

Resilient Seat, 304 Stainless Steel Disc
Butterfly Valve with Lug types

- Disc 304 stainless steel
- Bubble tight shut-off
- Resilient seat
- Valve face-to-face dimensions comply with API 609 & MSS-SP-67
- Completely assembled and tested, ready for installation


5-year warranty
Type overview

Type	DN
F780HD	80

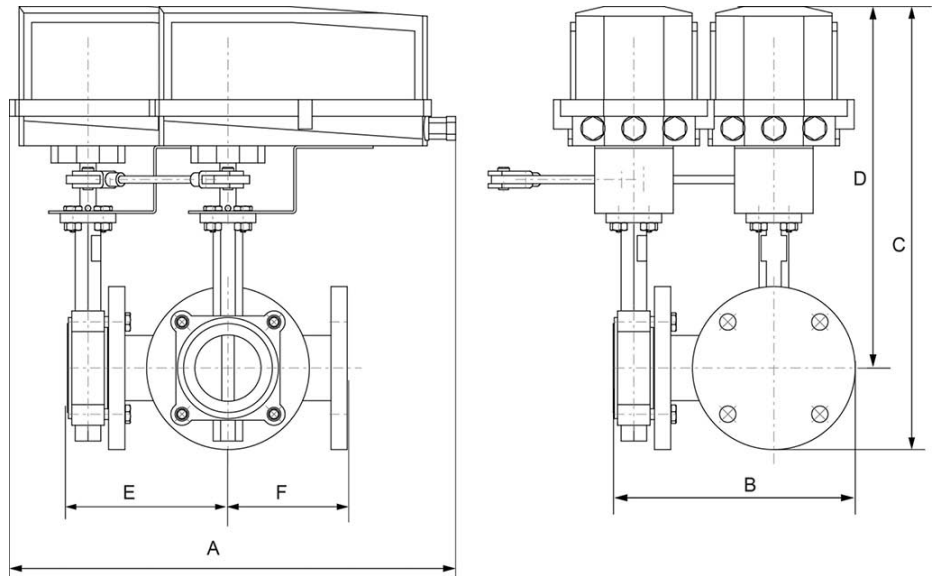
Technical data

Functional data	Valve size [mm]	3" [80]
	Fluid	chilled or hot water, up to 60% glycol
	Fluid Temp Range (water)	-22...250°F [-30...120°C]
	Body Pressure Rating	ANSI Class Consistent with 125, 232 psi CWP
	Close-off pressure Δps	200 psi
	Flow characteristic	modified linear
	Servicing	maintenance-free
	Flow Pattern	3-way Mixing/Diverting
	Leakage rate	0%
	Controllable flow range	90° rotation
	Cv	302
	Maximum Velocity	12 FPS
	Lug threads	5/8-11 UNC
Materials	Valve body	Ductile cast iron ASTM A536
	Body finish	epoxy powder coating (blue RAL 5002)
	Stem	416 stainless steel
	Seat	EPDM
	Pipe connection	for use with ANSI class 125/150 flanges
	Bearing	RPTFE
	Disc	304 stainless steel
	Gear operator materials	Gears - hardened steel
Suitable actuators	Non-Spring	(2*GMB(X))
	Electrical fail-safe	(2*GKB(X))

Dimensions

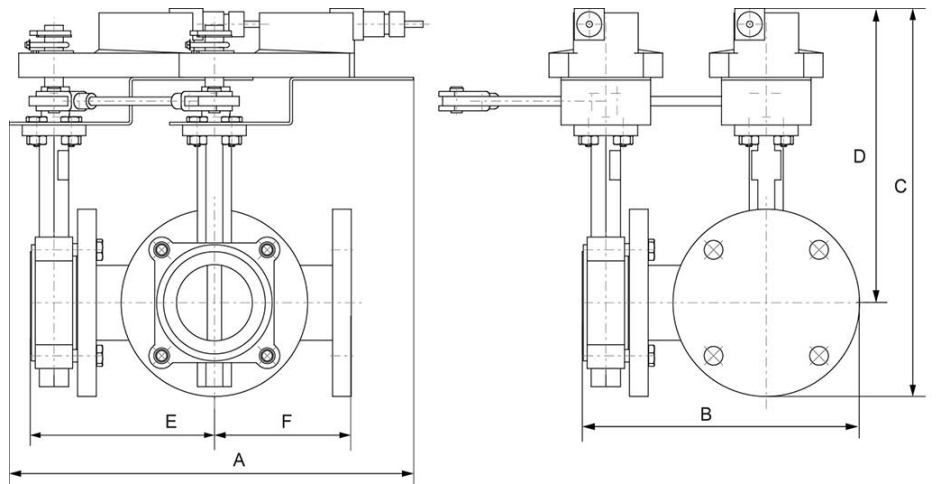
Type	DN	Weight
F780HD	80	51 lb [23 kg]

