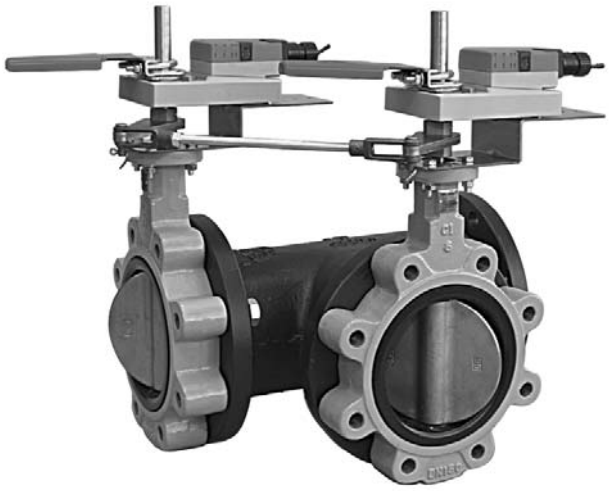
Contents



Butterfly Valve:
UFLK Series **Linkage Solution**
2-way Valves
3-way Valves

Retrofit Solutions for Virtually any Valve

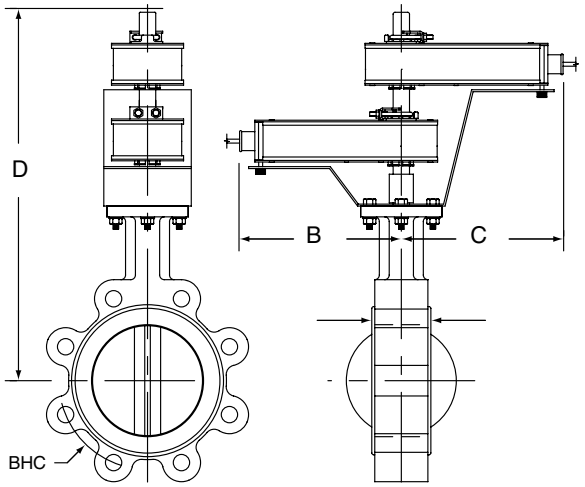
Manufacturers:

Butterfly: **Bray, Centerline, Keystone, Flowseal and more**

Control: **On/Off, Floating, 2-10VDC**
Multi-Function Technology®
Spring Return or
Non-Spring Return

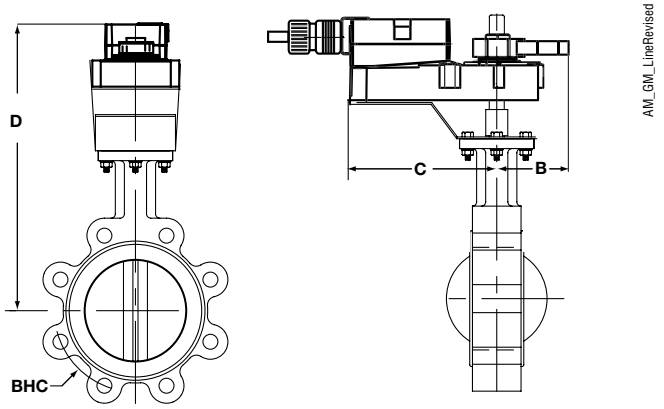
2 YEAR WARRANTY

Dimensions with 2-Way Valve



BF2WUDIM

Dimensions with 2-Way Valve



AM_GM_LineRevised

Maximum Dimensions (Inches)

