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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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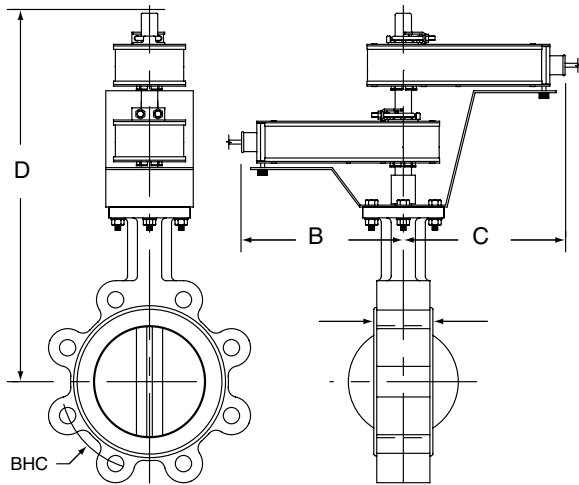


Butterfly Valve Retrofit

Tips for choosing a butterfly valve retrofit solution

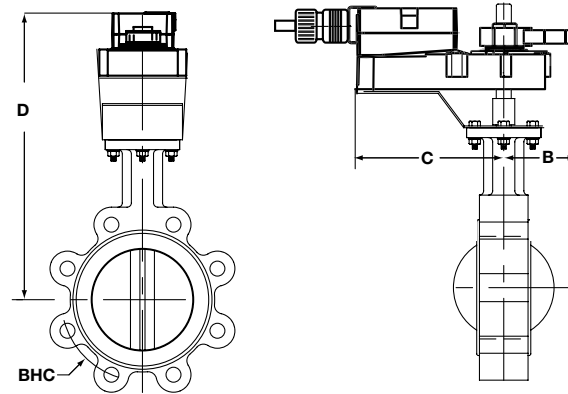


Dimensions with 2-Way Valve



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	
27 Series Butterfly Valves (Pinned Shaft Type)	2-way	2"	No	150	GM	UFLK3100	
					SY1	UFLK3122	
					SY2	UFLK3124	
			Yes	150	2*AF	UFLK3102	
					GK	UFLK3100	
					2*GM	UFLK3102	
		2½"	No	150	2*GM	UFLK3102	
					SY2	UFLK3124	
		3"	No	150	2*GM	UFLK3102	
					SY2	UFLK3124	
		4"	No	150	2*GM	UFLK3108	
					SY2	UFLK3126	
		5"	No	150	2*GK	UFLK3108	
						SY3	UFLK3128
		6"	No	150	SY3	UFLK3130	
		8"	No	150	SY4	UFLK3132	
		10"	No	150	SY4	UFLK3132	
		12"	No	150	SY6	UFLK3132	
	3-way	2"	No	150	GM	UFLK6100	
						SY2	UFLK6122
						2*AF	UFLK6102
			Yes	150	GK	UFLK6100	
					2*GM	UFLK6102	
					SY2	UFLK6122	
		2½"	No	150	2*GM	UFLK6102	
					SY2	UFLK6122	
		3"	No	150	2*GM	UFLK6102	
					SY2	UFLK6122	
4"		No	150	2*GK	UFLK6102		
					SY3	UFLK6124	
5"		No	150	SY4	UFLK6126		
6"		No	150	SY4	UFLK6128		
8"		No	150	SY4	UFLK6130		
10"		No	150	SY6	UFLK6132		
12"		No	150	SY7	UFLK6134		

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

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Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage		
Masterseal (New Style) Series Butterfly Valves	2-way	2"	No	200	AM	UFLK8172		
					SY1	UFLK8178		
					SY2	UFLK8180		
		2½"	Yes	200	2*AF	UFLK8174		
					No	200	GM	UFLK8172
							SY1	UFLK8178
			Yes	200	2*AF	UFLK8174		
					GK	UFLK8172		
					GM	UFLK8172		
		3"	No	200	SY2	UFLK8180		
					GK	UFLK8172		
			Yes	200	2*GM	UFLK8176		
		SY2			UFLK8182			
		4"	No	200	2*GK	UFLK8176		
					SY3	UFLK8184		
		5"	No	200	SY3	UFLK8184		
					SY4	UFLK8188		
		6"	No	200	SY4	UFLK8188		
	SY5				UFLK8190			
	8"	No	200	SY5	UFLK8190			
				SY6	UFLK8190			
	10"	No	200	GM	UFLK7400			
				SY1	UFLK7404			
	12"	No	200	SY2	UFLK7406			
				2*AF	UFLK7402			
	3-way	2"	Yes	200	GK	UFLK7400		
					No	200	2*GM	UFLK7402
SY2							UFLK7406	
Yes			200	2*GK	UFLK7402			
				No	200	SY2	UFLK7406	
						SY2	UFLK7408	
4"		No	200	SY3	UFLK7410			
				SY4	UFLK7414			
5"		No	200	SY4	UFLK7414			
				SY7	UFLK7418			
8"		No	200					
				12"	No	200		