Valve with 2*GM...N4 Actuator



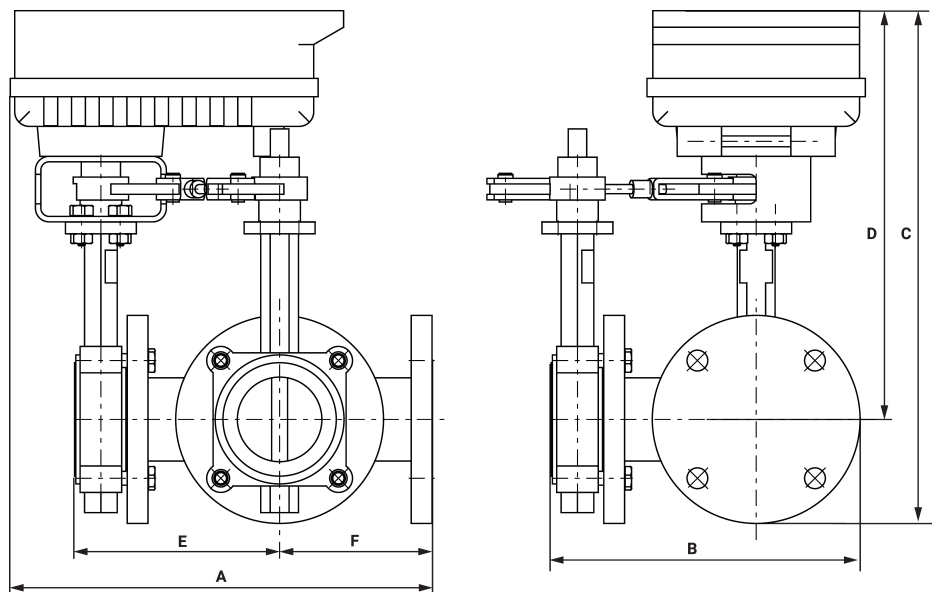
A	B	C	D	E	F	Number of Bolt Holes
20.6" [522]	11.2" [284]	20.5" [521]	16.7" [425]	7.4" [187]	5.5" [140]	4

