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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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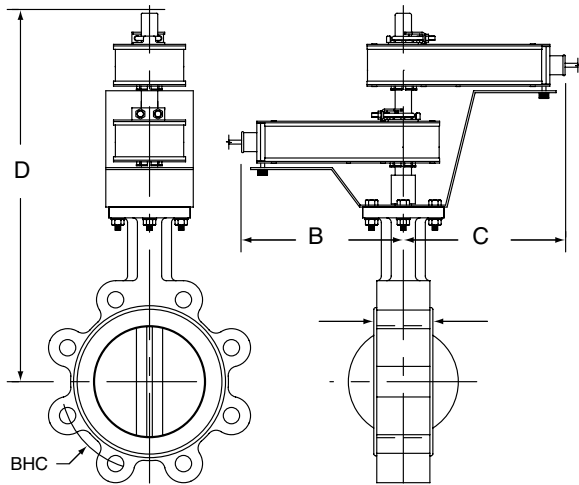


Butterfly Valve Retrofit

Tips for choosing a butterfly valve retrofit solution

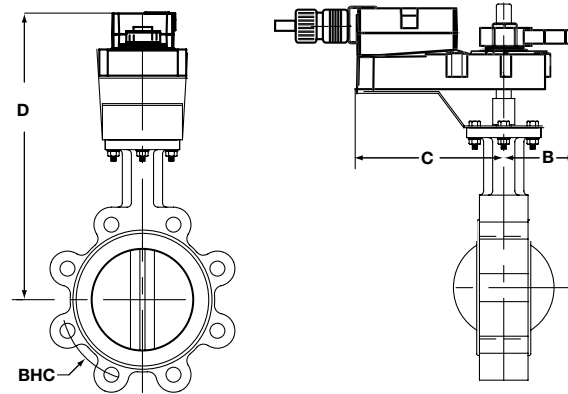


Dimensions with 2-Way Valve



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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Butterfly Valve Retrofit Actuators

Actuator Selection Guide



SY Series Actuators

SERIES	MODEL	TORQUE	RUN TIME(S) 90°@60Hz	POWER SUPPLY	DUTY CYCLE	CONTROL			FEEDBACK
						PROPORTIONAL	3 POINT	ON/OFF	
SY9	SY9-110	2000 Nm / 17800 in-lb	58 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k
	SY9-220	2000 Nm / 17800 in-lb	58 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k
	SY9-120MFT	2000 Nm / 17800 in-lb	58 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA
	SY9-230MFT	2000 Nm / 17800 in-lb	58 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA
SY10	SY10-110	2500 Nm / 22250 in-lb	58 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k
	SY10-220	2500 Nm / 22250 in-lb	58 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k
	SY10-120MFT	2500 Nm / 22250 in-lb	58 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA
	SY10-230MFT	2500 Nm / 22250 in-lb	58 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA
SY11	SY11-110	3000 Nm / 26700 in-lb	58 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k
	SY11-220	3000 Nm / 26700 in-lb	58 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k
	SY11-120MFT	3000 Nm / 26700 in-lb	58 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA
	SY11-230MFT	3000 Nm / 26700 in-lb	58 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA
SY12	SY12-110	3500 Nm / 31150 in-lb	58 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k
	SY12-220	3500 Nm / 31150 in-lb	58 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k
	SY12-120MFT	3500 Nm / 31150 in-lb	58 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA
	SY12-230MFT	3500 Nm / 31150 in-lb	58 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.

