

- Bubble tight shut-off to ANSI Class 300 Standards
- Long stem design allows for 2" insulation minimum
- Valve Face-to-face dimensions comply with API 609 & MSS-SP-68
- Designed to be installed between ASME/ANSI 16.5 Flanges
- Completely assembled and tested, ready for installation
- Tees comply with ASME/ANSI 16.5 Class 250/300 Flanges

### Application

These valves are designed to meet the needs of HVAC and Commercial applications requiring positive shut-off for liquids at higher pressures and temperatures. Typical applications include chiller isolation, cooling tower isolation, change-over systems, large air handler coil control, bypass and process control applications. The large C<sub>v</sub> values provide for an economical control valve solution for larger flow applications.

Technical Data	
Media service	chilled, hot water, 60% glycol, steam to 50 psi
Valve service	double dead end service
Flow characteristic	modified linear, unidirectional
Recommended install	SUS (Seat Up Stream)
Action	quarter turn, mechanically limited
Sizes	2" to 24"
Type of end fitting	for use with ASME/ANSI B16.5 flanges
Materials	
Body	carbon steel full lug
Disc	316 stainless steel
Seat	RPTFE
Shaft	17-4 PH stainless
Gland seal	PTFE
Bushings	glass backed PTFE
Media temperature range	ANSI Class 300 limitations
Operation ambient temperature range	-22°F to 122°F [-30°C to 50°C]
Body pressure rating	ASME/ANSI Class 300 limitations
Close-off pressure	ANSI Class 300 to 725 psi @ 100°F
Rangeability	10:1 (for 30 deg to 70 deg range)
Maximum velocity	32 FPS

C <sub>v</sub> 90°	C <sub>v</sub> 60°	Valve Nominal Size	Type	Suitable Actuators	
				Spring	Non-Spring
100	52	2"	F750-300SHP	AF Series	GM Series
143	75	2½"	F765-300SHP		
223	117	3"	F780-300SHP		
435	228	4"	F7100-300SHP		
688	361	5"	F7125-300SHP		
1041	546	6"	F7150-300SHP		
1911	1001	8"	F7200-300SHP		
3194	1673	10"	F6250-300SHP		
4428	2319	12"	F7300-300SHP		
5702	2986	14"	F7350-300SHP		
8243	3988	16"	F7400-300SHP		
9712	5088	18"	F7450-300SHP		
10658	5775	20"	F7500-300SHP		
16205	8855	24"	F7600-300SHP	SY Series	

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Valve	Size	C <sub>v</sub>	MOD									ON/OFF 90°
			10°	20°	30°	40°	50°	60°	70°	80°		
F750-300SHP	2"	100	1.40	6.00	13	24	36	52	71	95	100	
F765-300SHP	2.5"	143	2.10	8.00	19	34	52	75	102	136	143	
F780-300SHP	3"	223	3.20	13	30	53	81	117	159	212	223	
F7100-300SHP	4"	435	6.20	25	58	104	157	228	310	414	435	
F7125-300SHP	5"	688	10	40	92	165	248	361	491	655	688	
F7150-300SHP	6"	1041	15	60	139	250	377	546	744	992	1041	
F7200-300SHP	8"	1911	27	109	255	459	692	1001	1365	1820	1911	
F7250-300SHP	10"	3194	46	183	426	767	1156	1673	2282	3042	3194	
F7300-300SHP	12"	4428	63	253	590	1063	1602	2319	3163	4217	4428	
F7350-300SHP	14"	5702	81	326	760	1368	2063	2986	4072	5430	5702	
F7400-300SHP	16"	8243	109	435	1015	1827	2755	3988	5438	7850	8243	
F7450-300SHP	18"	9712	139	555	1295	2331	3515	5088	6938	9250	9712	
F7500-300SHP	20"	10658	158	630	1470	2646	3990	5775	7875	10150	10658	
F7600-300SHP	24"	16205	242	966	2254	4057	6118	8855	12075	16100	16205	