All close-off pressures listed are approximate and based on valve condition and application.
*50 psi close-off kits available by request. Contact Belimo technical support for more information.



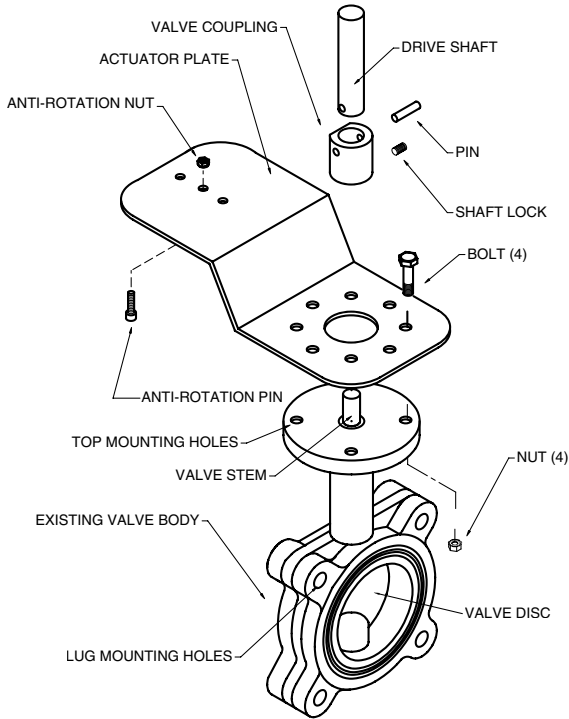
Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage		
Vic300 (Old Style) Series Butterfly Valves	2-way	2"	No	300	AM	UFLK3300		
						SY1	UFLK3338	
						SY2	UFLK3342	
			Yes	300	AF	UFLK3300		
		2½"	No	300	AM	UFLK3308		
						SY1	UFLK3340	
						SY2	UFLK3344	
			Yes	300	AF	UFLK3308		
		3"	No	300	GM	UFLK3308		
						SY1	UFLK3340	
						SY2	UFLK3344	
				Yes	300	2*AF	UFLK3310	
						GK	UFLK3308	
						2*GM	UFLK3316	
		4"	No	300	SY2	UFLK3346		
						2*GK	UFLK3316	
			Yes	300				
		5"	No	300	SY2	UFLK3348		
	6"	No	300	SY3	UFLK3350			
	8"	No	300	SY4	UFLK3352			
	10"	No	300	SY4	UFLK3354			
	12"	No	300	SY4	UFLK3356			
	3-way	2"	No		300	GM	UFLK6300	
							SY1	UFLK6336
							SY2	UFLK6340
			Yes	300	AF	UFLK6300		
						GK	UFLK6300	
		2½"	No	300	GM	UFLK6308		
						SY1	UFLK6338	
						SY2	UFLK6342	
			Yes	300	2*AF	UFLK6310		
					GK	UFLK6308		
		3"	No	300	SY2	UFLK6342		
		4"	No	300	SY3	UFLK6344		
5"		No	300	SY3	UFLK6346			
6"		No	300	SY4	UFLK6348			
8"		No	300	SY4	UFLK6350			
10"		No	300	SY5	UFLK6352			
12"	No	300	SY6	UFLK6354				

