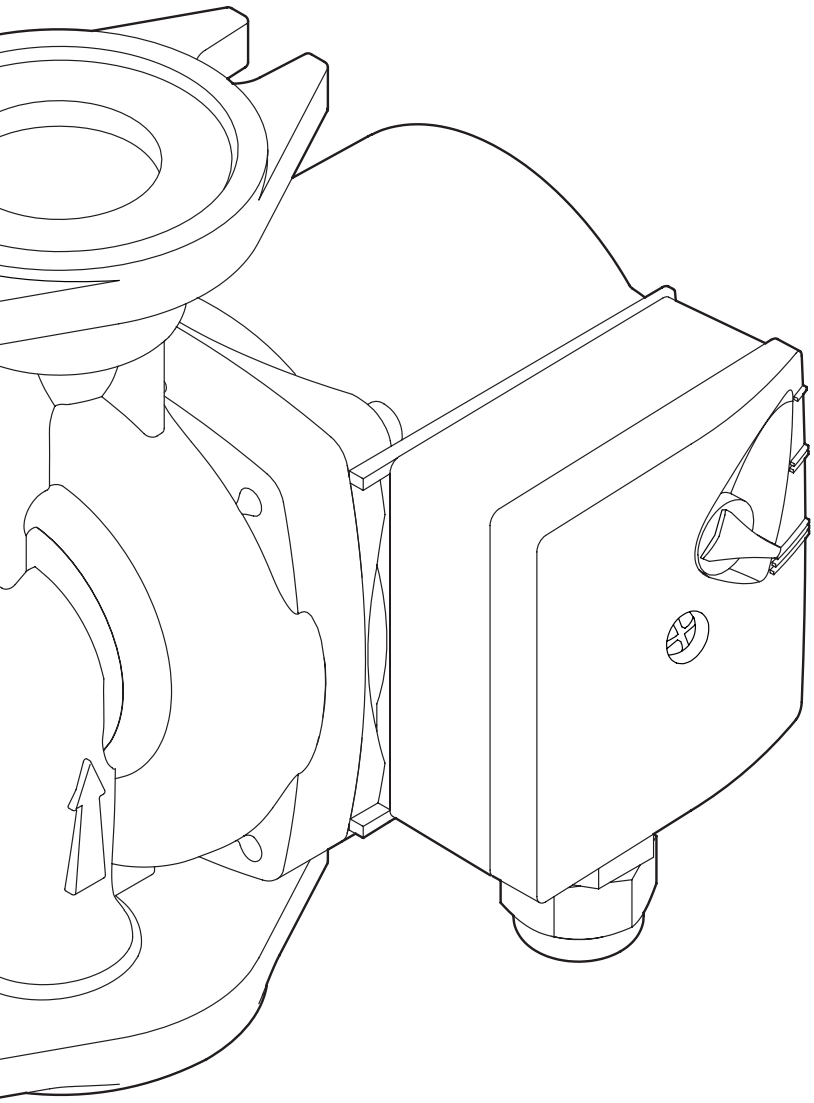
ARMSTRONG



Technical overview

Astro 2
3-speed circulator models

File No: 10.401
Date: JULY 18 2012
Supersedes: NEW
Date: NEW

CONTENTS

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 280CI	3	1.90	218
	2	1.80	
	1	1.50	
ASTRO 290CI	3	1.90	218
	2	1.60	
	1	1.40	

TECHNICAL DATA

Motor: 60HZ single phase
Volts: 115V
Max. fluid temperature*: 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)
• Stainless steel** (open system)
• Lead-free bronze** (open system)
Impeller: Polyether imide (PEI)
Shaft: Ceramic
Bearings: Ceramic
Gasket: EPDM

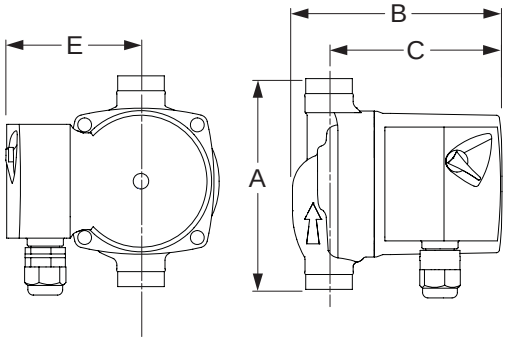
**Certified <0.25 weighted average percent lead (NSF 61 Annex G) and complies with California Health and Safety code section 116875 (commonly known as AB1953).

