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**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

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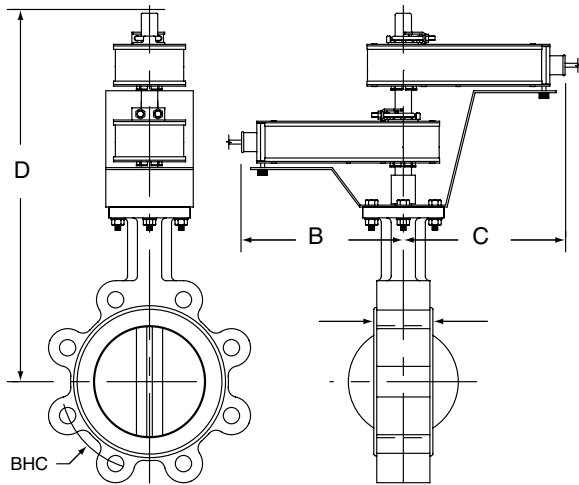


# Butterfly Valve Retrofit

Tips for choosing a butterfly valve retrofit solution

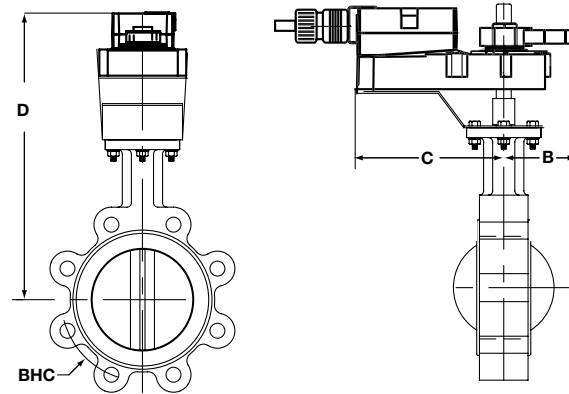


## Dimensions with 2-Way Valve



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.

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### SY Series Actuators

SERIES	MODEL	TORQUE	RUN TIME(S) 90°@60Hz	POWER SUPPLY	DUTY CYCLE	CONTROL			FEEDBACK
						PROPORTIONAL	3 POINT	ON/OFF	
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.

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Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage
30/31 Series Butterfly Valves	2-way	2"	No	175	AM	UFLK1100
					SY1	UFLK1130
					SY2	UFLK1132
			Yes	175	2*AF	UFLK1102
		2½"	No		GM	UFLK1100
					SY1	UFLK1130
				SY2	UFLK1132	
			Yes	175	2*AF	UFLK1102
		3"	No		GK	UFLK1100
					2*GM	UFLK1102
				SY2	UFLK1132	
			Yes	175	2*GK	UFLK1102
		4"	No		2*GM	UFLK1108
					SY2	UFLK1134
			Yes	175	2*GK	UFLK1108
		5"	No		SY3	UFLK1136
			6"	No	175	SY3
		8"		No	175	SY4
			10"	No	175	SY4
		12"		No	175	SY6
	14"		No	175	SY7	UFLK1144
		16"	No	175	SY8	UFLK1144
	18"		No	175	SY9	UFLK1146
		20"	No	175	SY10	UFLK1146
	3-way		2"	No	200	SY1
				SY2		UFLK4132
		Yes		2*AF		UFLK4102
		2½"		No		200
				SY2	UFLK4132	
			Yes	200	2*GK	UFLK4102
3"		No	200		2*GM	UFLK4102
				SY2	UFLK4132	
		Yes	200	2*GK	UFLK4102	
4"		No		200	SY3	UFLK4134
		5"	No		200	SY4
6"			No	200		SY4
		8"	No		200	SY5
10"			No	200		SY6
		12"	No		200	SY7
14"			No	150		SY8
		16"	No		150	SY9
18"			No	150		SY11
		20"	No		150	SY12

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



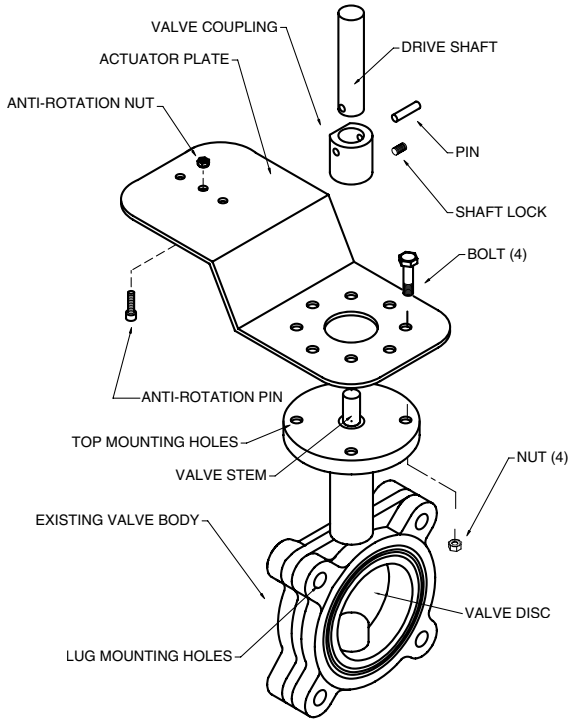
Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	
40/41 Series Butterfly Valves	2-way	2½"	No	285	2*GM	UFLK1200	
			Yes	285	2*GK	UFLK1224	
		3"	No	285	2*GM	UFLK1200	
			Yes	285	2*GK	UFLK1224	
		4"	No	285	2*GM	UFLK1200	
			Yes	285	2*GK	UFLK1200	
		5"	No	285	SY3	UFLK1226	
		6"	No	285	SY4	UFLK1228	
		8"	No	285	SY4	UFLK1230	
		10"	No	285	SY6	UFLK1232	
		12"	No	285	SY7	UFLK1234	
		14"	No	285	SY8	UFLK1236	
		16"	No	285	SY9	UFLK1238	
		18"	No	285	SY11	UFLK1240	
		20"	No	285	SY12	UFLK1242	
		3-way	2½"	No	285	2*GM	UFLK4200
				Yes	285	2*GK	UFLK4222
			3"	No	285	2*GM	UFLK4200
	Yes			285	2*GK	UFLK4200	
	4"		No	285	SY3	UFLK4222	
	5"		No	285	SY4	UFLK4224	
	6"		No	285	SY4	UFLK4224	
	8"		No	285	SY5	UFLK4226	
	10"		No	285	SY7	UFLK4228	
	12"		No	285	SY8	UFLK4230	
	14"		No	285	SY10	UFLK4232	
	16"		No	285	SY12	UFLK4234	

