstrong Representative to verify Hydraulics.



# DESIGN ENVELOPE | CROSS REFERENCE

## ARMSTRONG DESIGN ENVELOPE VIL PUMPS VS. XYLEM VIL PUMPS

ARMSTRONG DESIGN ENVELOPE VIL PUMPS					XYLEM VIL					
SERIES	MODEL#	PORT-TO-PORT LENGTH (IN)	SIZE (IN)	HP	SERIES	MODEL#	PORT-TO-PORT LENGTH (IN)	SIZE (IN)	HP	
DE 4380	1503-001.0	9.96	1.50	1	80-IT	1.5×1.5×7	16.00	1.50	up to 143/145	
						1.5×1.5×9	19.00			
	1503-001.5	9.96	1.50	1.5	80-IT	1.5×1.5×7	16.00	1.50		
						1.5×1.5×9	19.00			
DE 4380/ DE 4300	0205-001.5	13.14	2.00	1.5	80-IT/80-ITSC	2×2×7	17.00	2.00	up to 213/215	
						2×2×9	20.00			
	0205-002.0	13.14	2.00	2	80-IT/80-ITSC	2×2×7	17.00	2.00		
						2×2×9	20.00			
	0205-003.0	13.14	2.00	3	80-IT/80-ITSC	2×2×7	17.00	2.00		
						2×2×9	20.00			
	0205-005.0	13.14	2.00	5	80-IT/80-ITSC	2×2×7	17.00	2.00		
						2×2×9	20.00			
	0205-007.5	13.14	2.00	7.5	80-IT/80-ITSC	2×2×7	17.00	2.00		
						2×2×9	20.00			
	0205-010.0	13.14	2.00	10	80-IT/80-ITSC	2×2×7	17.00	2.00		
						2×2×9	20.00			
	2505-001.5	15.43	2.50	1.5	80-IT/80-ITSC	2.5×2.5×7	18.00	2.50		up to 182/184
						2.5×2.5×9	21.50			
2505-002.0	15.43	2.50	2	80-IT/80-ITSC	2.5×2.5×7	18.00	2.50			
					2.5×2.5×9	21.50				
2505-003.0	15.43	2.50	3	80-IT/80-ITSC	2.5×2.5×7	18.00	2.50			
					2.5×2.5×9	21.50				
0305-003.0	17.40	3.00	3	80-IT/80-ITSC	3×3×7	19.00	3.00	up to 213/215		
					3×3×9	23.00				
0305-005.0	17.40	3.00	5	80-IT/80-ITSC	3×3×7	19.00	3.00			
					3×3×9	23.00				
0305-007.5	17.40	3.00	7.5	80-IT/80-ITSC	3×3×7	19.00	3.00			
					3×3×9	23.00				
0305-010.0	17.40	3.00	10	80-IT/80-ITSC	3×3×7	19.00	3.00			
					3×3×9	23.00				