DIMENSIONS AND WEIGHTS

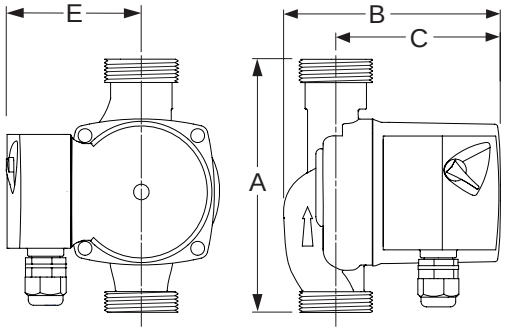
LEAD FREE BRONZE**	A	B	C	D	E	F	CONNECTION	WEIGHT
ASTRO 225BS ½" SWT	5.00 (127)	5.00 (127)	4.13 (105)	—	3.00 (76)	—	½" Sweat	6.0 (2.7)
ASTRO 225BS ¾" SWT	5.00 (127)	5.00 (127)	4.13 (105)	—	3.00 (76)	—	¾" Sweat	6.0 (2.7)
STAINLESS STEEL**	**A**	**B**	**C**	**D**	**E**	**F**	**CONNECTION**	**WEIGHT**
ASTRO 220SSU	6.00 (152)	5.00 (127)	4.00 (102)	—	3.00 (76)	—	1¼" NPSM Union	6.5 (2.9)
ASTRO 225SSU	6.00 (152)	5.00 (127)	4.00 (102)	—	3.00 (76)	—	1¼" NPSM Union	6.5 (2.9)
ASTRO 230SS	6.38 (162)	6.00 (152)	4.00 (102)	4.00 (102)	3.00 (76)	3.13 (80)	½" Diameter two-bolt flange	8.0 (3.6)
ASTRO 250SS	6.38 (162)	6.00 (152)	4.00 (102)	4.00 (102)	3.00 (76)	3.13 (80)	½" Diameter two-bolt flange	8.0 (3.6)
CAST IRON	**A**	**B**	**C**	**D**	**E**	**F**	**CONNECTION**	**WEIGHT**
ASTRO 230CI	6.38 (162)	6.00 (152)	4.00 (102)	4.00 (102)	3.00 (76)	3.13 (80)	½" Diameter two-bolt flange	8.0 (3.6)
ASTRO 230CI-R	6.38 (162)	5.63 (137)	4.00 (102)	4.00 (102)	3.00 (76)	3.13 (80)	½" Diameter two-bolt flange	8.0 (3.6)
ASTRO 250CI	6.38 (162)	6.00 (152)	4.00 (102)	4.00 (102)	3.00 (76)	3.13 (80)	½" Diameter two-bolt flange	8.0 (3.6)
ASTRO 250CI-R	6.38 (162)	5.63 (137)	4.00 (102)	4.00 (102)	3.00 (76)	3.13 (80)	½" Diameter two-bolt flange	8.0 (3.6)
ASTRO 280CI	6.50 (165)	6.37 (162)	4.87 (124)	4.00 (102)	3.50 (90)	3.13 (80)	½" Diameter two-bolt flange	10.1 (4.6)
ASTRO 290CI	8.50 (216)	6.65 (169)	5.20 (132)	4.40 (112)	3.50 (90)	3.45 (88)	½" Diameter two-bolt flange	13.2 (6.0)

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).