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

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**2-way Single Actuator**

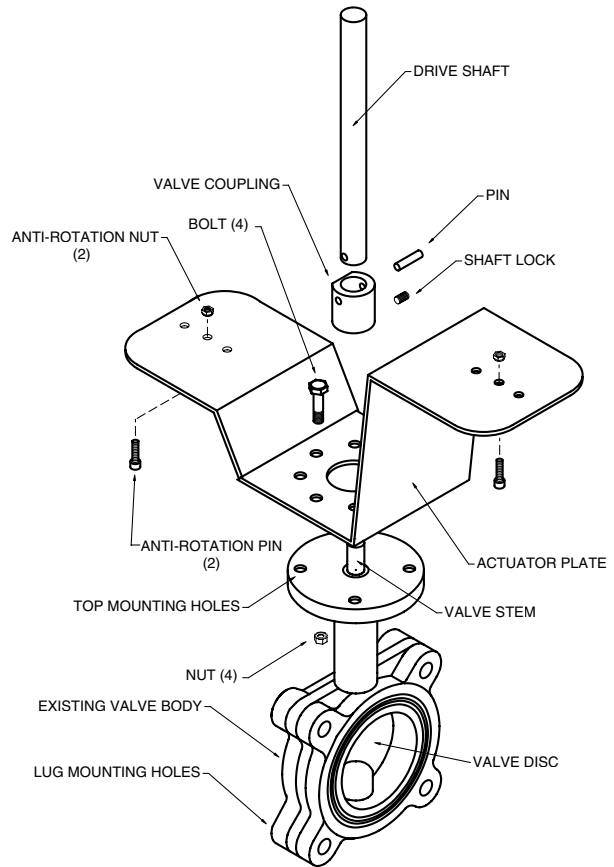
**Generic – Must complete BFV Retrofit Form**



**UFSP0000**

**2-way Dual Actuator**

**Generic – Must complete BFV Retrofit Form**



**UFSP0008**

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# UFLK/UFSP Series Butterfly Valve Retrofit Solution

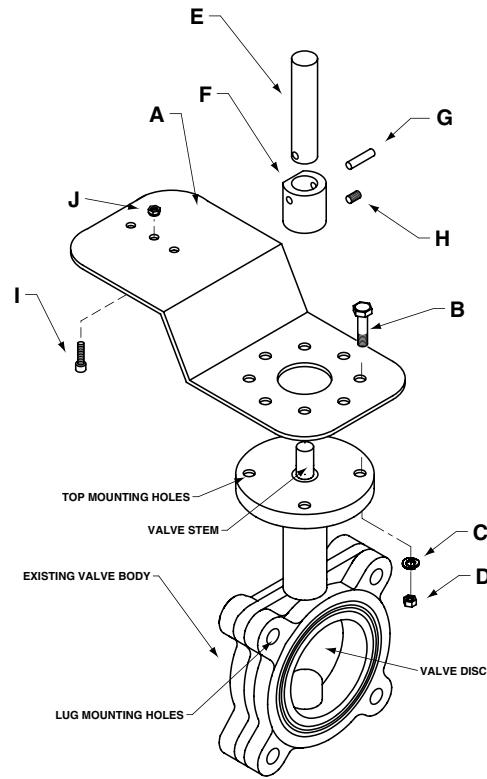
Retrofitting 2-way Valves with Belimo Direct Coupled Actuator(s)



## 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.

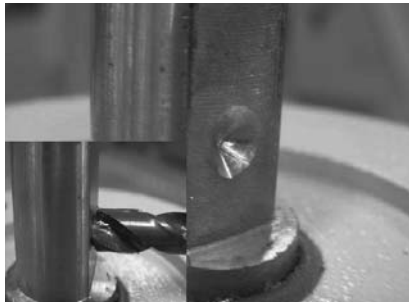


**Step 2)** Once all four bolts, lock washers and nuts have been assembled onto the valve body, tighten securely.

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**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.