

Fisher™ 8560 High-Performance Butterfly Control Valve

Fisher 8560 high-performance butterfly valves feature a stainless steel disk with a stainless steel seal ring. The pressure-assisted metal seal ring provides excellent shutoff against pressure applied in the recommended flow direction for both liquid and gas applications.

The NOVEX and Phoenix III metal seals are available for demanding applications requiring excellent shutoff capabilities. The splined-shaft valve combines with a variety of power actuators to form a reliable, high-performance control valve suitable for throttling applications requiring extremely low leakage rates.

An optional double D shaft combines with a variety of power and manual actuators for use in quarter-turn or on/off applications.

Unless otherwise noted, all NACE references are to NACE MR0175-2002.

Features

- **Excellent Flow Control**—The eccentrically-mounted disk design provides an approximate linear flow characteristic and can be used for throttling or on/off control applications through 90 degrees of disk rotation.
- **Sour Service Capability**—Trim and bolting materials are available for applications involving sour service. These constructions comply with the recommendations of NACE MR0175-2002.



Fisher 8560 Lugged Valve

- **Improved Environmental Capabilities**—The optional ENVIRO-SEAL™ packing system is designed with improved sealing, guiding, and loading force transmission. The ENVIRO-SEAL packing system can control emissions to below the EPA (Environmental Protection Agency) limit of 100 ppm (parts per million) for valves.
- **Integral Shaft-to-Body Bonding**—Standard valve construction includes conductive packing to provide electrical bonding for hazardous area applications.
- **Low Cost Maintenance**—Individual disk/shaft components can be replaced after disassembly due to sleeve and taper pin connections (see figure 1).

Specifications

Valve Sizes and End Connection Styles

NPS ■ 3, ■ 4, ■ 6, ■ 8, ■ 10, and ■ 12 valve size available in lugged style

Maximum Inlet Pressure⁽¹⁾

Carbon Steel and Stainless Steel Valve Bodies: Consistent with CL150 and 300 pressure-temperature ratings per ASME B16.34 unless limited by material temperature capabilities

Maximum Pressure Drops⁽¹⁾

Consistent with CL150 and 300 pressure-temperature ratings per ASME B16.34 except for Phoenix III seals which are derated at some higher pressure-temperature values. Refer to figure 6

Shutoff Classifications

- NOVEX Seal: For NPS 3 through 12. Unidirectional shutoff is Class IV. See figure 2
- Phoenix III Seal: For NPS 3 through 12. Bidirectional shutoff to Class VI per ANSI/FCI 70-2 and IEC 60534-4. See figure 2. For the optional Phoenix III Fire-Tested seal⁽²⁾, consult your [Emerson sales office](#).

Construction Materials

Refer to table 2 for standard material selections and component temperature ranges

Material Temperature Capabilities⁽¹⁾

NOVEX Seal: -46 to 538°C (-50 to 1000°F)
Phoenix III: -46 to 232°C (-50 to 450°F)

Flow Characteristic

Approximately linear

Flow Direction

Refer to figure 7

Flow Coefficients

See table 1 and Fisher Catalog 12

Flow Coefficient Ratio⁽³⁾

100 to 1

Noise Levels

See Catalog 12 for sound pressure level prediction

Disk Rotation

Clockwise to close (when viewing from the drive shaft end) through 90 degrees of disk rotation

Actuator/ Valve Action

With a diaphragm or piston rotary actuator, the valve action is field-reversible. Refer to information provided in the Installation section and figure 7

Valve Classification

Face-to-face dimensions of NPS 3 through 12 valves in CL150 or 300, meets API 609 or MSS-SP68 standards for face-to-face dimensions of lugged valves (see figure 4)

Mating Flange Capabilities

All sizes compatible with CL150 and 300 flanges (schedule 80 or lighter, see figure 4, Dimension M)

Shaft Diameters

See figure 4

ENVIRO-SEAL Packing

This optional ■ PTFE or ■ graphite packing system provides improved sealing, guiding, and transmission of loading force to control liquid and gas emissions (see figure 3). See Bulletin 59.3:041 ENVIRO-SEAL Packing Systems for Rotary Valves ([D101638X012](#)) for more information.

1. The pressure-temperature limits in this bulletin and any applicable standard or code limitation should not be exceeded.
2. For component selection and applicable fire-tested standards and codes, consult your Emerson sales office (see table 2).
3. Ratio of maximum flow coefficient to minimum usable flow coefficient.

Installation

It is recommended that the valve drive shaft be mounted in a horizontal position as shown in the figures on page 1. Operating conditions may require specific valve/actuator fail action, styles, positions and flow direction. Valves with NOVEX seal rings require mounting in the reverse flow direction. Refer to figure 7. Large valve/actuator assemblies may require additional support because of their combined weight.

Fail Action: For actuators with spring returns, spring fail action is available for push-down-to-open or push-down-to-close valve action. The valve action is field reversible.

