

# ARMSTRONG



NSF  $\leq$  0.25% Lead

## 3-Speed Wet-Rotor Circulators

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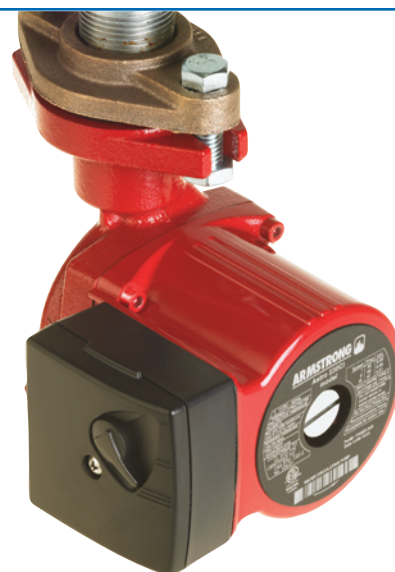
Armstrong Astro 2 3-speed circulators provide unmatched performance over a wide range of head and flow requirements. The 3-speed design allows users to match the requirements of an installation exactly, and also helps with:

**Reduced Inventory** – the complete range of 10 Astro 2 3-speed circulators replaces 93 models of competitors' pumps

**Adaptability** – After a circulator is installed you might need to change the performance to accommodate:

- Over/under estimated system resistance in the original design
- Increased number of zones due to a building addition
- Addition of system elements such as an indirect hot water tank or spa

With Astro 2 3-speed units installed you can easily change the operating speed to handle these changed performance requirements.



MODELS	ARMSTRONG	SPEED	B & G	GRUNDFOS	WILO	TACO	
STAINLESS STEEL	ASTRO 220SSU	1					
		2		UP 15-10 BUC5 <sup>①</sup> , UP 15-10 B5 <sup>②</sup> , UP 15-10 B7 <sup>③</sup>	STAR 3 BS 5 <sup>④</sup> , STAR 3 BS 7 <sup>⑤</sup>	003-BC4-I, 003-B4-2-IFC, 003-BC4 <sup>⑥</sup> , 003-B4 <sup>⑦</sup>	
		3		UP 15-10 F/FR <sup>⑧</sup> , UP 15-10 BUC7 <sup>⑨</sup>	STAR 5 BU		
	ASTRO 225SSU	1	NBF-9U/LW, SSF - 9U/LW, NBF-18S <sup>⑩</sup>		UPS 15-35SUC S2		
		2			UP 15-29SU		006-BC4-I, 006-B7-IFC
		3	NBF - 12U/LW, SSF - 12U/LW		UP 15-35SUC, UPS 15-35SUC S3, UP 15-18BUC 5/7 <sup>⑪</sup>	STAR 11 BU	
	ASTRO 230SS	1			UPS 15-35SFC S2 <sup>⑫</sup> , UP 15-18SF <sup>⑬</sup>	STAR S 16BFX S1	005-BF2/-I-IFC, 005-SF2/-IFC
		2	NBF-12F/LW		UPS 15-35SFC S3 <sup>⑭</sup>	STAR S 16BFX S2	007-BF5/-I-IFC, 007-SF5/-IFC, 008-BC6, 008-BC6-IFC <sup>⑮</sup> , 008-SF6/-IFC
		3	SSF-22, NBF-22		UP 15 -42SF <sup>⑯</sup> , UP 15-64SF <sup>⑰</sup>	STAR S 16BFX S3, STAR 16BFX	00R-SF6-IFC
	ASTRO 250SS	1	NBF-25 S1		UPS 15-55SFC S1 <sup>⑱</sup>	STAR S 21BFX S1	
		2	NBF-25 S2		UPS 15-55SFC S2 <sup>⑲</sup>	STAR S 21BFX S2	
		3	NBF-25 S3		UPS 15-55SFC S3 <sup>⑳</sup>	STAR S 21BFX S3, STAR 21BFX	
	LEAD FREE BRONZE	ASTRO 225BS ½" SWT	1	NBF - 8S/LW			
			2				
			3	NBF - 10S/LW		UP 15-18B5	STAR 8 BS 5
ASTRO 225BS ¾" SWT		1					
		2					
		3			UP 15-18B7	STAR 8 BS 7	006-B4
CAST IRON	ASTRO 230CI	1	NRF-9F/LW	UPS 15-42FR S1, UPS 15-58FRC S1, UP 15-10FR	STAR S 16FX S1	005-F2, 005-F2-2-IFC	
		2		UPS 15-42FR S2, UPS 15-58FRC S2	STAR S 16FX S2	007-F5/-7-IFC, 008-F6	
		3	NRF-22	UP 15-42FR, UPS 15-42FR S3, UPS 15-58FRC S3	STAR S 16FX S3, STAR 16FX		
	ASTRO 230CI-R	1			UPS 15-42F S1, UPS 15-58FC S1, UP 15-10F	STAR S 16F S1	005-F2-3-IFC, 006-F4, 006-F7-IFC
		2			UPS 15-42F S2, UPS 15-58FC S2	STAR S 16F S2	007-F5-5/-8-IFC, 008-F6-I-IFC, 00R-F6I IFC
		3			UP 15-42F, UPS 15-42F S3, UPS 15-58FC S3	STAR S 16F S3, STAR 16F	00R-F6-I-IFC
	ASTRO 250CI	1				STAR S 21FX S1	00R-MSFI-IFC S1
		2				STAR S 21FX S2	00R-MSFI-IFC S2
		3				STAR S 21FX S3, STAR 21FX	00R-MSFI-IFC S3
	ASTRO 250CI-R	1	NRF-25 S1			STAR S 21F S1	00R-MSFI-I IFC S1
		2	NRF-25 S2			STAR S 21F S2	00R-MSFI-I IFC S2
		3	NRF-25 S3, NRF-36 S1			STAR S 21F S3, STAR 21F	00R-MSFI-I IFC S3