Size	B	C	D(Max)	Actuator
2”	9	9	19.5	AF
2”	7	7	15	AMB(X)
2”	4.25	4.25	15.5	SY1...
2”	8	13	20.25	SY2…
2½”	9	9	20	AF
2½”	9	9	20	2*AF
2½”	7	7	15.5	AMB(X)
2½”	4.25	4.25	16	SY1...
2½”	8	13	20.75	SY2…
3”	7	7	16	AMB(X)
3”	8	8	16	GMB(X)
3”	9	9	20.5	2*AF
3”	4.25	4.25	16.25	SY1...
3”	8	13	21	SY2…
4”	8	8	17	GMB(X)
4”	9	9	21	2*AF
4”	8	8	21	2*GMB(X)
4”	8	13	21.75	SY2…
5”	8	8	17.5	GMB(X)
5”	9	9	22	2*AF
5”	8	13	22.25	SY2…
6”	8	8	22.5	GMB(X)
6”	8	13	23	SY2...
6”	8	13	22.75	SY3…
8”	8	13	24.25	SY3...
8”	12	15	29	SY4…
10”	8	13	25.5	SY3...
10”	12	15	30	SY4…
12”	8	13	27.25	SY3...
12”	12	15	32	SY4…
14”	12	15	33	SY5…
16”	12	15	34.5	SY6…
18”	14	21	39.25	SY8…
20”	14	21	41.5	SY8…
24”	14	22	53.25	SY11…
30”	14	22	57.5	SY12…

Application Notes

1. Dimensions are approximate
2. Custom kits may be taller and varies by application needs
3. Dimension “D” allows for actuator removal without the need to remove the valve from the pipe.
4. Dual actuated valves have single actuators mounted on each valve shaft.

SY Series Actuators

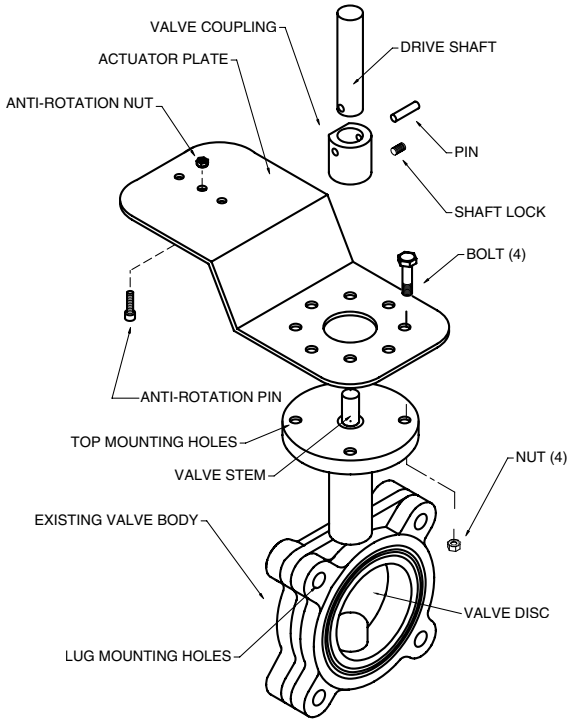
						CONTROL			
SERIES	MODEL	TORQUE	RUN TIME(S) 90°@60Hz	POWER SUPPLY	DUTY CYCLE	PROPORTIONAL	3 POINT	ON/OFF	FEEDBACK
SY1	SY1-110	35 Nm / 310 in-lb	12 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k
	SY1-24	35 Nm / 310 in-lb	12 seconds	24 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k
	SY1-220	35 Nm / 310 in-lb	12 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k
	SY1-110P	35 Nm / 310 in-lb	12 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA
	SY1-24P	35 Nm / 310 in-lb	12 seconds	24 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA
	SY1-220P	35 Nm / 310 in-lb	12 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA
SY2	SY2-110	90 Nm / 801 in-lb	15 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k
	SY2-24	90 Nm / 801 in-lb	15 seconds	24 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k
	SY2-220	90 Nm / 801 in-lb	15 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k
	SY2-120MFT	90 Nm / 801 in-lb	15 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA
	SY2-24MFT	90 Nm / 801 in-lb	15 seconds	24 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA
	SY2-230MFT	90 Nm / 801 in-lb	15 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA
SY3	SY3-110	150 Nm / 1335 in-lb	22 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k
	SY3-24	150 Nm / 1335 in-lb	22 seconds	24 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k
	SY3-220	150 Nm / 1335 in-lb	22 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k
	SY3-24MFT	150 Nm / 1335 in-lb	22 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA
	SY3-120MFT	150 Nm / 1335 in-lb	22 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA
	SY3-230MFT	150 Nm / 1335 in-lb	22 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA
SY4	SY4-110	400 Nm / 3560 in-lb	16 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k
	SY4-24	400 Nm / 3560 in-lb	16 seconds	24 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k
	SY4-220	400 Nm / 3560 in-lb	16 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k
	SY4-24MFT	400 Nm / 3560 in-lb	16 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA
	SY4-120MFT	400 Nm / 3560 in-lb	16 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA
	SY4-230MFT	400 Nm / 3560 in-lb	16 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA
SY5	SY5-110	500 Nm / 4450 in-lb	22 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k
	SY5-24	500 Nm / 4450 in-lb	22 seconds	24 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k
	SY5-220	500 Nm / 4450 in-lb	22 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k
	SY5-24MFT	500 Nm / 4450 in-lb	22 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA
	SY5-120MFT	500 Nm / 4450 in-lb	22 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA
	SY5-230MFT	500 Nm / 4450 in-lb	22 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA
SY6	SY6-110	650 Nm / 5785 in-lb	28 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k
	SY6-220	650 Nm / 5785 in-lb	28 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k
	SY6-120MFT	650 Nm / 5785 in-lb	28 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA
	SY6-230MFT	650 Nm / 5785 in-lb	28 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA
SY7	SY7-110	1000 Nm / 8900 in-lb	46 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k
	SY7-220	1000 Nm / 8900 in-lb	46 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k
	SY7-120MFT	1000 Nm / 8900 in-lb	46 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA
	SY7-230MFT	1000 Nm / 8900 in-lb	46 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA
SY8	SY8-110	1500 Nm / 13350 in-lb	46 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k
	SY8-220	1500 Nm / 13350 in-lb	46 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k
	SY8-120MFT	1500 Nm / 13350 in-lb	46 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA
	SY8-230MFT	1500 Nm / 13350 in-lb	46 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA

Proportional actuators will accept 0-10 VDC, 2-10 VDC, or 4-20 mA control signals as standard.
All SY actuators are non-spring return, but can be used with NSV-SY back up systems for fail-safe applications.
These products carry a two year warranty when sold as part of an assembly or with a UFLK retrofit kit.

Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage
141/143 Series Butterfly Valves	2-way	2”	No	150	GM	**UFLK1000**
					SY1	**UFLK1036**
					SY2	**UFLK1038**
			Yes	150	2*AF	**UFLK1002**
					GK	**UFLK1000**
		2½”	No	150	2*GM	**UFLK1002**
					SY2	**UFLK1038**
			Yes	150	2*GK	**UFLK1002**
		3”	No	150	2*GM	**UFLK1002**
					SY2	**UFLK1038**
			Yes	150	2*GK	**UFLK1002**
		4”	No	150	SY2	**UFLK1040**
		5”	No	150	SY3	**UFLK1042**
		6”	No	150	SY3	**UFLK1042**
		8”	No	150	SY4	**UFLK1044**
		10”	No	150	SY4	**UFLK1046**
		12”	No	150	SY6	**UFLK1048**
		14”	No	150	SY7	**UFLK1050**
		16”	No	150	SY8	**UFLK1052**
		18”	No	150	SY9	**UFLK1054**
		20”	No	150	SY10	**UFLK1056**
		24”	No	150	SY11	**UFLK1058**
	3-way	2”	No	150	2*GM	**UFLK4002**
					SY2	**UFLK4036**
			Yes	150	2*GK	**UFLK4002**
		2½”	No	150	2*GM	**UFLK4002**
					SY2	**UFLK4036**
			Yes	150	2*GK	**UFLK4002**
		3”	No	150	2*GM	**UFLK4002**
					SY2	**UFLK4036**
			Yes	150	2*GK	**UFLK4002**
		4”	No	150	SY3	**UFLK4038**
		5”	No	150	SY4	**UFLK4040**
		6”	No	150	SY4	**UFLK4040**
		8”	No	150	SY5	**UFLK4042**
		10”	No	150	SY6	**UFLK4044**
		12”	No	150	SY7	**UFLK4046**
		14”	No	150	SY8	**UFLK4048**
		16”	No	150	SY9	**UFLK4050**
		18”	No	150	SY11	**UFLK4052**

