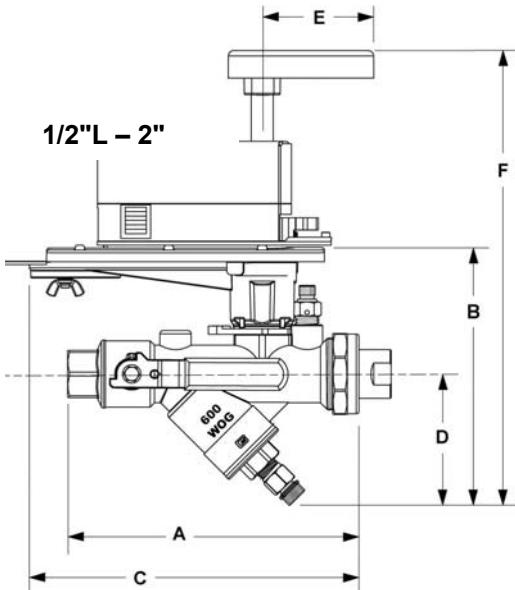
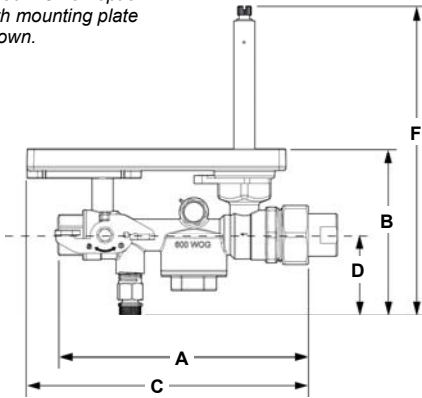


1/2" & 3/4"-
Fixed x Union option
with mounting plate
shown.



SPECIFICATIONS

- PSI/Temperature Rating:** 1/2"–1-1/2": 400 PSI / 250° F
1-1/2"L–2": 275 PSI / 250°F
- Temperature Range:** -22°F to 250°F
- Service:** Chilled water, hot water, up to 50% Glycol, or contact factory for additional fluids.
- Flow Optimizer:** Glass Filled Polymer
- Cartridge:** AISI Type 304 Stainless Steel
AISI Type 17-7 PH Stainless Steel Spring
- Body Material:** Forged Brass ASTM B283-06
- End Connections:** Brass – NPT or Sweat
- Field Repairable Stems:** Dual Teflon seals and EPDM O-ring
- Stem Seals:** EPDM O-Rings
- Ball Valve:** Nickel-Plated Brass Ball
Optional: Stainless Steel ball
- Ball Seals:** Teflon Seals with EPDM O-Rings

DIMENSIONS & WEIGHTS (NOMINAL)
(measured in inches/lbs. unless noted)

SIZE	A: LENGTH	(OPTIONAL) UNION END CONNECTIONS (INCHES) ¹												
		FNPT		MNPT		SWT								
		1/2"	3/4"	1/2"	3/4"	3/8"	1/2"	3/4"						
1/2"	5.8	1.0	N/A ²	1.0	1.2	0.8	0.8	1.1						
3/4"														
		FNPT			MNPT			SWT						
		1/2"	3/4"	1"	1/2"	3/4"	1"	3/8"	1/2"	3/4"	1"			
1/2"L	6.5	1.0	1.0	N/A ²	1.0	1.0	1.4	1.0	0.7	0.9	1.3			
3/4"L														
1"														
		FNPT			MNPT ³			SWT						
		1"	1-1/4"	1-1/2"	1"	1-1/4"	1-1/2"	1"	1-1/4"	1-1/2"				
1" L	10.2	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.4				
1-1/4"														
1-1/2"														
		FNPT ⁴		MNPT ⁴		SWT ⁴								
		1-1/2"	2"	1-1/2"	2"	1-1/2"	2"							
1-1/2" L	14.2	1.6	N/A	1.6	1.6	1.7	1.6							
2"														
SIZE	B	C	D	E	F	DEPTH (NOT SHOWN)	WEIGHT							
1/2" SS	w/o Plate 3.5	w/ Plate: 5.8	2.0	N/A	5.9	3.1	1.8							
3/4" SS	w/ Plate: 4.9													
1/2"	5.5	8.1	2.9	2.5	10.5	3.8	3.5							
3/4"														
1"														
1" L	10.7	7.8	3.9	2.5	11.7	4.3	7.8							
1-1/4"														
1-1/2"														
1-1/2" XL	7.4	8.8	3.4	2.5	12.0	5.2	12.0							
2" XL														