NOTE: <sup>①</sup>Dimension & connection may vary. <sup>②</sup>Flange orientation may vary. <sup>③</sup>Supply voltage may vary.

<sup>④</sup>Connection with ½" sweat adaptor(s). <sup>⑤</sup>Connection with ¾" sweat adaptor(s).

# Armstrong Astro 2 Series Circulator Family

## REDUCED INSTALLATION COSTS

Astro 2 circulators (except sweat connection models) include a removable check valve that eliminates the need for additional check valves in the system. For replacement installations, the check valve can be removed as required.

## COMPLIANCE WITH LEAD-FREE REGULATIONS

Lead-free bronze and stainless steel models of Astro 2 certified <0.25 weighted average percent lead and complies with California Health and Safety Code Section 116875 (commonly known as AB1953).

## INTERNATIONAL CODE COMPLIANCE

Astro 2 units are ETL listed for the US and Canada and conform to UL std. 778 and Canadian electrical safety standards CSA std C22.2 No 108-01.

## 3-SPEEDS

Reduce your inventory with a variety of performance curves. Ten pumps replace 93 circulators. Correct design issues in the field by adjusting the circulator output.

## REMOVABLE CHECK VALVE

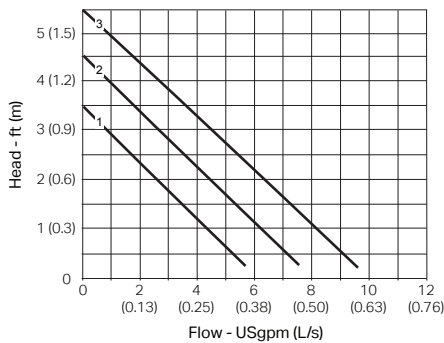
Reduce costs by eliminating multiple system check valves. Helps prevent reverse flow and induced heat migration.

## EASY CONNECTION

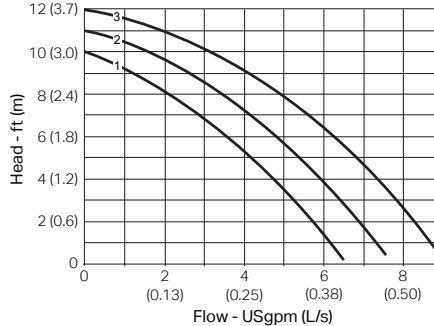
Models are available with union, sweat or flange connections. Models are also available with rotated flanges for installation in tight locations, where clearance is an issue.

