



- 200 psi (2" to 12") and 150 psi (14"-30") 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. Fail safe operation is possible with NSV-SY series battery backup systems.

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 F7...HD Butterfly Valves.

Technical Data	
Service	chilled, hot water, 60% glycol
Flow characteristic	modified linear
Controllable flow range	82°
Sizes	2" to 24"
Type of end fitting	for use with ANSI 125/150 flanges
Materials:	
Body	ductile iron ASTM A536
Body finish	epoxy powder coated
Disc	304 stainless steel
Seat	EPDM standard
Shaft	416 stainless steel
O-ring	EPDM
Bushings	RPTFE
Media temperature range	-22°F to 250°F [-30°C to 120°C]
Body pressure rating	ASME/ANSI Class 125/150
Close-off pressure	200 psi (2"-12"), 150 psi (14"-24")
Rangeability	10:1 (for 30° to 70° range)
Maximum Velocity	12 FPS

Valve		Nominal Size		Type	Suitable Actuators			Electronic Fail-Safe	
C _v 90°	C _v 60°	IN	DN [mm]	2-way	Spring	Non-Spring			
115	44	2"	50	F750HD	AF Series	AM	SY Series	GK	
196	75	2½"	65	F765HD					
302	116	3"	80	F780HD		GM			
600	230	4"	100	F7100HD					
1022	392	5"	125	F7125HD					
1579	605	6"	150	F7150HD					
3136	1202	8"	200	F7200HD					
5340	2047	10"	250	F7250HD					
8250	3062	12"	300	F7300HD					
11917	4568	14"	350	F7350HD					
16388	6282	16"	400	F7400HD					
21705	8320	18"	450	F7450HD					
27908	10698	20"	500	F7500HD					
43116	16528	24"	600	F7600HD					

Valve	Size	C_v	MOD							ON/OFF	
			10°	20°	30°	40°	50°	60°	70°	80°	90°
F750HD	2"	115	.06	3	7	15	27	44	70	105	115
F765HD	2½"	196	.10	6	12	25	45	75	119	178	196
F780HD	3"	302	.20	9	18	39	70	116	183	275	302
F7100HD	4"	600	.30	17	36	78	139	230	364	546	600
F7125HD	5"	1022	.50	29	61	133	237	392	620	930	1022
F7150HD	6"	1579	.80	45	95	205	366	605	958	1437	1579
F7200HD	8"	3136	2	89	188	408	727	1202	1903	2854	3136
F7250HD	10"	5340	3	151	320	694	1237	2047	3240	4859	5340
F7300HD	12"	8250	4	234	495	1072	1911	3062	5005	7507	8250
F7350HD	14"	11917	6	338	715	1549	2761	4568	7230	10844	11917
F7400HD	16"	16388	8	464	983	2130	3797	6282	9942	14913	16388
F7450HD	18"	21705	11	615	1302	2822	5028	8320	13168	19752	21705
F7500HD	20"	27908	14	791	1674	3628	6465	10698	16931	25396	27908
F7600HD	24"	43116	22	1222	2587	5605	9989	16528	26157	39236	43116

F7 Series 3-Way, HD Butterfly Valve
Resilient Seat, 304 Stainless Disc



Table with 12 columns: Valve, Size, Cv 90°, A, B, C, D(Max), BHC, No. of Holes, Lug Bolt, Actuator, Close-Off (PSI). Rows include various valve models (F750HD to F7600HD) and actuator types (AF, SY2... to SY12...).

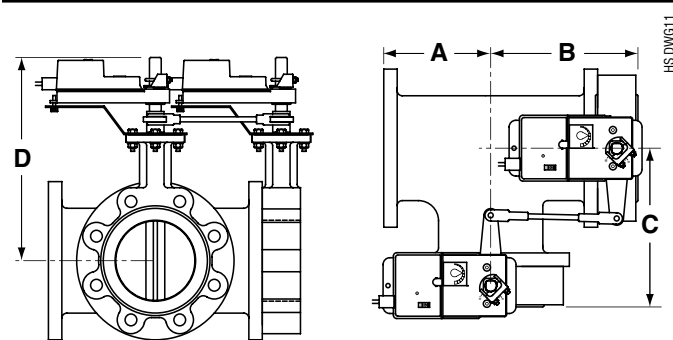
AF maximum actuator ambient temperature is 122°F.
SY... maximum actuator ambient temperature is 150°F.
†SY6 and larger available in 110/220 VAC versions only.