NOTES:

- ¹ For overall length, add union connection length to body length.
- ² Tailpiece not available for this size. Male tailpiece used with coupling.
- ³ 1"L–1-1/2" Valves can also take 1/2"–3/4" MNPT Tailpieces.
- ⁴ 1-1/4" FNPT, 1" and 1-1/4" MNPT, 1-1/4" SWT tailpieces also available.

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MODEL NUMBER SELECTION

A
R

Select a Housing Size (0=1/2"-3/4", 1=1/2"L,3/4"L,1", 2=1"L-1-1/2", 3=1-1/2"L-2")

Select a PSID control range (1=1-14 or 1-20, 2=2-32⁵, 4=4-57, 8=8-128)

Select Ball and Stem Package (P=Plated Ball S=SS Ball and Stem)

Select a Cv (See Actuated Ball Cv table for code)

Insulation Option⁶ (0=No, 1=1-1/2", 2=2")

Valve	FIXED END OR UNION END ⁷ (No Union Tailpiece=Z)		UNION END ONLY ⁷
	Female Threaded	Female Sweat	Male Threaded
AR0	1/2"=E, 3/4"=F ⁸	3/8"=K ⁹ , 1/2"=L, 3/4"=M	1/2"=H, 3/4"=I
AR1	1/2"=E, 3/4"=F, 1"=G ⁸	3/8"=K ⁹ , 1/2"=L, 3/4"=M, 1"=N	1/2"=H, 3/4"=I, 1"=J
AR2	1"=G, 1-1/4"=P, 1-1/2"=Q	1"=N, 1-1/4"=K, 1-1/2"=W	1/2"=H, 3/4"=I, 1"=J, 1-1/4"=S, 1-1/2"=T
AR3	1-1/4"=P ⁹ , 1-1/2"=Q, 2"=R ⁸	1-1/4"=K ⁹ , 1-1/2"=W, 2"=Y	1-1/4"=S, 1-1/2"=T, 2"=U

Insert Actuator Model Number. If Actuator is supplied by others, insert "1" for Neptronic, "2" for Johnson Controls, "3" for Invensys, "4" for Honeywell, "5" for Siemens, "6" for Belimo, "7" for KMC Controls, "S" for AR0__ without mounting kit (Siemens GDE and Belimo LM only)

CARTRIDGE FLOW RATES (+/-5%)

SIZE	CARTRIDGE SIZE	MODEL NO.	HEAD LOSS IN FEET ¹⁰	PSID RANGE	GPM
1/2" 3/4"	1/2"	AR02	7.4	2-32	0.25, 0.33, 0.50, 1.00, 1.50, 2.00, 2.50, 3.00
1/2"L 3/4"L 1"	3/4"	AR11	3.5	1-14	.33, .50, .67, 1.00, 1.33, 1.67, 2.00, 2.33, 2.67, 3.33, 4.00, 4.67, 5.00
		AR12	7.4	2-32	.55, .75, 1.00, 1.50, 2.00, 2.50, 3.00, 3.50, 4.00, 5.00, 6.00, 7.00, 8.00
		AR14	13.4	4-57	.75, 1.00, 1.33, 2.00, 2.67, 3.33, 4.00, 4.67, 5.33, 6.67, 8.00, 9.33, 10.00
		AR18	30.0	8-128	1.10, 1.50, 2.00, 3.00, 4.00, 5.00, 6.00, 7.00, 8.00, 10.0, 12.0, 14.0, 16.0
1"L 1-1/4" 1-1/2"	1-1/2"	AR21	3.5	1-14	5.33, 6.00, 6.67, 7.33, 8.00, 8.67, 9.33, 10.00, 10.67, 11.33, 12.00, 12.67, 13.33, 14.00, 14.67
		AR22	7.4	2-32	8.0, 9.0, 10.0, 11.0, 12.0, 13.0, 14.0, 15.0, 16.0, 17.0, 18.0, 19.0, 20.0, 21.0, 22.0
		AR24	13.4	4-57	10.67, 12.00, 13.33, 14.67, 16.00, 17.33, 18.67, 20.00, 21.33, 22.67, 24.00, 25.33, 26.67, 28.00, 29.33
		AR28	30.0	8-128	16.0, 18.0, 20.0, 22.0, 24.0, 26.0, 28.0, 30.0, 32.0, 34.0, 36.0, 38.0, 40.0, 42.0, 44.0
1-1/2"L 2"	2"	AR31	3.5	1-14	12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38
		AR32	7.4	2-32	18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 54, 57
		AR34	13.4	4-57	24, 28, 32, 36, 40, 44, 48, 52, 56, 60, 64, 68, 72, 76
		AR38	30.0	8-128	36, 42, 48, 54, 60, 66, 72, 78, 84, 90, 96, 102, 108, 114