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

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2-way Single Actuator

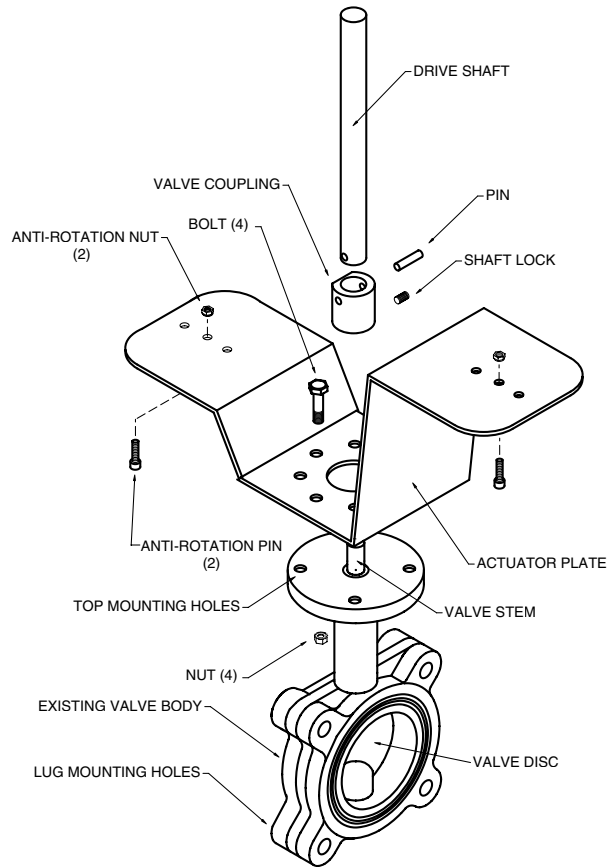
Generic – Must complete BFV Retrofit Form



UFSP0000

2-way Dual Actuator

Generic – Must complete BFV Retrofit Form



UFSP0008

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UFLK/UFSP Series Butterfly Valve Retrofit Solution

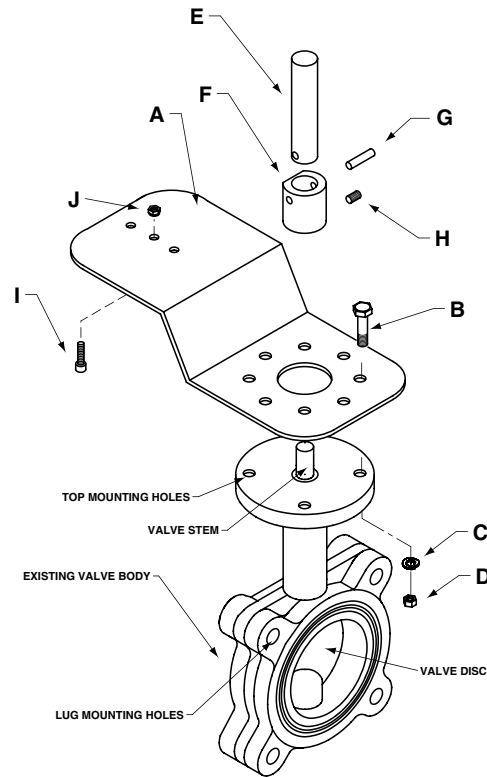
Retrofitting 2-way Valves with Belimo Direct Coupled Actuator(s)



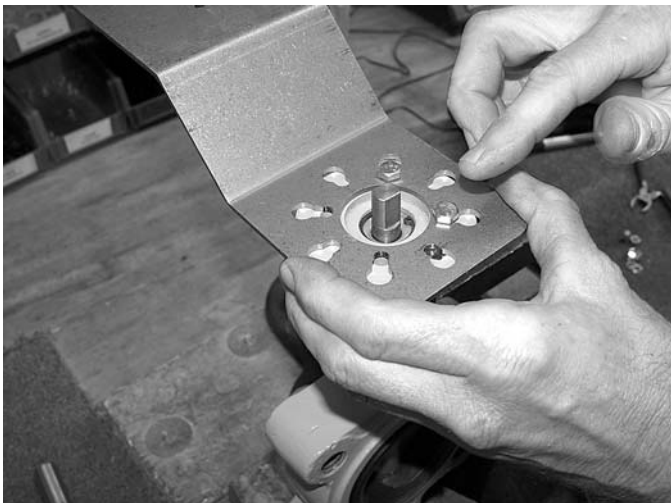
Assembly Sequence for Existing Valves



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.

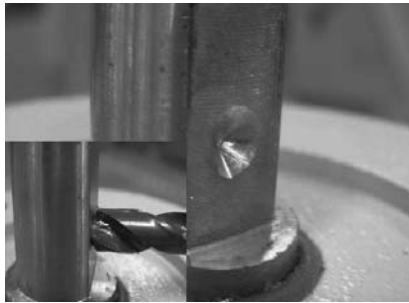


Step 2) Once all four bolts, lock washers and nuts have been assembled onto the valve body, tighten securely.

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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.