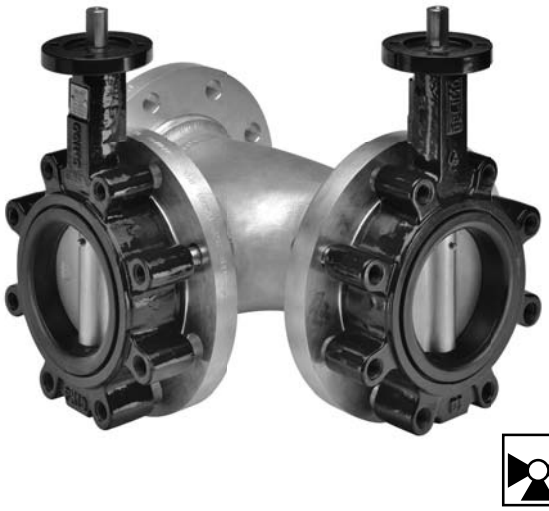


- **50 psi bubble tight shut-off**
- **Long stem design allows for 2" insulation**
- **Valve face-to-face dimensions comply with API 609 & MSS-SP-67**
- **Completely assembled and tested, ready for installation**
- **Tees comply with ASME/ANSI B16.1 Class 125 flanges**

Application

These valves are designed to meet the needs of HVAC and commercial applications requiring bubble tight shut off for liquids. Typical applications include chiller isolation, cooling tower isolation, change-over systems, large air handler coil control, bypass and process control applications. The large C_v values provide for an economical control valve solution for larger flow applications. Designed for use in Victaulic piping systems when mated to Victaulic 41 series flange nipples.

Jobsite Note

Valves should be stored in a weather protected area prior to construction. Complete installation recommendations can be found in Belimo's Installation and Maintenance Instructions for F6/F7…HD/HDU Butterfly Valves.

Technical Data	
Service	chilled, hot water, 60% glycol
Flow characteristic	modified linear
Action	90° rotation
Sizes	2" to 12"
Type of end fitting	for use with ANSI 125/150 flanges
Materials	
Body	ductile iron ASTM A536
Body finish	epoxy powder finish
Disc	304 stainless steel
Seat	EPDM standard
Shaft	416 stainless steel
O-ring	EPDM
Upper bushing	RPTFE
Middle bushings	RPTFE
Lower bushing	RPTFE
Media temperature range	-22°F to 250°F [-30°C to 120°C]
Operation ambient temperature range	-22°F to 122°F [-30°C to 50°C]
Body pressure rating	ASME/ANSI Class 125/150 (200 psi at -30°F to 275°F)
Close-off pressure	50 psi
Rangeability	10:1 (for 30° to 70° range)
Maximum velocity	12 FPS

		Valve Nominal Size		Type	Suitable Actuators		
C_v 90°	C_v 60°	IN	DN [mm]	3-way	Spring	Non-Spring	
115	44	2"	50	F750HDU	AF Series	AM	SY Series
196	75	2½"	65	F765HDU		GM Series	
302	116	3"	80	F780HDU			
600	230	4"	100	F7100HDU			
1022	392	5"	125	F7125HDU			
1579	605	6"	150	F7150HDU			
3136	1202	8"	200	F7200HDU			
5340	2047	10"	250	F7250HDU			
8250	3062	12"	300	F7300HDU			

			MOD								ON/OFF
Valve	Size	C_v	10°	20°	30°	40°	50°	60°	70°	80°	90°
F750HDU	2"	115	.06	3	7	15	27	44	70	105	115
F765HDU	2½"	196	.10	6	12	25	45	75	119	178	196
F780HDU	3"	302	.20	9	18	39	70	116	183	275	302
F7100HDU	4"	600	.30	17	36	78	139	230	364	546	600
F7125HDU	5"	1022	.50	29	61	133	237	392	620	930	1022
F7150HDU	6"	1579	.80	45	95	205	366	605	958	1437	1579
F7200HDU	8"	3136	2	89	188	408	727	1202	1903	2854	3136
F7250HDU	10"	5340	3	151	320	694	1237	2047	3240	4859	5340
F7300HDU	12"	8250	4	234	495	1072	1911	3062	5005	7507	8250