NOTES:

- ⁵ AR0__ is 2-32 PSID control range only.
- ⁶ Insulation Option includes handle cover and Accessory extensions.
- ⁷ Select the Fixed End First and the Union End Second. For AR0__ fixed end only option fill in 2nd digit with an "X".
- ⁸ Tailpiece is not available for this size. Male tailpiece used with coupling.
- ⁹ Fixed end not available for this size. Union tailpiece only.
- ¹⁰ Head Loss in Feet is provided for pump head calculations. (1 PSI = 2.307 Feet of Water)

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ACTUATED BALL Cv¹¹ AND FLOW RATE TABLE (GPM)

SIZE	MODEL NO.	FULL PORT	CLOSE OFF ΔP ¹²	FLOWRATE (GPM) @ DIFFERENTIAL PRESSURE (PSI)												
				2-Position HVAC Apps		HVAC Modulating Apps										
				0.5	Cv	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	7.0	10.0	
1/2"	AR0_1		130PSI	0.30	0.43	0.53	0.61	0.68	0.74	0.80	0.86	0.91	1.0	1.1	1.4	
	AR0_2			0.78	1.1	1.3	1.6	1.7	1.9	2.1	2.2	2.3	2.5	2.9	3.5	
	AR0_3			1.0	1.4	1.7	2.0	2.2	2.4	2.6	2.8	3.0	3.1	3.7	4.4	
	AR0_4			1.8	2.6	3.2	3.7	4.1	4.5	4.9	5.2	5.5	5.8	6.9	8.2	
	AR0_5	•		3.1	4.4	5.4	6.2	7.0	7.6	8.2	8.8	9.3	9.8	11.6	13.9	
3/4"	AR0_1		130PSI	0.30	0.43	0.53	0.61	0.68	0.74	0.80	0.86	0.91	1.0	1.1	1.4	
	AR0_2			0.66	0.94	1.2	1.3	1.5	1.6	1.8	1.9	2.0	2.1	2.5	3.0	
	AR0_3			0.92	1.3	1.6	1.8	2.1	2.3	2.4	2.6	2.8	2.9	3.4	4.1	
	AR0_4			1.8	2.5	3.1	3.5	4.0	4.3	4.7	5.0	5.3	5.6	6.6	7.9	
	AR0_5	•		2.8	3.9	4.8	5.5	6.2	6.8	7.3	7.8	8.3	8.7	10.3	12.3	
1/2"L	AR1_1		130PSI	0.3	0.4	0.5	0.6	0.6	0.7	0.7	0.8	0.8	0.9	1.1	1.3	
	AR1_2			0.5	0.7	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.9	2.2	
	AR1_3			0.9	1.3	1.6	1.8	2.1	2.3	2.4	2.6	2.8	2.9	3.4	4.1	
	AR1_4			1.7	2.4	2.9	3.4	3.8	4.2	4.5	4.8	5.1	5.4	6.3	7.6	
	AR1_5			2.6	3.7	4.5	5.2	5.9	6.4	6.9	7.4	7.8	8.3	9.8	11.7	
	AR1_6	•		4.4	6.2	7.6	8.8	9.8	10.7	11.6	12.4	13.2	13.9	16.4	19.6	
3/4"L	AR1_1		130PSI	0.3	0.4	0.5	0.6	0.6	0.7	0.7	0.8	0.8	0.9	1.1	1.3	
	AR1_2			0.5	0.7	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.9	2.2	
	AR1_3			0.9	1.3	1.6	1.8	2.1	2.3	2.4	2.6	2.8	2.9	3.4	4.1	
	AR1_4			1.8	2.6	3.2	3.7	4.1	4.5	4.9	5.2	5.5	5.8	6.9	8.2	
	AR1_5			3.0	4.3	5.3	6.1	6.8	7.4	8.0	8.6	9.1	9.6	11.4	13.6	
	AR1_6	•		5.2	7.4	9.1	10.5	11.7	12.8	13.8	14.8	15.7	16.5	19.6	23.4	