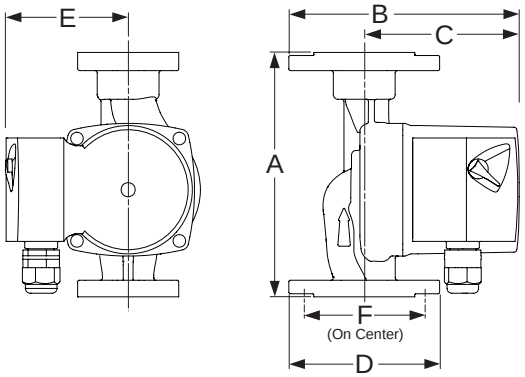
ASTRO 225BS



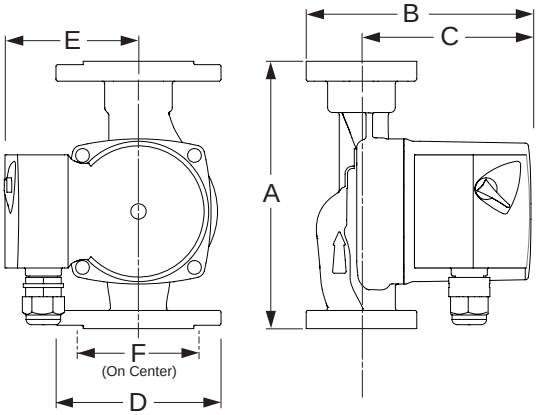
ASTRO 220 & 225SSU



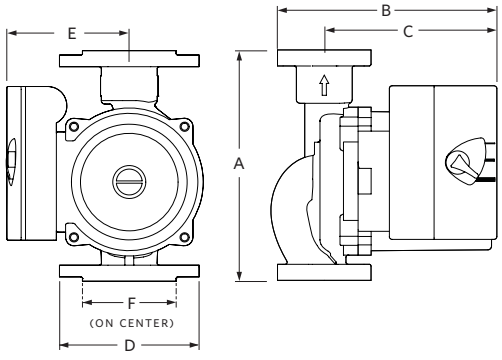
ASTRO 230SS/CI & 250SS/CI



ASTRO 230CI-R & 250CI-R



ASTRO 280CI & 290CI



CROSS REFERENCE TABLE

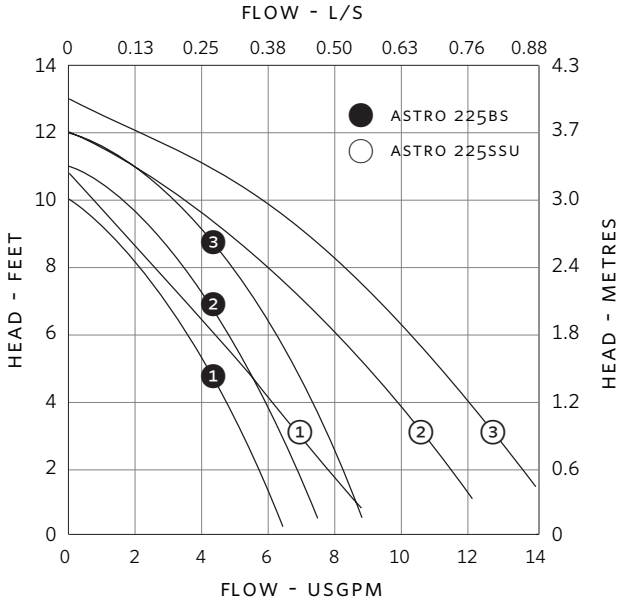
MODELS	ARMSTRONG	SPEED	B & G	GRUNDFOS	WILO	TACO
STAINLESS STEEL	ASTRO 220SSU	1				
		2		UP 15-10 BUC5[4], UP 15-10 B5[4], UP 15-10 B7[5]	STAR 3 BS 5[4], STAR 3 BS 7[5]	003-BC4-I, 003-B4-2-IFC, 003-BC4[4], 003-B4[5], 003-SC4-1/FC, 003-BC4-1-1FC[4], 003-BC4-1FC[5]
		3		UP 15-10 F/FR[1], UP 15-10 BUC7[5]	STAR 5 BU	
	ASTRO 225SSU	1	NBF-9U/LW, SSF-9U/LW, NBF-18S[4]	UPS 15-35SUC(S2)		
		2		UP 15-29SU		006-BC4-I, 006-B7-IFC, 006-SC4-1, 006-SC7-1FC
		3	NBF-12U/LW, SSF-12U/LW	UP 15-35SUC, UPS 15-35SUC(S3), UP 15-18BUC 5/7[1]	STAR 11 BU	
	ASTRO 230SS	1		UPS 15-35SFC(S2)[2], UP 15-18SF[2]	STAR S 16BFX(S1)	005-BF2/-I-IFC, 005-SF2/-IFC
		2	NBF-12F/LW	UPS 15-35SFC(S3)[2]	STAR S 16BFX(S2)	007-BF5/-I-IFC, 007-SF5/-IFC, 008-BC6, 008-BC6-IFC[2], 008-SF6/-IFC
		3	SSF-22, NBF-22	UP 15-42SF[2], UP 25-64SF[2]	STAR S 16BFX(S3), STAR 16BFX	00R/0015-SF6-IFC, 00R/0015-SF6-1-IFC
	ASTRO 250SS	1	NBF-25(S1)	UPS 15-55SFC(S1)[2]	STAR S 21BFX(S1)	
		2	NBF-25(S2)	UPS 15-55SFC(S2)[2]	STAR S 21BFX(S2)	
		3	NBF-25(S3)	UPS 15-55SFC(S3)[2]	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	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

