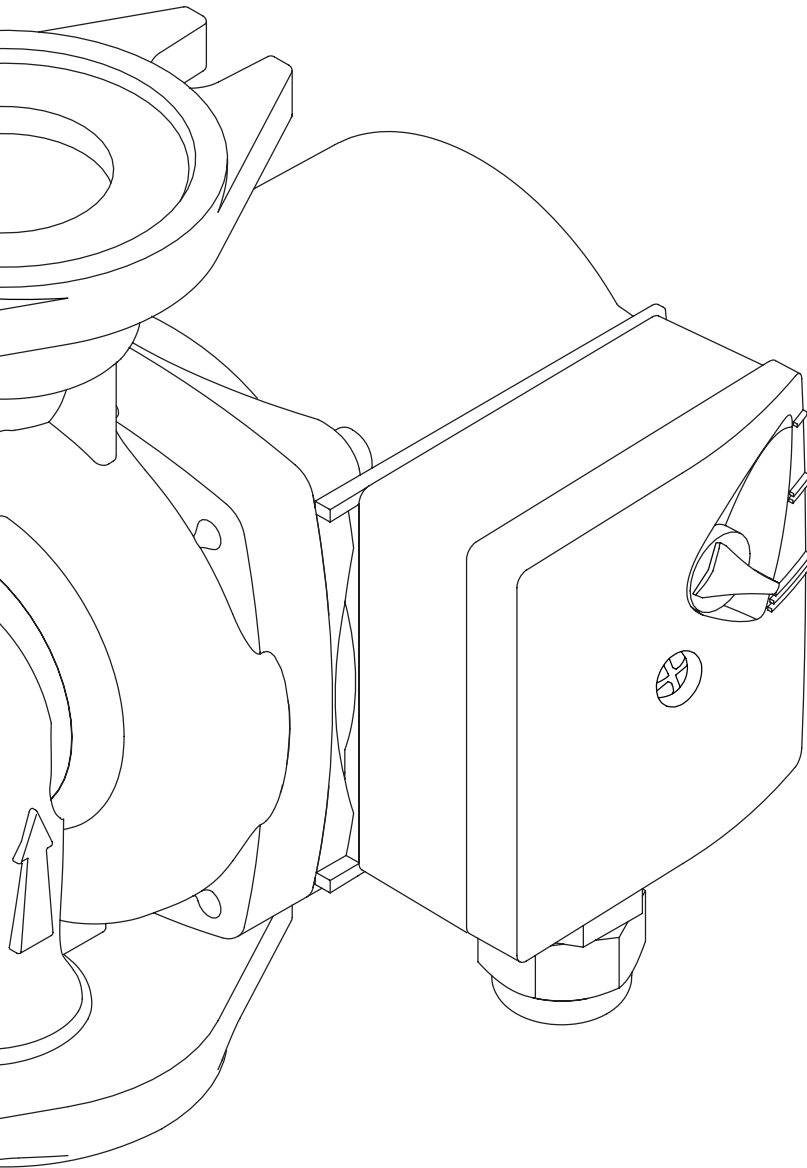




Technical overview

Astro 2 3-speed circulator models

File No: 10-401

Date: JULY 05, 2013

Supersedes: 10-401

Date: MAY 08, 2013

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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	375

TECHNICAL DATA

Max. 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)

Max. working pressure: 150 PSI / 1034 kPa

Certification: ETL listed for US and Canada (conforms to UL
STD.778 certified to CSA STD. C22.2 NO.108-01)
NSF 372 (for lead free bronze and stainless
steel models)

*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: PA66

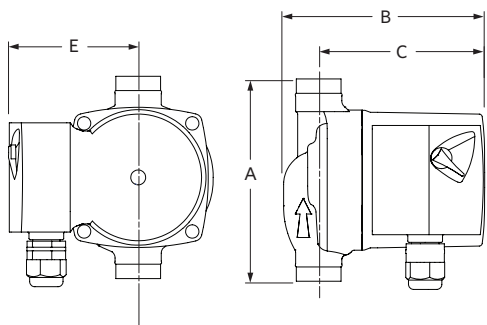
Shaft: Ceramic

Bearings: Ceramic

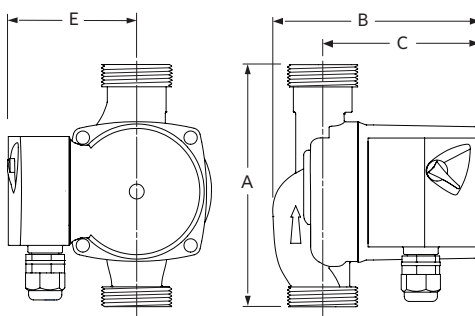
Gasket: EPDM

**Certified <0.25 weighted average percent lead (NSF 372) and complies with California Health and Safety code section 116875 (commonly known as AB1953).