Valve with 2*GM Actuator

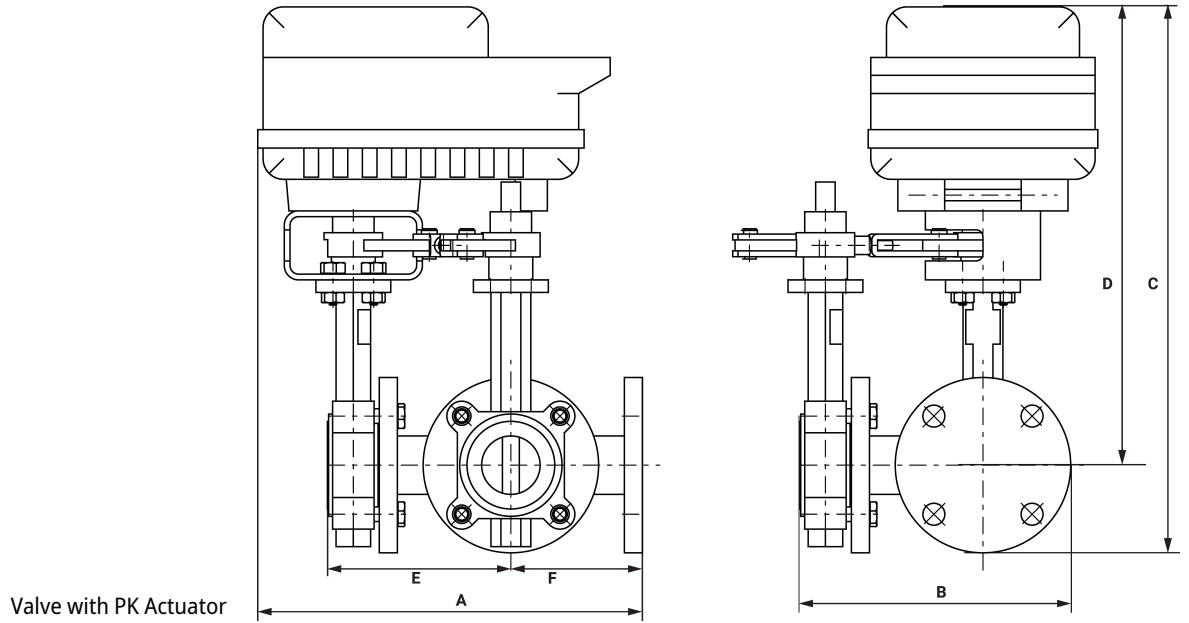


A	B	C	D	E	F	Number of Bolt Holes
17.3" [440]	11.2" [284]	16.8" [426]	13.1" [334]	7.4" [187]	5.5" [140]	4

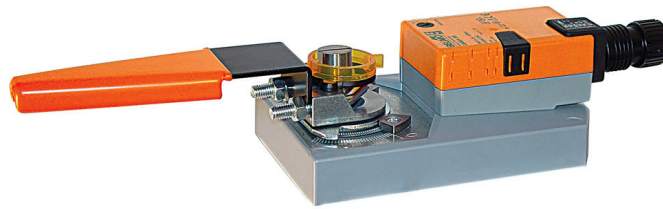
Valve with PR Actuator



A	B	C	D	E	F	Number of Bolt Holes
15.3" [388]	11.3" [286]	18.5" [470]	14.7" [374]	7.4" [187]	5.5" [140]	4



A	B	C	D	E	F	Number of Bolt Holes
15.3" [388]	11.3" [286]	20.3" [515]	16.5" [419]	7.4" [187]	5.5" [140]	4



Technical data

Electrical data	Nominal voltage	AC/DC 24 V	
	Nominal voltage frequency	50/60 Hz	
	Nominal voltage range	AC 19.2...28.8 V / DC 21.6...28.8 V	
	Power consumption in operation	15 W	
	Power consumption in rest position	4 W	
	Transformer sizing	12 VA	
	Electrical Connection	18 GA appliance cables, 3 ft [1 m], 10 ft [3 m] or 16ft [5 m], with 1/2" conduit connector	
	Overload Protection	electronic throughout 0...95° rotation	
Functional data	Operating range Y	2...10 V	
	Operating range Y note	4...20 mA w/ ZG-R01 (500 Ω, 1/4 W resistor)	
	Input Impedance	100 kΩ for 2...10 V (0.1 mA), 500 Ω for 4...20 mA, 1500 Ω for PWM, On/Off and Floating point	
	Operating range Y variable	Start point 0.5...30 V End point 2.5...32 V	
	Operating modes optional	variable (VDC, on/off, floating point)	
	Position feedback U	2...10 V	
	Position feedback U note	Max. 0.5 mA	
	Position feedback U variable	VDC variable	
	Direction of motion motor	selectable with switch 0/1	
	Manual override	external push button	
	Angle of rotation	Max. 95°	
	Angle of rotation note	adjustable with mechanical stop	
	Running Time (Motor)	150 s / 90°	
	Running time motor note	constant, independent of load	
	Running time motor variable	75...290 s	
	Noise level, motor	45 dB(A)	
Position indication	Mechanically, 30...65 mm stroke		
Safety data	Power source UL	Class 2 Supply	
	Degree of protection IEC/EN	IP54	
	Degree of protection NEMA/UL	NEMA 2	
	Enclosure	UL Enclosure Type 2	
	Agency Listing	cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02 CE acc. to 2014/30/EU and 2014/35/EU	
	UL 2043 Compliant	Suitable for use in air plenums per Section 300.22(C) of the NEC and Section 602 of the IMC	
	Quality Standard	ISO 9001	
	Ambient temperature	-22...122°F [-30...50°C]	
	Storage temperature	-40...176°F [-40...80°C]	
	Ambient humidity	Max. 95% RH, non-condensing	
	Servicing	maintenance-free	
	Weight	Weight	9.92 lb [4.5 kg]

Materials Housing material Galvanized steel and plastic housing

Footnotes †Rated Impulse Voltage 800V, Type action 1, Control Pollution Degree 3.