**NOTE:** Please consult Armstrong Representative to verify Hydraulics.

# DESIGN ENVELOPE 4380/4300 VIL | INTERCHANGEABILITY CHART

## ARMSTRONG DESIGN ENVELOPE VIL PUMPS

SERIES	MODEL#	PORT-TO-PORT LENGTH (IN)	SIZE (IN)	HP	SERIES	MODEL#	PORT-TO-PORT LENGTH (IN)	SIZE (IN)	HP
DE 4380	1503-001.0	9.96	1.50	1	4380	1.5×1.5×6	14.25	1.50	1
						1.5×1.5×8	16.00		
	1503-001.5	9.96	1.50	1.5	4380	1.5×1.5×6	14.25	1.50	1.5
						1.5×1.5×8	16.00		
DE 4380/ DE 4300	0205-001.5	13.14	2.00	1.5	4380/4300	2×2×6	15.00	2.00	1.5
						2×2×8	18.00		
						2×2×10	19.00		
	0205-002.0	13.14	2.00	2	4380/4300	2×2×6	15.00	2.00	2
						2×2×8	18.00		
						2×2×10	19.00		
	0205-003.0	13.14	2.00	3	4380/4300	2×2×6	15.00	2.00	3
						2×2×8	18.00		
						2×2×10	19.00		
	0205-005.0	13.14	2.00	5	4380/4300	2×2×6	15.00	2.00	5
						2×2×8	18.00		
						2×2×10	19.00		
	0205-007.5	13.14	2.00	7.5	4380/4300	2×2×6	15.00	2.00	7.5
						2×2×8	18.00		
						2×2×10	19.00		
	0205-010.0	13.14	2.00	10	4380/4300	2×2×6	15.00	2.00	10
						2×2×8	18.00		
						2×2×10	19.00		
	2505-001.5	15.43	2.50	1.5	4380/4300	—	—	2.50	1.5
	2505-002.0	15.43	2.50	2	4380/4300	—	—	2.50	2
	2505-003.0	15.43	2.50	3	4380/4300	—	—	2.50	3
	0305-003.0	17.40	3.00	3	4380/4300	3×3×6	18.00	3.00	3
						3×3×8	22.00		
						3×3×10	21.00		
0305-005.0	17.40	3.00	5	4380/4300	3×3×6	18.00	3.00	5	
					3×3×8	22.00			
					3×3×10	21.00			
0305-007.5	17.40	3.00	7.5	4380/4300	3×3×6	18.00	3.00	7.5	
					3×3×8	22.00			
					3×3×10	21.00			
0305-010.0	17.40	3.00	10	4380/4300	3×3×6	18.00	3.00	10	
					3×3×8	22.00			
					3×3×10	21.00			

**NOTE:** Please consult Armstrong Representative to verify Hydraulics.

# DESIGN ENVELOPE 4372/4322 TANGO | INTERCHANGEABILITY CHART

## ARMSTRONG DESIGN ENVELOPE TANGO PUMPS

SERIES	MODEL#	PORT-TO-PORT LENGTH (IN)	SIZE (IN)	HP	SERIES	MODEL#	PORT-TO-PORT LENGTH (IN)	SIZE (IN)	HP
DE 4372	1503-001.0	9.96	1.50	1	4392	—	—	1.50	1
	1503-001.5	9.96	1.50	1.5	4392	—	—	1.50	1.5
DE 4372/ DE 4322	0205-001.5	13.14	2.00	1.5	4392/4312	2×2×6	12.99	2.00	1.5
						2×2×8	15.75		
						2×2×10	17.32		
	0205-002.0	13.14	2.00	2	4392/4312	2×2×6	12.99	2.00	2
						2×2×8	15.75		
						2×2×10	17.32		
	0205-003.0	13.14	2.00	3	4392/4312	2×2×6	12.99	2.00	3
						2×2×8	15.75		
						2×2×10	17.32		
	0205-005.0	13.14	2.00	5	4392/4312	2×2×6	12.99	2.00	5
						2×2×8	15.75		
						2×2×10	17.32		
	0205-007.5	13.14	2.00	7.5	4392/4312	2×2×6	12.99	2.00	7.5
						2×2×8	15.75		
						2×2×10	17.32		
	0205-010.0	13.14	2.00	10	4392/4312	2×2×6	12.99	2.00	10
						2×2×8	15.75		
						2×2×10	17.32		
	2505-001.5	15.43	2.50	1.5	4392/4312	—	—	2.50	1.5
	2505-002.0	15.43	2.50	2	4392/4312	—	—	2.50	2
	2505-003.0	15.43	2.50	3	4392/4312	—	—	2.50	3
	0305-003.0	17.40	3.00	3	4392/4312	3×3×6	14.96	3.00	3
						3×3×8	15.75		
						3×3×10	19.69		
0305-005.0	17.40	3.00	5	4392/4312	3×3×6	14.96	3.00	5	
					3×3×8	15.75			
					3×3×10	19.69			
0305-007.5	17.40	3.00	7.5	4392/4312	3×3×6	14.96	3.00	7.5	
					3×3×8	15.75			
					3×3×10	19.69			
0305-010.0	17.40	3.00	10	4392/4312	3×3×6	14.96	3.00	10	
					3×3×8	15.75			
					3×3×10	19.69			