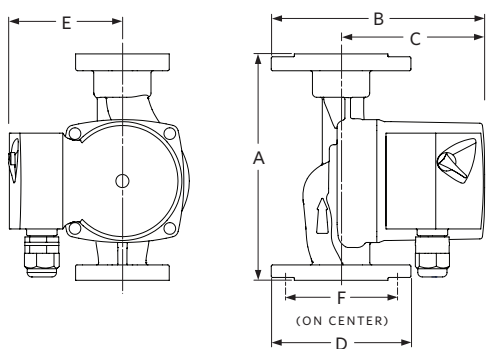
ASTRO 225BS



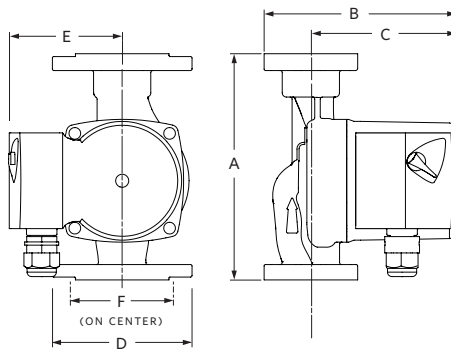
ASTRO 220SSU & 225SSU



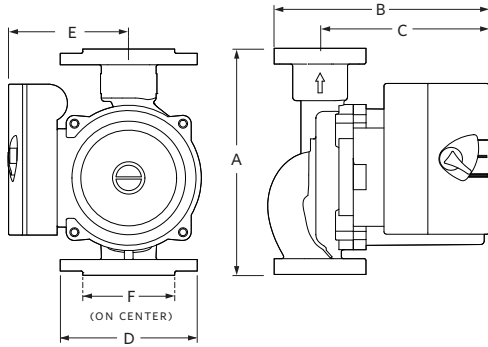
ASTRO 230SS/CI & 250SS/CI



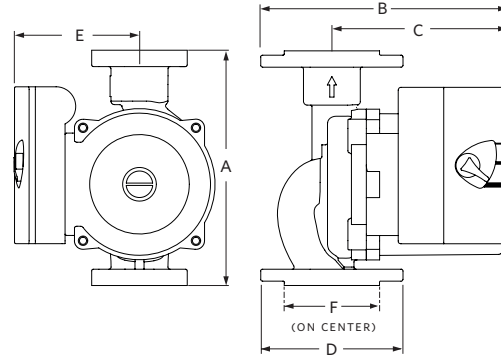
ASTRO 230CI-R & 250CI-R



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



ASTRO 210CI/SS & 280SS



DIMENSIONS AND 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**								
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**								
Astro 210SS**	6.50 (165)	6.37 (162)	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)**								
Astro 286SS**								
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)	6.37 (162)	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)**								
Astro 286CI**								
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).