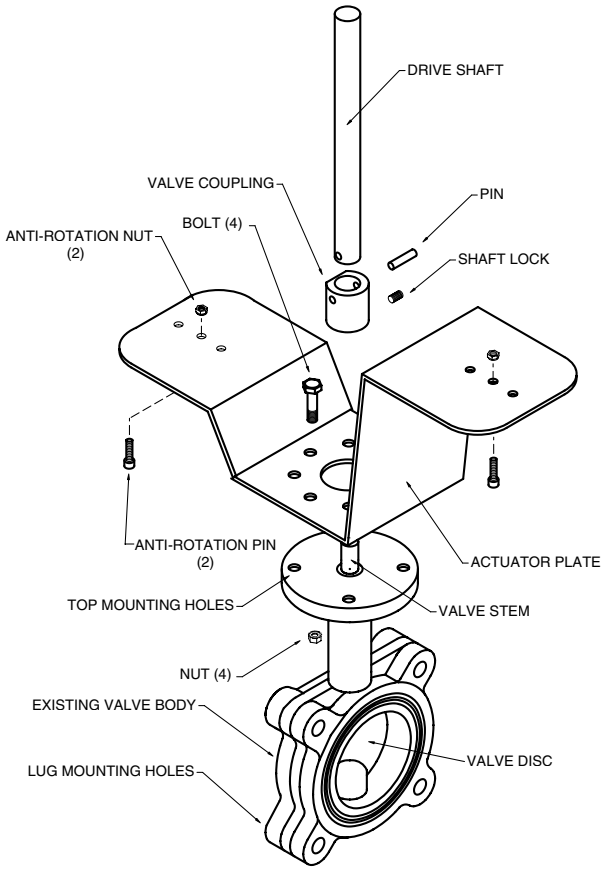
All close-off pressures listed are approximate and based on valve condition and application.

2-way Single Actuator
Generic – Must complete BFV Retrofit Form



UFSP0000

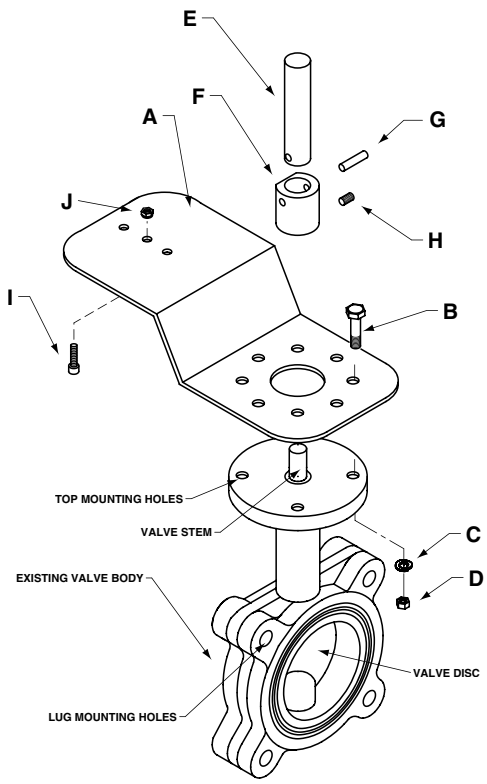
2-way Dual Actuator
Generic – Must complete BFV Retrofit Form



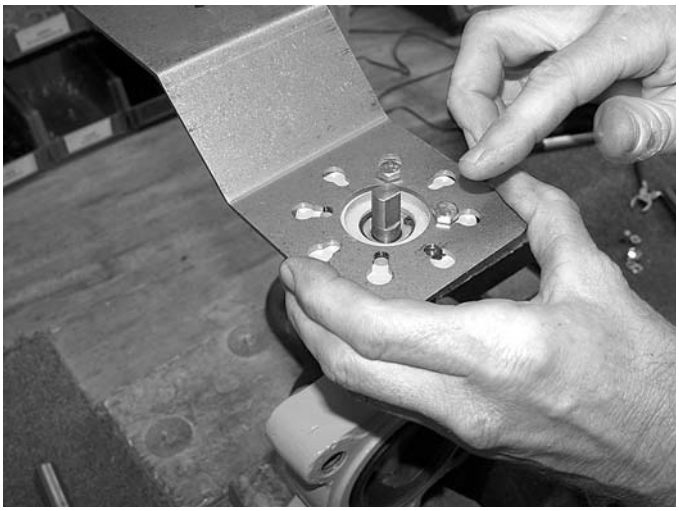
UFSP0008

Assembly Sequence for Existing Valves

The valve should be stripped down to its basic form, as shown. Remove all other linkage components before starting the assembly sequence below. The linkage components have been designed to attach to the valve in this state, rather than to any existing hardware.