ROTARY ACTUATORS

SERIES	MODEL	Spring Return	Electronic Fail Safe	Control Input	Feedback Position	Power Supply
AF Series*	AF24 US, AFB24	•		24 VAC/DC		24 VAC/DC
	AFX24-MFT-X1	•		Variable with MFT (VDC, PWM, Floating Pt., On/Off)	variable VDC	24 VAC/DC
AM Series*	AMB24-3-X1			24 VAC/DC		24 VAC/DC
	AMX24-MFT-X1			Variable with MFT (VDC, PWM, Floating Pt., On/Off)	variable VDC	24 VAC/DC
GM Series*	GMB24-3-X1			24 VAC/DC		24 VAC/DC
	GMX24-MFT-X1			Variable with MFT (VDC, PWM, Floating Pt., On/Off)	variable VDC	24 VAC/DC
GK Series*	GKB24-3-X1		•	24 VAC/DC		24 VAC/DC
	GKX24-MFT-X1		•	Variable with MFT (VDC, PWM, Floating Pt., On/Off)	variable VDC	24 VAC/DC

*Please consult the Damper sections for a full list of product offerings. Standard run times should be considered in the selection. All air side products are applicable for retrofit kits.

Select "X1" actuators come with a handle.

MULTI-FUNCTION TECHNOLOGY

ROTARY ACTUATOR CODES	P-CODE		Control Input	Running Time	Built-in Feedback
	P-10001	A01	2-10 VDC	150 seconds	2-10 VDC
	P-10002	A02	0-10 VDC	150 seconds	0-10 VDC
	P-10028	A28	0-10 VDC	150 seconds	0-10 VDC
	P-10063	A63	0.5-4.5 VDC	150 seconds	0.5-4.5 VDC
	P-10064	A64	5.5-10 VDC	150 seconds	5.5-10 VDC
	P-20002	W02	0.02-5.00 seconds PWM	150 seconds	2-10 VDC
	P-20003	W03	0.10-25.5 seconds PWM	150 seconds	2-10 VDC
	P-30001	F01	Floating Pt.	150 seconds	2-10 VDC
	P-40002	J02	On/Off	150 seconds	2-10 VDC

SY MULTI-FUNCTION TECHNOLOGY

Description	MFT-CODE	Control Input	Built-in Feedback	Loss of Signal	Running Time
MFT	ACE	2...10V	2...10V	stop	actuator(s) constant
MFT	ACF	0.5...10V	0.5...10V	stop	actuator(s) constant
MFT	ACG	4...20mA	4...20mA	stop	actuator(s) constant
MFT	ACH	4...20mA	2...10V	stop	actuator(s) constant
MFT	ACJ	2...10V	2...10V	open	actuator(s) constant
MFT	ACK	0.5...10V	0.5...10V	open	actuator(s) constant
MFT	ACL	4...20mA	4...20mA	open	actuator(s) constant
MFT	ACM	4...20mA	2...10V	open	actuator(s) constant
MFT	ACN	2...10V	2...10V	close	actuator(s) constant
MFT	ACP	0.5...10V	0.5...10V	close	actuator(s) constant
MFT	ACR	4...20mA	4...20mA	close	actuator(s) constant
MFT	ACS	4...20mA	2...10V	close	actuator(s) constant

All other configurations carry a \$34.00 list price.

Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

800-543-9038 USA

866-805-7089 CANADA

203-791-8396 LATIN AMERICA

Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage		
CL Series Butterfly Valves	2-way	2"	No	150	AM	UFLK2600		
					SY1	UFLK2624		
					SY2	UFLK2628		
			Yes	150	AF	UFLK2600		
		2½"	No	150	AM	UFLK2600		
					SY1	UFLK2624		
					SY2	UFLK2628		
			Yes	150	AF	UFLK2600		
		3"	No	150	GM	UFLK2600		
					SY1	UFLK2624		
					SY2	UFLK2628		
					Yes	150	2*AF	UFLK2602
						GK	UFLK2600	
						2*GM	UFLK2608	
		4"	No	150	SY2	UFLK2630		
					2*GK	UFLK2608		
					Yes	150	2*GK	UFLK2608
		5"	No	150	2*GM	UFLK2608		
			SY2		UFLK2630			
			Yes		150	2*GK	UFLK2608	
	6"	No	150	SY3	UFLK2632			
	8"	No	150	SY4	UFLK2634			
	10"	No	150	SY4	UFLK2636			
	12"	No	150	SY5	UFLK2636			
	3-way	2"	No	150	AM	UFLK5600		
						SY1	UFLK5622	
						SY2	UFLK5624	
				Yes	150	2*AF	UFLK5602	
			2½"	No	150	GM	UFLK5600	
						SY1	UFLK5622	
				SY2		UFLK5624		
			Yes	150	2*AF	UFLK5602		
				GK	UFLK5600			
		3"	No	150	GM	UFLK5600		
					SY2	UFLK5624		
					Yes	150	2*AF	UFLK5602
			GK	UFLK5600				
4"		No	150	2*GM	UFLK5608			
				SY2	UFLK5626			
				Yes	150	2*GK	UFLK5608	
5"		No	150	SY3	UFLK5626			
6"		No	150	SY4	UFLK5628			
8"	No	150	SY4	UFLK5630				
10"	No	150	SY6	UFLK5632				
12"	No	150	SY7	UFLK5634				