# F7 ANSI Class 300 Reinforced Teflon Seat, 316 Stainless Disc

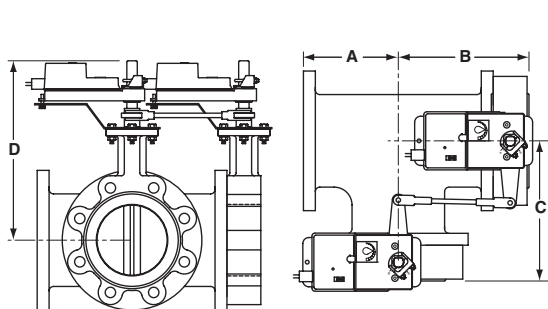


## Maximum Dimensions (Inches)

Valve	Size	C <sub>v</sub> 90°	A	B	C	D(Max)	BHC	No. of Holes	Lug Bolt	Actuator	Close-Off (PSI)
F750-300SHP	2"	100	5.00	6.75	6.75	15.50	5.00	8	5/8-11 UNC	2*GMB(X)	285
F765-300SHP	2.5"	143	5.50	7.38	7.38	16.00	5.88	8	3/4-10 UNC		285
F780-300SHP	3"	223	6.00	7.92	7.92	16.25	6.63	8	3/4-10 UNC		285
F7100-300SHP	4"	435	7.00	9.13	9.13	18.00	7.88	8	3/4-10 UNC		150
F750-300SHP	2"	100	5.00	6.75	6.75	22.25	4.75	8	5/8-11 UNC	SY2...	400
										SY3...	600
F765-300SHP	2.5"	143	5.50	7.38	7.38	22.75	5.50	8	3/4-10 UNC	SY2...	400
										SY3...	600
F780-300SHP	3"	223	6.00	7.92	7.92	23.00	6.00	8	3/4-10 UNC	SY2...	400
										SY3...	600
F7100-300SHP	4"	435	7.00	9.13	9.13	23.75	7.50	8	3/4-10 UNC	SY2...	285
										SY3...	600
F7125-300SHP	5"	688	8.00	10.25	10.25	24.25	8.50	8	3/4-10 UNC	SY3...	285
										SY4...	600
F7150-300SHP	6"	1041	8.50	10.79	10.79	24.75	9.50	12	3/4-10 UNC	SY3...	285
										SY4...	600
F7200-300SHP	8"	1911	10.00	12.88	12.88	32.00	11.75	12	7/8-9 UNC	SY4...	400
										SY5...	600
										SY4...	150
F7250-300SHP	10"	3194	11.50	14.75	14.75	33.00	14.25	16	1-8 UNC	SY5...	285
										SY7...	600
										SY5...	150
F7300-300SHP	12"	4428	13.00	16.62	16.62	35.00	17.00	16	1 1/8-8 UNC	SY7...	400
										SY8...	600
										SY7...	150
F7350-300SHP	14"	5200	15.00	19.62	19.62	36.00	18.75	20	1 1/8-8 UNC	SY8...	400
										SY10...	600
										SY7...	150
F7400-300SHP	16"	8243	16.50	21.75	21.75	37.50	21.25	20	1 1/4-8 UNC	SY9...	285
										SY10...	400
										SY12...	600
										SY8...	150
F7450-300SHP	18"	9712	18.00	23.88	23.88	42.25	22.75	24	1 1/4-8 UNC	SY10...	285
										SY11...	400
F7500-300SHP	20"	10568	19.50	25.81	25.81	49.50	25.00	24	1 1/4-8 UNC	SY9...	150
										SY12...	285
F7600-300SHP	24"	16205	22.5	29.69	29.69	56.25	29.50	24	1 1/2-8 UNC	SY12...	150

Non-Fail Safe

## Dimensions



D101

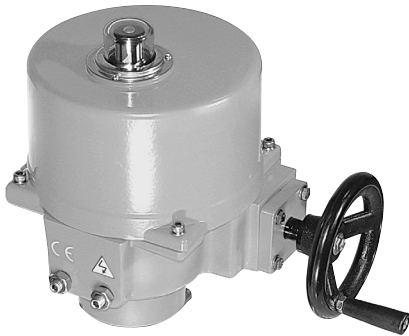
Dimensions "A, B and C" do not include flange gaskets. (3 required per valve)