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

** Removable check valve installed at pump outlet.

CROSS REFERENCE TABLE

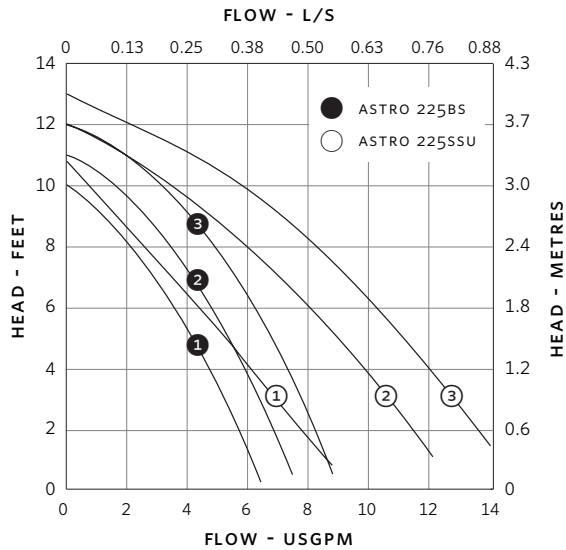
MODELS	ARMSTRONG	SPEED	B & G	GRUNDFOS	WILO	TACO
STAINLESS STEEL	ASTRO 210SS	1	—	—	—	—
		2	LR-15BWR ²	—	—	0010-BF3/SF3(-IFC)
		3	NBF-33	—	—	110B
	ASTRO 220SSU	1	—	—	—	—
		2	—	UP 15-10 BUC ⁵ , UP 15-10 B5 ⁴ , UP 15-10 B7 ⁵	STAR 3 BS 5 ⁴ , STAR 3 BS 7 ⁵	003-BC4-1, 003-B4-2-IFC, 003-BC4 ⁴ , 003-B4 ⁵ , 003-SC4-1/FC, 003-BC4-1-1FC ⁴ , 003-BC4-1FC ⁵
		3	—	UP 15-10 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-BC4-1, 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) , UP 15-18SF ²	STAR S 16BFX ^(S1)	005-BF2/-I-IFC, 005-SF2/-IFC
		2	NBF-12F/LW	UPS 15-35SFC ^(S2)	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	—
	ASTRO 280SS	1	LR-15BWR ²	UPS 26-99BFC ^(S1)	—	—
		2	SERIES PR B ² (8.5"), PL-30B, NBF-36 ^(S1) , NBF-45 ^(S1) , SERIES 100	UPS 26-99BFC ^(S2) , UP 26-96BF	STAR 30BU ¹	0011-BF4-4 IFC, 0011-SF4 IFC, 0011-SF4, 0014-BFI-I IFC, 0014-SFI-IFC, 0014-SFI, 113B (8.5")
		3	NBF-36 ^(S2) , NBF-45 ^(S2)	UP 26-99BF, UPS 26-99BFC ^(S3)	—	0013-BF3, 0013-SF3, 0013-SF3-IFC, 1400-10B
	ASTRO 280SS 230V	1	—	UPS 26-99BFC ^(S1)	—	—
		2	—	UPS 26-99BFC ^(S2) , UP 26-96BF	—	0011-BF4-4 IFC, 0011-SF4-IFC, 0011-SF4, 0014-BFI-I IFC, 0014-SFI-IFC, 0014-SFI
		3	—	UP 26-99BF, UPS 26-99BFC ^(S3)	—	—
	ASTRO 286SS	—	NBF-45 ^(S3) , PL-36B	UP 26-116BF	—	0013-BF3, 0013-SF3, 0013-SF3-IFC, 112B
	ASTRO 290SS	1	—	UPS 43-44BFC ^(S1)	—	—
		2	—	UPS 43-44BFC ^(S2)	—	111 ² (8.75")
		3	SERIES HV B ²	UPS 43-44BFC ^(S3) , UP 43-44BF	TOP-Z 1.5X15 ²	0012-BF4-IFC, 0012-SF4-IFC,
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

MODELS	ARMSTRONG	SPEED	B & G	GRUNDFOS	WILO	TACO
CAST IRON	ASTRO 210CI	1	—	—	—	—
		2	LR-20WR ²	—	—	0010-MSF1-IFC ^(S2) , 0010-F3(-IFC)
		3	NRF-33	—	—	0010-MSF1-IFC ^(S3) , 110
	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	LR-20WR	UPS 26-99FC ^(S1)	—	—
		2	100 ² , PL-30, PR ² (8.5"), NRF-36 ² ^(S1) , NRF-45 ² ^(S1)	UPS 26-99FC ^(S2) , UP 26-64F, UP 26-96F	STAR 30F, TOP-S 1.25x15	0011-F4-2 IFC, 0011-F4, 0014-FI-I IFC, 0014-FI, 113 ² (8.5")
		3	NRF-36 ² ^(S2) , NRF-45 ² ^(S2)	UP 26-99F, UPS 26-99FC ^(S3)	TOP-S 1.25x25	0013-F3, 0013-F3-I IFC, 1400-10
	ASTRO 280CI 230V	1	—	UPS 26-99FC ^(S1)	—	—
		2	—	UPS 26-99FC ^(S2) , UP 26-64F, UP 26-96F	TOP-S 1.25x15	0011-F4-2 IFC, 0011-F4, 0014-FI-I IFC, 0014-FI
		3	—	UPS 26-99FC ^(S3)	TOP-S 1.25x25	—
	ASTRO 286CI	—	NRF-45 ^(S3) PL-36	UP 26-116F	—	0013-F3, 0013-F3-I IFC, 112 ²
	ASTRO 290CI	1	—	UPS 43-44FC ^(S1)	—	—
		2	HV ²	UPS 43-44FC ^(S2)	—	111 ² (8.75")
		3	—	UPS 43-44FC ^(S3) , UP 43-44F	STAR 17FX ²	0012-F4-IFC, 0012-F4, 120 ² (11")