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



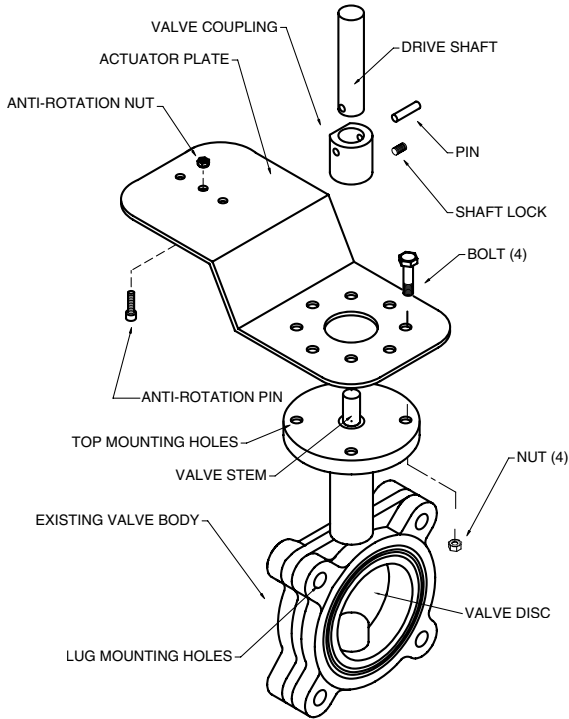
Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage		
ML Series Butterfly Valves	2-way	2"	No	150	AM	UFLK2700		
						SY1	UFLK2732	
						SY2	UFLK2734	
			Yes	150	AF	UFLK2700		
		2½"	No	150	AM	UFLK2700		
						SY1	UFLK2732	
						SY2	UFLK2734	
			Yes	150	AF	UFLK2700		
		3"	No	150	GM	UFLK2700		
						SY1	UFLK2732	
						SY2	UFLK2734	
			Yes	150	2*AF	UFLK2702		
						GK	UFLK2700	
		4"	No	150	2*GM	UFLK2708		
						SY2	UFLK2736	
			Yes	150	2*GK	UFLK2708		
		5"	No	150	2*GM	UFLK2708		
						SY2	UFLK2736	
			Yes	150	2*GK	UFLK2708		
		6"	No	150	SY3	UFLK2738		
		8"	No	150	SY4	UFLK2740		
		10"	No	150	SY4	UFLK2742		
		12"	No	150	SY5	UFLK2742		
		14"	No	150	SY7	UFLK2744		
	16"	No	150	SY7	UFLK2744			
	18"	No	150	SY8	UFLK2746			
	20"	No	150	SY9	UFLK2748			
	24"	No	150	SY10	UFLK2750			
	3-way	2"	No		150	AM	UFLK5700	
							SY1	UFLK5732
							SY2	UFLK5734
			Yes	150	2*AF	UFLK5702		
			2½"	No	150	AM	UFLK5700	
						SY1	UFLK5732	
						SY2	UFLK5734	
			Yes	150	2*AF	UFLK5702		
		3"	No	150	GM	UFLK5700		
						SY2	UFLK5734	
			Yes	150	2*AF	UFLK5702		
		4"	No	150	GK	UFLK5700		
						2*GM	UFLK5708	
			Yes	150	2*GK	UFLK5708		
5"		No	150	SY3	UFLK5736			
6"		No	150	SY4	UFLK5738			
8"		No	150	SY4	UFLK5740			
10"		No	150	SY6	UFLK5742			
12"		No	150	SY7	UFLK5744			
14"		No	150	SY8	UFLK5746			
16"		No	150	SY9	UFLK5748			
18"		No	150	SY10	UFLK5750			
20"		No	150	SY11	UFLK5750			