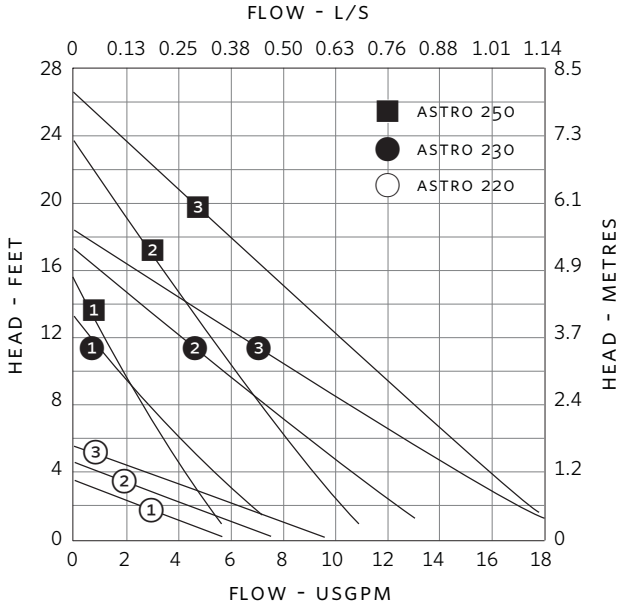
NOTE: [1] Dimension and connection may vary.
[2] Flange orientation may vary.
[3] Supply voltage may vary.
[4] Connection with ½" sweat adaptor(s).
[5] Connection with ¾" sweat adaptor(s).
[6] Astro check valve removed.
[7] Rotated flange.
(S1) Speed 1.
(S2) Speed 2.
(S3) Speed 3.