1"	AR1_1		130PSI	0.2	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.8	0.9	
	AR1_2			0.4	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.3	1.6	1.9	
	AR1_3			0.9	1.3	1.6	1.8	2.1	2.3	2.4	2.6	2.8	2.9	3.4	4.1	
	AR1_4			1.6	2.3	2.8	3.3	3.6	4.0	4.3	4.6	4.9	5.1	6.1	7.3	
	AR1_5			2.7	3.8	4.7	5.4	6.0	6.6	7.1	7.6	8.1	8.5	10.1	12.0	
	AR1_6	•		4.9	6.9	8.5	9.8	10.9	12.0	12.9	13.8	14.6	15.4	18.3	21.8	
1"L	AR2_3		100PSI	3.0	4.2	5.1	5.9	6.6	7.3	7.9	8.4	8.9	9.4	11.1	13.3	
	AR2_4			5.0	7.1	8.7	10.0	11.2	12.3	13.3	14.2	15.1	15.9	18.8	22.5	
	AR2_1			7.4	10.5	12.9	14.8	16.6	18.2	19.6	21.0	22.3	23.5	27.8	33.2	
	AR2_2	•		10.2	14.4	17.6	20.4	22.8	24.9	26.9	28.8	30.5	32.2	38.1	45.5	
1-1/4"	AR2_3		100PSI	2.8	4.0	4.9	5.7	6.3	6.9	7.5	8.0	8.5	8.9	10.6	12.6	
	AR2_4			5.2	7.3	8.9	10.3	11.5	12.6	13.7	14.6	15.5	16.3	19.3	23.1	
	AR2_1			7.4	10.4	12.7	14.7	16.4	18.0	19.5	20.8	22.1	23.3	27.5	32.9	
	AR2_2	•		10.3	14.6	17.9	20.6	23.1	25.3	27.3	29.2	31.0	32.6	38.6	46.2	
1-1/2"	AR2_3		100PSI	2.8	4.0	4.9	5.7	6.3	6.9	7.5	8.0	8.5	8.9	10.6	12.6	
	AR2_4			5.2	7.3	8.9	10.3	11.5	12.6	13.7	14.6	15.5	16.3	19.3	23.1	
	AR2_1			7.2	10.2	12.5	14.4	16.1	17.7	19.1	20.4	21.6	22.8	27.0	32.3	
1-1/2"	AR2_2	•	100PSI	10.3	14.5	17.8	20.5	22.9	25.1	27.1	29.0	30.8	32.4	38.4	45.9	
	AR3_1			100PSI	24.0	34.0	41.6	48.1	53.8	58.9	63.6	68.0	72.1	76.0	90.0	107.5
	AR3_2				36.8	52.0	63.7	73.5	82.2	90.1	97.3	104.0	110.3	116.3	137.6	164.4
AR3_3	•	46.0	65.0		79.6	91.9	102.8	112.6	121.6	130.0	137.9	145.3	172.0	205.5		
2"	AR3_1		100PSI	24.0	34.0	41.6	48.1	53.8	58.9	63.6	68.0	72.1	76.0	90.0	107.5	
	AR3_2			36.8	52.0	63.7	73.5	82.2	90.1	97.3	104.0	110.3	116.3	137.6	164.4	
	AR3_3	•		48.1	68.0	83.3	96.2	107.5	117.8	127.2	136.0	144.2	152.1	179.9	215	

NOTES:

¹¹ The Cv is the gallons of water per minute (gpm) at 60°F that the valve will pass at 1 PSI pressure drop.

¹² Close-Off Pressures measured with 35 in-lb. actuator. The "Close Off Pressure" is the maximum allowable pressure drop across the valve body when the valve is fully closed. Since the torque available from the actuator helps determine the close off pressure rating, higher pressure ratings can be achieved by using a larger actuator.

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