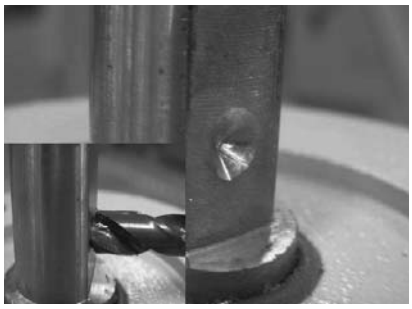
Please refer to the above exploded view above when following the assembly procedure, to better identify which parts are being addressed in each step.



Step 1) Assemble the actuator mounting bracket **(A)** to the top of the valve actuator mounting pad using the supplied bolts **(B)**, lock washers **(C)** and nuts **(D)**. The bracket does NOT need to be oriented on the valve body in any particular position, however, the bracket should not come into contact with pipes, conduit or walls.

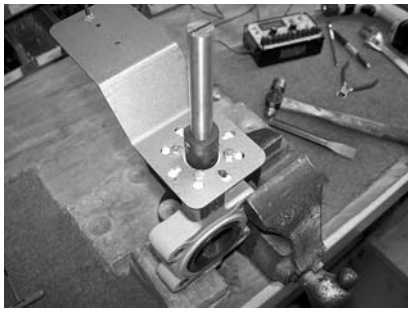
Step 2) Once all four bolts, lock washers and nuts have been assembled onto the valve body, tighten securely.

Step 3) Determine the position of the valve disc. Most manufacturers mark the TOP of the valve stem with a slot which indicates the disc angle. Slide the drive pin assembly, consisting of the drive shaft **(E)**, the valve shaft coupling **(F)**, the mating pin **(G)**, and the setscrew **(H)**, over the valve shaft. It may be necessary to back out the set screw **(H)** a few turns to make sure there is clearance in the coupling pocket (bottom of **(F)** for the valve shaft. You will notice there is a flat on the outside diameter of **(F)**. This flat should be parallel to the disc position when assembled correctly.



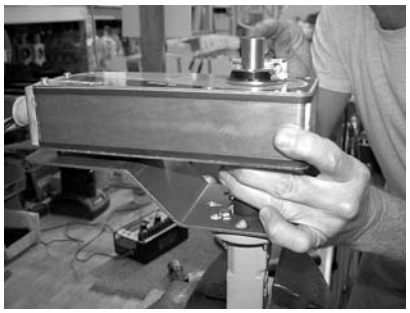
Note: Belimo recommends drilling a pilot hole into the shaft. This will ensure the set screw **(H)** sits flat. Failure to do this may result in the coupler **(F)** slipping over time.

Step 4) Once the drive pin assembly has been seated onto the valve stem, tighten setscrew **(H)** to lock the assembly onto the valve shaft. The drive shaft **(E)** should be concentric and parallel with the valve shaft so there is no binding. Any angular alignment MUST be corrected before moving on to the next step.



Step 5) Mark the TOP of the drive shaft to indicate the valve disc position. At this time, you should rotate the valve disc so that it is in the closed position. This will help facilitate proper attachment of the actuator.

Step 6) Assemble the actuator to the linkage by sliding the actuator shaft clamp over the kit drive shaft **(E)**. The actuator anti-rotation pin **(I)** should already be positioned in the correct hole for the actuator, but it can be moved to accommodate AM, GM or AF series actuators. Make sure the anti-rotation pin nut **(J)** is tight.



Step 7) Make sure the bottom of the actuator is PARALLEL to the mounting plate **(A)** when tightening the actuator clamp nuts. If this is not checked, it is possible that binding could cause erratic movement of the valve disc due to reduced torque transmission to the valve shaft.

Step 8) For AF series actuators, release the pre-load on the spring before tightening the clamp nuts, as the valve disc has already been positioned at the fully closed position. For fail open requirements, pre-wind the AF spring to full open position before tightening the clamp nuts. When released, the spring will then OPEN the valve disc.