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F7…HDU Butterfly Valves 2”–12” Ductile Iron Lug Body Resilient Seat, 304 Stainless Disc

Maximum Dimensions (Inches)

Valve	Size	C_v 90°	A	B	C	D(Max)	BHC	No. of Holes	Lug Bolt	Actuator	Close-Off (PSI)	
F750HDU	2”	115	4.50	6.15	6.15	15.50	4.75	4	5/8-11UNC	AF	50	Fail Safe
F765HDU	2½”	196	5.00	6.76	6.76	16.00	5.50	4	5/8-11UNC	2*AF	50	Fail Safe
F780HDU	3”	302	5.50	7.28	7.28	16.25	6.00	4	5/8-11UNC	2*AF	50	Fail Safe
F750HDU	2”	115	4.50	6.15	6.15	15.50	4.75	4	5/8-11UNC	SY1…	50	
F765HDU	2½”	196	5.00	6.76	6.76	16.00	5.50	4	5/8-11UNC	SY1…	50	
F780HDU	3”	302	5.50	7.28	7.28	21.00	6.00	4	5/8-11UNC	SY2…	50	Non-Fail Safe
F7100HDU	4”	600	6.50	8.55	8.55	21.75	7.50	8	5/8-11UNC	SY2…	50	Non-Fail Safe
F7125HDU	5”	1022	7.50	9.64	9.64	22.25	8.50	8	3/4-10UNC	SY2…	50	Non-Fail Safe
F7150HDU	6”	1579	8.00	10.19	10.19	22.75	9.50	8	3/4-10UNC	SY2…	50	Non-Fail Safe
F7200HDU	8”	3136	9.00	11.37	11.37	24.25	11.75	8	3/4-10UNC	SY3…	50	Non-Fail Safe
F7250HDU	10”	5340	11.00	13.58	13.58	30.00	14.25	12	7/8-9UNC	SY4…	50	Non-Fail Safe
F7300HDU	12”	8250	12.00	15.01	15.01	32.00	17.00	12	7/8-9UNC	SY4…	50	Non-Fail Safe

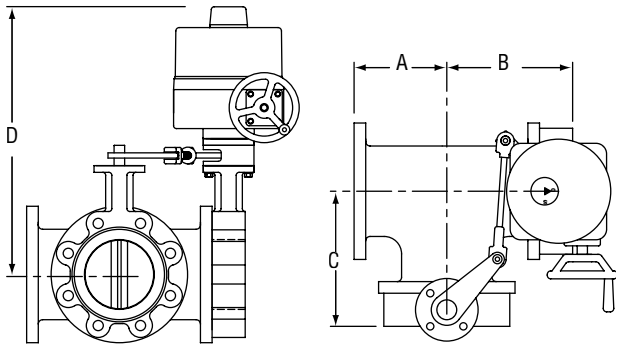
AF maximum actuator ambient temperature is 122°F.
SY... maximum actuator ambient temperature is 150°F.
Model SY1… does not have hand wheel-override is via 8mm wrench on bottom side of actuator.

Application Notes

1. Valves are rated at 50 psi differential pressure in the closed position.
2. Valves are furnished with lugs tapped for use with ANSI Class 125/150 flanges. Installation flanges and hardware are not included.
3. 3-way assemblies are furnished assembled and tested, ready for installation. **All 3-way assemblies require the customer to specify the 3-way configuration prior to order entry to guarantee correct placement of valves and actuators on the assembly.**
4. Dimension “D” allows for actuator removal without the need to remove the valve from the pipe.
5. Weather shields are available, dimensional data upon request.
6. Dual actuated valves have single actuators mounted on each valve shaft.
7. Bolts supplied are for shipping purposes only. Upon installation replace with an appropriate SAE grade 5 or better hardware.
8. Belimo SY Series actuators are NEMA 4X rated.

Dimensions

HS DWGP15



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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.

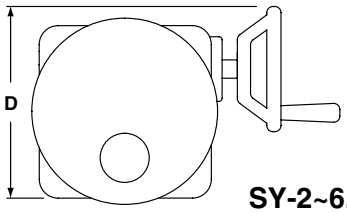
Depending on the application, they are available in 24 VAC/ VDC, 120 VAC and 230 VAC.