**NOTE:** Please consult Armstrong Representative to verify Hydraulics.



# PRODUCT SOLUTION OUTLINES/BROCHURES

## BROCHURES

FILE NUMBERS	TITLE	DESCRIPTION
10.10	Series S&H	In-Line Circulators
10.11	Series 1050 & 1060	Custom In-Line Circulators
10.115	Genuine Replacement Parts	Gold Series - Pump Less Volute Kit
10.12	Astro Series	Wet Rotor Circulators
10.121	Astro Series	Hot Water Re-circulation Systems
10.123	Astro Series	Three Speed Wet Rotor Circulators
10.125	Astro 2 Series	3- Speed Wet-Rotor Circulators
10.14	S B A	Seal Bearing Assemblies for S & H Series Circulators
10.16	Series E	ARM flo Circulators
10.161	Spool Pieces	ARMflo E Series Spool Pieces
10.19	Compass	Design Envelope Variable Speed Wet Rotor Circulator
10.315	Astro Express	Hot Water Re-circulation System
11.10	Hydronic Catalog	Relief & Reducing Valves
11.14	Series AV	Automatic Air Vents
11.15	Series CIF	Circulator Isolation Flanges
11.16	Flex Flange Kits	Flex Flange Kits
36.11	CBV	Circuit Balancing Valves
36.15	Series DPM	Differential Pressure Manometer
36.16	Series KNX	Configured Hydronic Hook-Up Kits
37.10	Series AX and L	Expansion Tanks
37.15	Vortex Air Separators	Vortex Air Separators
42.10	Series 4270	Motor Mounted Centrifugal Pumps

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Product Series 1050

Change required to Mounting orientation text.

**TORONTO**

23 BERTRAND AVENUE  
TORONTO, ONTARIO  
CANADA, M1L 2P3  
+1 416 755 2291

**BUFFALO**

93 EAST AVENUE  
NORTH TONAWANDA, NEW YORK  
U.S.A., 14120-6594  
+1 716 693 8813

**BIRMINGHAM**

HEYWOOD WHARF, MUCKLOW HILL  
HALESOWEN, WEST MIDLANDS  
UNITED KINGDOM, B62 8DJ  
+44 (0) 8444 145 145

**MANCHESTER**

WOLVERTON STREET  
MANCHESTER  
UNITED KINGDOM, M11 2ET  
+44 (0) 8444 145 145

**BANGALORE**

#59, FIRST FLOOR, 3RD MAIN  
MARGOSA ROAD, MALLESWARAM  
BANGALORE, INDIA, 560 003  
+91 (0) 80 4906 3555

**SHANGHAI**

UNIT 903, 888 NORTH SICHUAN RD.  
HONGKOU DISTRICT, SHANGHAI  
CHINA, 200085  
+86 (0) 21 5237 0909

**SÃO PAULO**

RUA JOSÉ SEMIÃO RODRIGUES AGOSTINHO,  
1370 GALPÃO 6 EMBU DAS ARTES  
SAO PAULO, BRAZIL  
+55 11 4785 1330

**LYON**

93 RUE DE LA VILLETTE  
LYON, 69003 FRANCE  
+33 (0) 420 102 625

**DUBAI**

LOB16, #611, JAFZA  
P.O. BOX 18226  
DUBAI - UNITED ARAB EMIRATES  
+971 4 887 6775

**MANNHEIM**

DYNAMOSTRASSE 13  
68165 MANNHEIM  
GERMANY  
+49 (0) 621 3999 9858

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