## PERFORMANCE CURVES

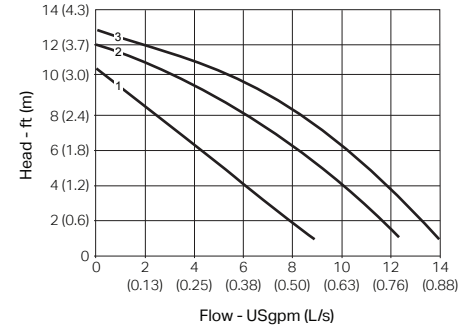
Astro 220SSU



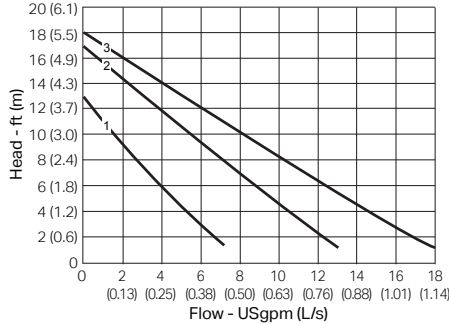
Astro 225BS 1/2" & 3/4" SWT



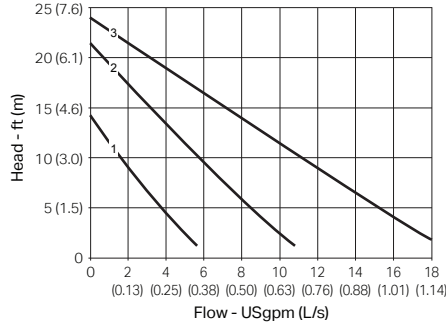
Astro 225SSU



Astro 230SS/CI/CI-R



Astro 250SS/CI/CI-R



## TYPICAL SPECIFICATIONS

Furnish and install, as shown on the plans, Armstrong Astro 2 3-speed circulating pump model with stainless steel/lead free bronze/ cast iron body and PEI impeller. The pump shall have a capacity of \_\_\_\_\_ USgpm (L/s) against a total head of \_\_\_\_\_ ft (m). Armstrong Astro 2 Series is 115 V/single phase/60 Hz and is cETL<sub>US</sub> listed.

Stainless steel/lead free bronze body Astro 2 is certified <0.25 weighted average percent lead and complies with California Health and Safety Code Section 116875 (commonly known as AB1953).

## TECHNICAL DATA

Flow Range: 0 to 18 USgpm (0 to 1.14 L/s)

Head Range: 0 to 24 ft (0 to 7.32 m)

Motor: 115V, 60Hz, Single Phase

Max. Fluid Temperature: Closed System: 230°F (110°C)\*

Max. Working Pressure: 150 psi (1034 kPa)

\*Since water conditions can vary with geographical location (i.e. amount and type of dissolved solids) it is recommended that the operating temperature of the fluid for open (potable) systems be kept as low as possible (i.e. below 150°F or 65°C) to avoid precipitation of calcium.

## MATERIALS OF CONSTRUCTION

Pump Body: • Cast Iron (closed system)

• Lead Free Bronze\*\* (open system)

• Stainless Steel\*\* (open system)

Impeller: Polyether Imide (PEI)

Shaft: Ceramic

Bearings: Ceramic

Gasket Material: EPDM

## DIMENSIONS & WEIGHTS

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)
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)

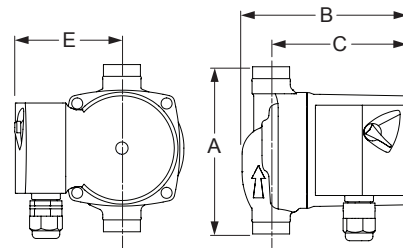
NOTE: Dimensions are in inches (mm) and weights in lbs (kg).

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

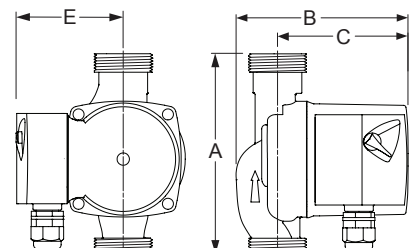
## MOTOR DATA

MODEL	SPEED	FULL LOAD AMP DRAW (A)	NOMINAL POWER (W)
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	

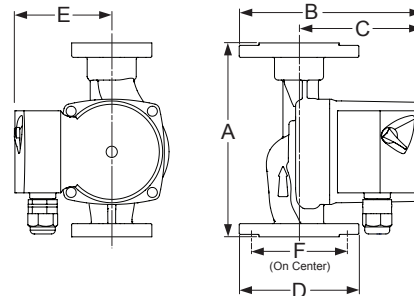
ASTRO 225BS



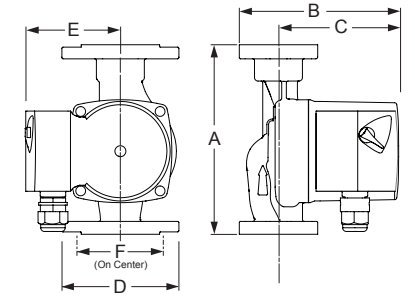
ASTRO 220SSU & 225SSU



ASTRO 230SS/CI & 250SS/CI



ASTRO 230CI-R & 250CI-R



**S. A. ARMSTRONG LIMITED**  
23 Bertrand Avenue  
Toronto, Ontario  
Canada, M1L 2P3  
T 416-755-2291  
F 416-759-9101

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

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



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