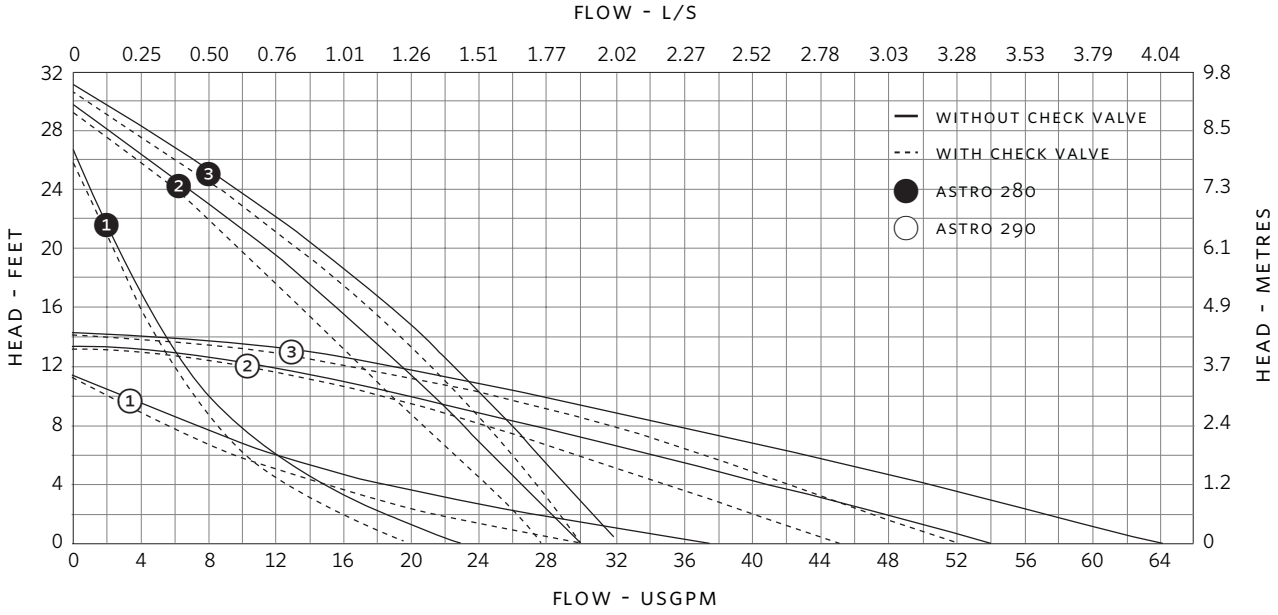
MODELS	ARMSTRONG	SPEED	B & G	GRUNDFOS	WILO	TACO
CAST IRON	ASTRO 230CI	1	NRF-9F/LW	UPS 15-42FR(S1), UPS 15-58FRC(S1), UP 15-10FR	STAR S 16FX(S1)	005-F2, 005-F2-2-IFC
		2		UPS 15-42FR(S2), UPS 15-58FRC(S2)	STAR S 16FX(S2)	007-F5/-7-IFC, 008-F6
		3	NRF-22	UP 15-42FR, UPS 15-42FR(S3), UPS 15-58FRC(S3)	STAR 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/0015-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/0015-MSFI-IFC(S1)
		2			STAR S 21FX(S2)	00R/0015-MSFI-IFC(S2)
		3			STAR S 21FX(S3), STAR 21FX	00R/0015-MSFI-IFC(S3)
	ASTRO 250CI-R	1	NRF-25(S1)		STAR S 21F(S1)	00R/0015-MSFI-I IFC(S1)
		2	NRF-25(S2)		STAR S 21F(S2)	00R/0015-MSFI-I IFC(S2)
		3	NRF-25(S3), NRF-36(S1)		STAR S 21F(S3), STAR 21F	00R/0015-MSFI-I IFC(S3)
	ASTRO 280CI	1		UP 26-29F(S1)		
		2	100[7], PL-30, PR[7] (8.5"), NRF-36[7](S1), NRF-45[7](S1)	UPS 26-99FC(S2), UP 26-64, UP 26-96	STAR 32F, TOP-S 1.25×15	0014-FI-I IFC, 0014-FI[6], 113[7]
		3	NRF-36[7](S2), NRF-45[7](S2)	UPS 26-99FC(S3)	TOP-S 1.25×25	0011-F4-2 IFC, 0011-F4[6], 1400-10
	ASTRO 290CI	1		UPS 43-44 FC(S1)		
		2	HV[7]	UPS 43-44 FC(S2)		111[7]
		3		UPS 43-44 FC(S3), UP 43-44 F[6]	STAR 17FX[6]	0012-F4-IFC, 0012-F4[6], 120[7] (11")

NOTE: [1] Dimension and connection may vary.
[2] Flange orientation may vary.
[3] Supply voltage may vary.
[4] Connection with ½" sweat adaptor(s).
[5] Connection with ¾" sweat adaptor(s).
[6] Astro check valve removed.
[7] Rotated flange.
(S1) Speed 1.
(S2) Speed 2.
(S3) Speed 3.

PERFORMANCE CURVES







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