Application Notes

- 1. Valves are rated at 200 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. Belimo SY Series actuators are NEMA 4X rated.
6. Weather shields are available, dimensional data upon request.
7. Dual actuated valves have single actuators mounted on each valve shaft.

Note: For tee configuration, please refer to page 4.

Dimensions



3-Way Configuration Codes

Diagrams showing three-way configurations: MASTER/COMMON/SLAVE, COMMON/MASTER/SLAVE, and SLAVE/COMMON/MASTER. Below are tables mapping configuration codes (X10-X15, X20-X25, X30-X35) to valve states (OPEN, CLOSED) and master valve fail positions (NON-FAIL, OPEN, CLOSED).

- NOTES
- 1. Slave Valve operates inversely of the Master Valve.
2. The Master Valve is always located on the run.
3. The Slave Valve may also have an actuator if required (Direct Coupled).
4. On/Off actuator normal position is a function of field logic.
5. Proportional actuator normal position is a function of the CCW/CW switch.
6. All 3-way assemblies are designed for 90 degree actuator rotation.

ORDERING INFORMATION
Please note that HD series BF valves over 18" and ALL sizes 3-way tee assemblies ordered with Configuration Codes 30-35 are special order/custom built and are NOT returnable.

GM/GR Actuators, On/Off, Floating Point



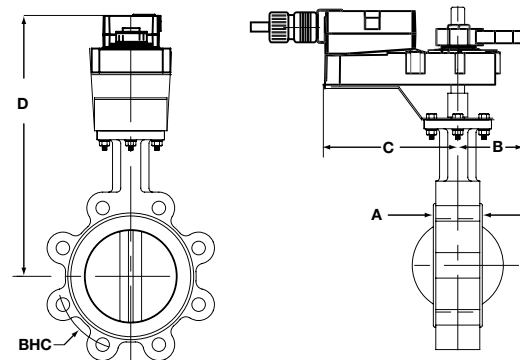
Models

GMB24-3-X1
GRB24-3-X1
GRB24-3-5
GRB24-3-7

Technical Data	
Power supply	24 VAC $\pm$ 20% 50/60 Hz 24 VDC $\pm$ 10%
Power consumption	running 4.0 W holding 2 W
Transformer sizing	6 VA (class 2 power source)
Electrical connection	3 ft, 18 GA appliance cable, 1/2" conduit connector
Overload protection	electronic throughout 0 to 95° rotation
Control signal	On/Off, Floating Point
Input impedance	600 Ω
Angle of rotation	mechanically limited to 95°
Direction of rotation	reversible with switch A/B
Position indication	0 to 1 and reversible indicator
Running time	150 sec.
Humidity	5 to 95% RH non-condensing
Ambient temperature	-22°F to 122°F [-30°C to 50°C]
Storage temperature	-40°F to 176°F [-40°C to 80°C]
Housing	NEMA 2/IP54
Housing material	UL94-5VA (flammability rating)
Agency listings	cULus according to UL60730-1A/-2-14, CAN/CSA E60730-1, CSA C22.2 No.24-93, CE according to 89/336/EEC
Noise level	max. 45 dB (A)
Servicing	maintenance free
Quality standard	ISO 9001