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

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2-way Single Actuator

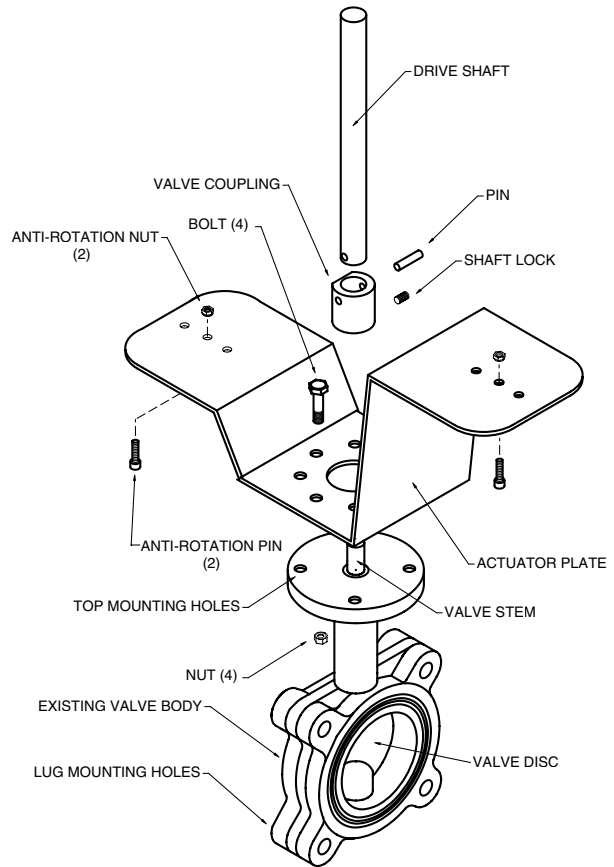
Generic – Must complete BFV Retrofit Form



UFSP0000

2-way Dual Actuator

Generic – Must complete BFV Retrofit Form



UFSP0008

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UFLK/UFSP Series Butterfly Valve Retrofit Solution

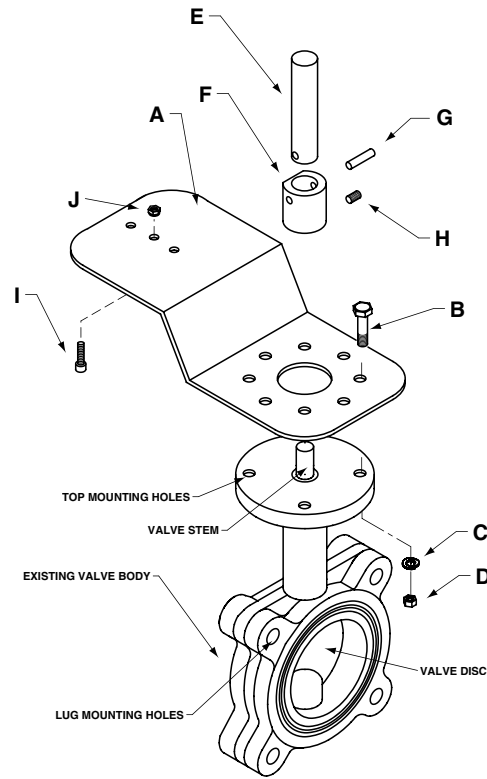
Retrofitting 2-way Valves with Belimo Direct Coupled Actuator(s)



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.