### Application Notes

1. Valves are rated at 725 psi differential pressure in the closed position @ 100°F media temperature.
2. Valves are furnished with lugs tapped for use between ANSI Class 250/300 flanges conforming to ANSI B16.5 Standards.
3. 3-way assemblies are furnished assembled with Tee, calibrated and tested, ready for installation. All 3 way assemblies require the customer to specify the 3-way configuration code prior to order entry to guarantee correct placement of valves and actuator(s) on the assembly.
4. Dimension "D" allows for actuator(s) removal without the need to remove the valve from the pipe.
5. Weather shields are available, dimensional data furnished upon request.
6. Dual actuated valves have single actuators mounted on each valve shaft.
7. Flange gaskets (3 required, not provided with valve) MUST be used between valve and ANSI flange.
8. Flange bolts are not included with the valve. These are furnished by others.

**Note:** For tee configuration, please refer to page 5.

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### Application:

The SY actuators are NEMA 4X rated and designed to meet the needs of HVAC and Commercial applications. Offered on Belimo standard and high performance valve series, these actuators are available for on/off and modulating applications. Depending on the application, they are available in 24 VAC/ VDC, 120 VAC and 230 VAC.

Technical Data	
Electrical connection	½" conduit connector, screw terminals
Overload protection	thermally protected 135°C cut-out
Motor protection	H Class insulation (SY-1), F Class (SY-2...12)
Gear train	high alloy steel gear sets, self locking
Operating range	(SY...-110) on/off, floating point (SY...120MFT) 2-10 VDC, 4-20mA, 0-10 VDC
Sensitivity	(SY...120MFT) 0.4mA/200mV
Reversal hysteresis	(SY...120MFT) 1.0mA/500mV
Feedback	(SY...120MFT) 2-10 VDC
Angle of rotation	90°
Direction of rotation	reversible
Position indication	top mounted domed indicator
Internal humidity control	resistive heating element
Auxiliary switches	(2) SPDT, 5A 250 VAC factory set for 5° and 85° change of state
Ambient temperature	-22°F to +150°F [-30°C to +65°C]
Humidity range	up to 95%
Housing type	IP67, NEMA 4X
Housing material	die cast aluminum alloy
Agency listings	ISO, CE, cCSAus

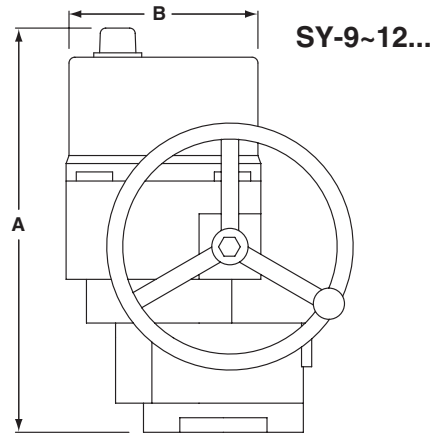
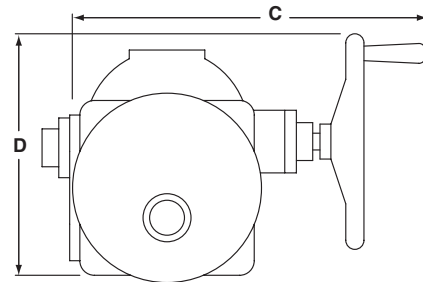
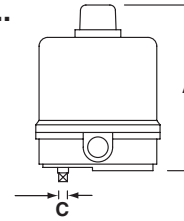
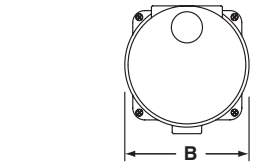
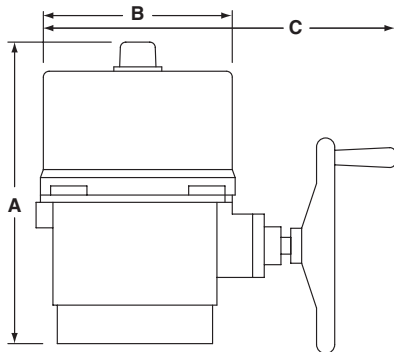
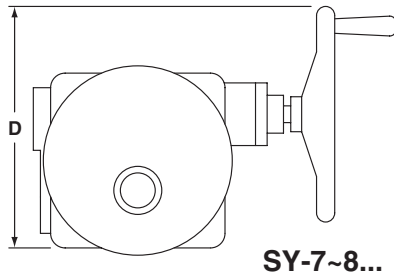
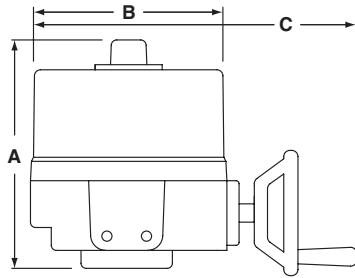
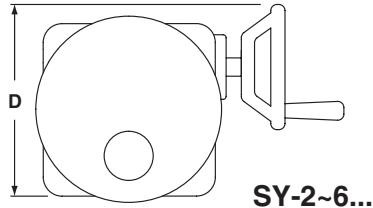
Power Supply 120 VAC 50/60Hz, single phase