Technical Data	
Electrical connection	½" conduit connector, screw terminals
Motor protection	H Class insulation (SY-1), F Class (SY-2…5)
Gear train	high alloy steel gear sets, self locking
Operating range	(SY…-24) on/off, floating point (SY...24MFT) 2-10 VDC, 4-20 mA, 0-10 VDC
Sensitivity	(SY…24MFT) 0.4 mA/200mV
Reversal hysteresis	(SY…24MFT)1.0 mA/500mV
Feedback	(SY…24MFT) 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	factory set for 5° and 85° change of state SY1: (2) SPDT, min 1 mA, 24 VAC; max 3A, 250 VAC. SY2-12: (2) SPDT, min 1 mA, 24 VAC; max 5A, 250 VAC.
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

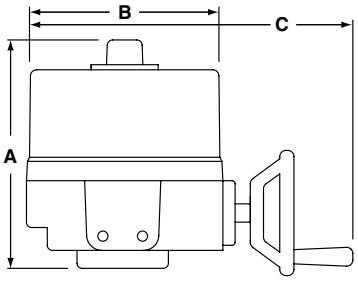
Power Supply 24 VAC/VDC 50/60Hz, single phase

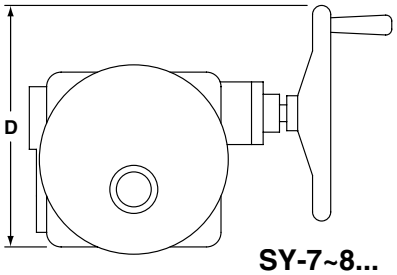
Model	Torque	Speed	Power Consumption	Duty Cycle		Override	Weight
				On/Off	MFT		
SY1-24(P)	35Nm/310 in-lbs	15s	1.8A	30%	75%	8mm Wrench	2.0kg/4.9 lb.
SY2-24(MFT)	90Nm/801 in-lbs	15s	3.0A	30%	75%	Hand Wheel	11kg/24.5 lb.
SY3-24(MFT)	150Nm/1335 in-lbs	22s	3.0A	30%	75%	Hand Wheel	11kg/24.5 lb.
SY4-24(MFT)	400Nm/3560 in-lbs	16s	6.0A	30%	75%	Hand Wheel	22kg/48.5 lb.
SY5-24(MFT)	500Nm/4450 in-lbs	22s	6.5A	30%	75%	Hand Wheel	22kg/48.5 lb.

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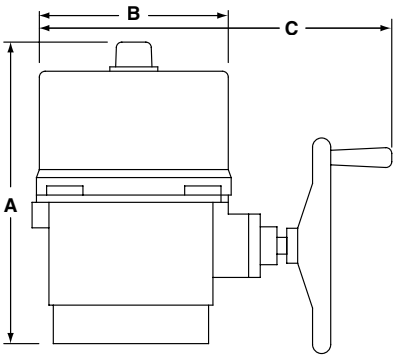


SY-2~6...

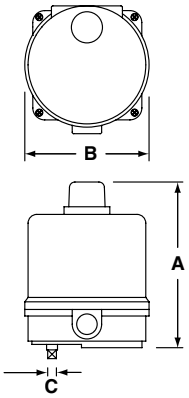


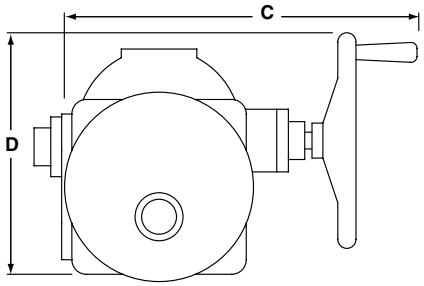


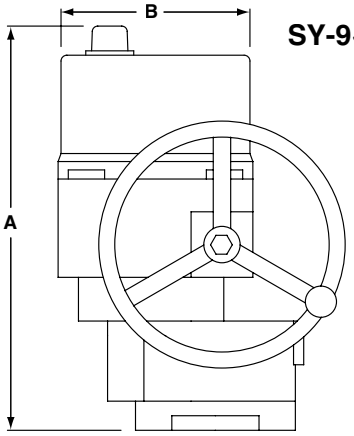
SY-7~8...



SY-1...







SY-9~12...

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

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