Accessories

Gateways	Description	Type
	Gateway MP to BACnet MS/TP	UK24BAC
	Gateway MP to Modbus RTU	UK24MOD
	Gateway MP to LonWorks	UK24LON
Electrical accessories	Description	Type
	Battery backup system, for non-spring return models	NSV24 US
	Battery, 12 V, 1.2 Ah (two required)	NSV-BAT
	Auxiliary switch 1 x SPDT add-on	S1A
	Auxiliary switch 2 x SPDT add-on	S2A
	Feedback potentiometer 140 Ω add-on, grey	P140A GR
	Feedback potentiometer 1 kΩ add-on, grey	P1000A GR
	Feedback potentiometer 10 kΩ add-on, grey	P10000A GR
	Feedback potentiometer 2.8 kΩ add-on, grey	P2800A GR
	Feedback potentiometer 500 Ω add-on, grey	P500A GR
	Feedback potentiometer 5 kΩ add-on, grey	P5000A GR
Service tools	Description	Type
	Connection cable 10 ft [3 m], A: RJ11 6/4 ZTH EU, B: 3-pin Weidmüller and supply connection	ZK4-GEN
	Service Tool, with ZIP-USB function, for programmable and communicative Belimo actuators, VAV controller and HVAC performance devices	ZTH US

Electrical installation
INSTALLATION NOTES

- Actuators with appliance cables are numbered.
- Provide overload protection and disconnect as required.
- Actuators may also be powered by DC 24 V.
- Only connect common to negative (-) leg of control circuits.
- A 500 Ω resistor (ZG-R01) converts the 4...20 mA control signal to 2...10 V.
- Control signal may be pulsed from either the Hot (Source) or Common (Sink) 24 V line.
- For triac sink the Common connection from the actuator must be connected to the Hot connection of the controller. Position feedback cannot be used with a triac sink controller; the actuator internal common reference is not compatible.
- Actuators may be controlled in parallel. Current draw and input impedance must be observed.
- Master-Slave wiring required for piggy-back applications. Feedback from Master to control input(s) of Slave(s).
- Meets cULus 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.

Wiring diagrams

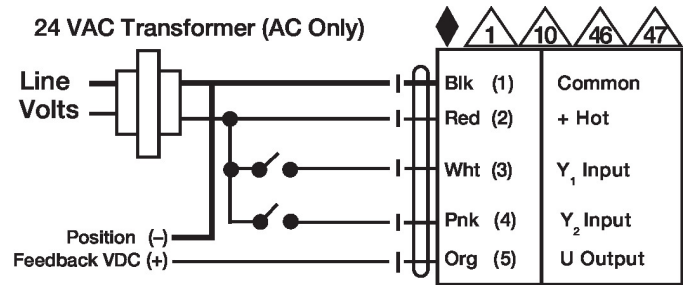
On/Off

24 VAC Transformer



Floating Point

24 VAC Transformer (AC Only)



VDC/mA Control

24 VAC Transformer



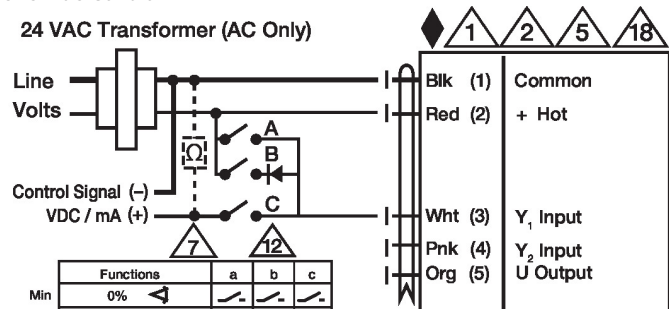
PWM Control

24 VAC Transformer (AC only)



Override Control

24 VAC Transformer (AC Only)



Functions	a	b	c
Min	0%	<input type="checkbox"/>	<input type="checkbox"/>
Mid	50%	<input type="checkbox"/>	<input type="checkbox"/>
Max	100%	<input type="checkbox"/>	<input type="checkbox"/>
Normal	Control mode acc. to Y ₁	<input type="checkbox"/>	<input type="checkbox"/>

Master - Slave