Model	Torque	Speed 60Hz	Speed 50Hz	Power Consumption	Duty Cycle			Weight
					On/Off	Proportional	Override	
SY1-110(P)	35Nm/310 in-lbs	12s	13s	0.5A	30%	75%	8mm Wrench	2.0kg/4.9 lb.
SY2-120(MFT)	90Nm/801 in-lbs	15s	17s	1.0A	30%	75%	Hand Wheel	11kg/24.5 lb.
SY3-120(MFT)	150Nm/1335 in-lbs	22s	26s	1.0A	30%	75%	Hand Wheel	11kg/24.5 lb.
SY4-120(MFT)	400Nm/3560 in-lbs	16s	18s	1.3A	30%	75%	Hand Wheel	22kg/48.5 lb.
SY5-120(MFT)	500Nm/4450 in-lbs	22s	25s	1.5A	30%	75%	Hand Wheel	22kg/48.5 lb.
SY6-120(MFT)	650Nm/5785 in-lbs	28s	31s	1.8A	30%	75%	Hand Wheel	22kg/48.5 lb.
SY7-120(MFT)	1000Nm/8900 in-lbs	46s	55s	3.2A	30%	75%	Hand Wheel	36kg/79.5 lb.
SY8-120(MFT)	1500Nm/13350 in-lbs	46s	55s	4.0A	30%	75%	Hand Wheel	36kg/79.5 lb.
SY9-120(MFT)	2000Nm/17800 in-lbs	58s	70s	3.2A	30%	50%	Hand Wheel	56kg/123.5 lb.
SY10-120(MFT)	2500Nm/22250 in-lbs	58s	70s	4.0A	30%	50%	Hand Wheel	56kg/123.5 lb.
SY11-120(MFT)	3000Nm/26700 in-lbs	58s	70s	3.0A	30%	50%	Hand Wheel	56kg/123.5 lb.
SY12-120(MFT)	3500Nm/31150 in-lbs	58s	70s	4.0A	30%	50%	Hand Wheel	56kg/123.5 lb.

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866-805-7089 CANADA

203-791-8396 LATIN AMERICA



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MODEL	DIM A (MAX)	Add to Dim A for cover removal	DIM B	DIM C (MAX)	DIM D
	Inches [mm]	Inches [mm]	Inches [mm]	Inches [mm]	Inches [mm]
SY1	6.10 [155]	3.94 [100]	4.25 [108]	8mm	-
SY2~3	10.04 [255]	7.48 [190]	7.87 [200]	12.99 [330]	7.87 [200]
SY4~6	12.40 [315]	8.86 [225]	9.21 [234]	14.96 [380]	11.81 [300]
SY7~8	16.54 [420]	8.86 [225]	9.21 [234]	17.72 [450]	13.39 [340]
SY9~12	23.23 [590]	8.86 [225]	10.24 [260]	18.50 [470]	13.78 [350]

Note: ~ indicates range of actuator i.e., SY2~3 = SY-2 and SY-3