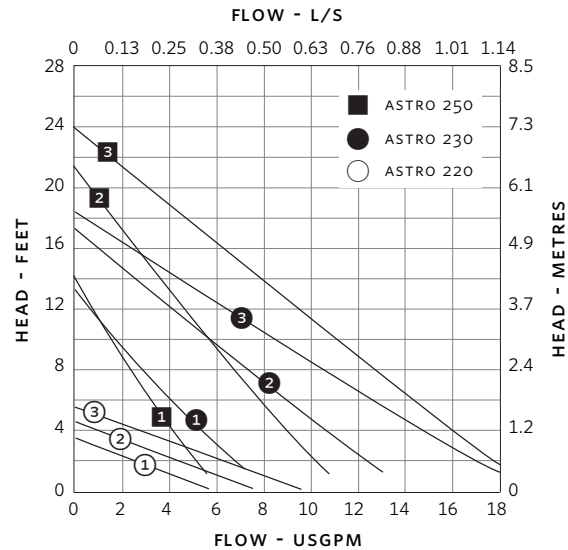
NOTE: ¹ Dimension and connection may vary. ^(S1) Speed 1.
² Flange orientation may vary. ^(S2) Speed 2.
³ Supply voltage may vary. ^(S3) Speed 3.
⁴ Connection with ½" sweat adaptor(s).
⁵ Connection with ¾" sweat adaptor(s).

PERFORMANCE CURVES

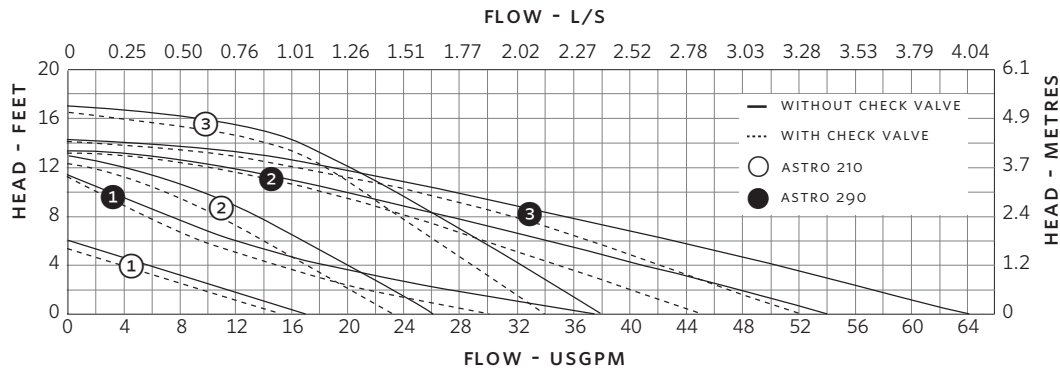
ASTRO 225BS, 225SSU



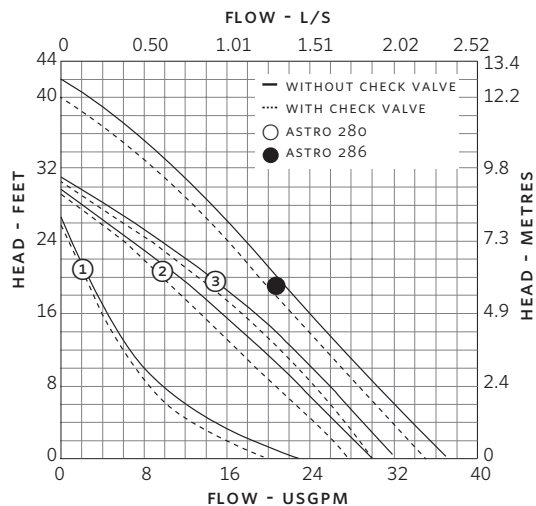
ASTRO 220, 230, 250



ASTRO 210, 290



ASTRO 280, 286



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