Note: GR Actuators are on 2-way valves
GM Actuators are on 3-way valves

Dimensions with 2-Way Valve

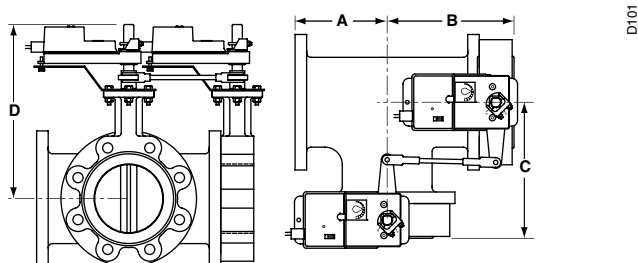


AM_GM_LineRevised

Valve	Size	Dimensions (Inches)					Non-Fail Safe (psi)	
		A	B	C	D(Max)	BHC	GM	2*GM
F680HD	3"	1.78	7.00	7.00	16.00	6.00	200	
F6100HD	4"	2.05	8.00	8.00	17.00	7.50		200
F6100H DU	4"	2.05	8.00	8.00	17.00	7.50	50	
F6125H DU	5"	2.14	8.00	8.00	17.50	8.50	50	
F6150H DU	6"	2.19	8.00	8.00	22.50	9.50		50
F650-150SHP	2"	1.75	9.00	9.00	19.50	4.75	285	
F665-150SHP	2½"	1.88	9.00	9.00	20.00	5.50	285	
F680-150SHP	3"	1.92	9.00	9.00	20.50	6.00	285	
F6100-150SHP	4"	2.13	9.00	9.00	21.00	7.50	150	285
F650-300SHP	2"	1.75	9.00	9.00	19.50	5.00	285	400
F665-300SHP	2½"	1.88	9.00	9.00	20.00	5.88	285	400
F680-300SHP	3"	1.92	9.00	9.00	20.50	6.63	285	400
F6100-300SHP	4"	2.13	9.00	9.00	21.00	7.88	150	285
F665VIC	2½"	3.77	7.00	7.00	15.50	-	200	
F680VIC	3"	3.77	7.00	8.00	15.50	-	200	
F6100VIC	4"	4.63	8.00	8.00	16.00	-		200

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Dimensions with 3-Way Valve



Dimensions (Inches)						Non-Fail Safe (psi)	
Valve	Size	A	B	C	D(Max)	BHC	GM 2*GM
F765HD	2½"	5.00	6.70	6.70	16.00	5.50	200
F780HD	3"	5.50	7.20	7.20	16.25	6.00	200
F780H DU	3"	5.50	7.20	7.20	16.25	6.00	50
F7100H DU	4"	6.50	8.45	8.45	17.00	7.50	50
F7125H DU	5"	7.50	9.60	9.60	17.50	8.50	50
F7150H DU	6"	8.00	10.08	10.08	18.00	9.50	50
F750-150SHP	2"	4.50	6.25	6.25	16.50	4.75	150 285
F765-150SHP	2½"	5.00	6.88	6.88	17.00	5.50	150 285
F780-150SHP	3"	5.50	7.42	7.42	17.50	6.00	150 285
F7100-150SHP	4"	6.50	8.63	8.63	18.00	7.50	150
F750-300SHP	2"	5.00	6.75	6.75	15.50	5.00	285
F765-300SHP	2½"	5.50	7.38	7.38	16.00	5.88	285
F780-300SHP	3"	6.00	7.92	7.92	16.25	6.63	285
F7100-300SHP	4"	7.00	9.13	9.13	18.00	7.88	150
F750VIC	2"	5.00	6.70	6.70	15.50	-	50
F765VIC	2½"	5.25	7.25	7.25	15.50	-	200
F780VIC	3"	6.00	7.25	7.25	16.00	-	50

Wiring Diagrams

INSTALLATION NOTES



CAUTION Equipment damage!

Actuators may be connected in parallel.
Power consumption and input impedance must be observed.



Actuators may also be powered by 24 VDC.



Actuators with plenum rated cable do not have numbers on wires; use color codes instead. Actuators with appliance cables are numbered.



APPLICATION NOTES



Meets cULus or UL and CSA requirements without the need of an electrical ground connection.



WARNING Live Electrical Components!

During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.