For assistance in selecting the valve/actuator mounting suited to your application, consult your [Emerson sales office](#).

Dimensions for lugged valves are shown in figure 4.

Table 1. Flow Coefficients⁽¹⁾

VALVE SIZE, NPS	C _v FORWARD FLOW WITH DISK WIDE OPEN (90 DEGREES ROTATION)	
	CL150	CL300
3	237	237
4	499	488
6	1250	1110
8	2180	2070
10	3600	3480
12	5400	5130

1. See Fisher Catalog 12 for a complete listing of flow coefficients.

Table 2. Construction Material Temperature Limits

COMPONENTS AND MATERIALS OF CONSTRUCTION	TEMPERATURE LIMITS	
	°C	°F
Valve Body Material		
Carbon Steel	-29 to 427	-20 to 800
CF8M	-198 to 538	-325 to 1000
Disk Material		
CF8M	-198 to 538	-325 to 1000
Shaft Material		
S20910	-198 to 538	-325 to 1000
S17400	-62 to 427	-80 to 800
Bearing Material		
PEEK / PTFE lined	-73 to 260	-100 to 500
Metal	-198 to 538	-325 to 1000
Packing Material		
PTFE V-Rings	-46 to 232	-50 to 450
Graphite rings	-198 to 538	-325 to 1000
Seal Ring		
NOVEX Metal Seal Ring	-46 to 538	-50 to 1000
Phoenix III Metal Seal Ring Fluorocarbon backup ring	-40 to 232	-40 to 450
Phoenix III Fire-Tested ⁽¹⁾ Metal Seal Ring Fluorocarbon backup ring (Specify metal bearings and graphite packing)	-40 to 232	-40 to 450

1. For component selection and applicable fire-tested standards and codes, consult your Emerson sales office.

Figure 1. Typical Valve Construction

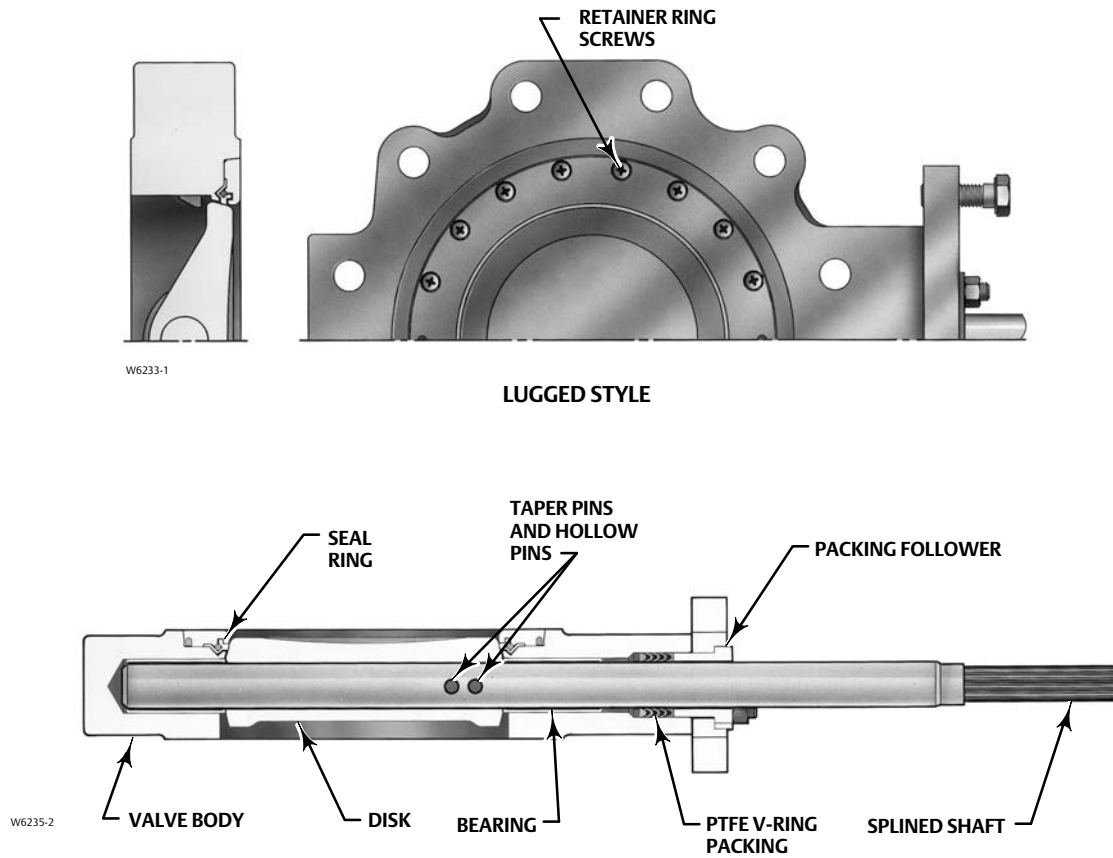


Figure 2. Available Seal Configuration

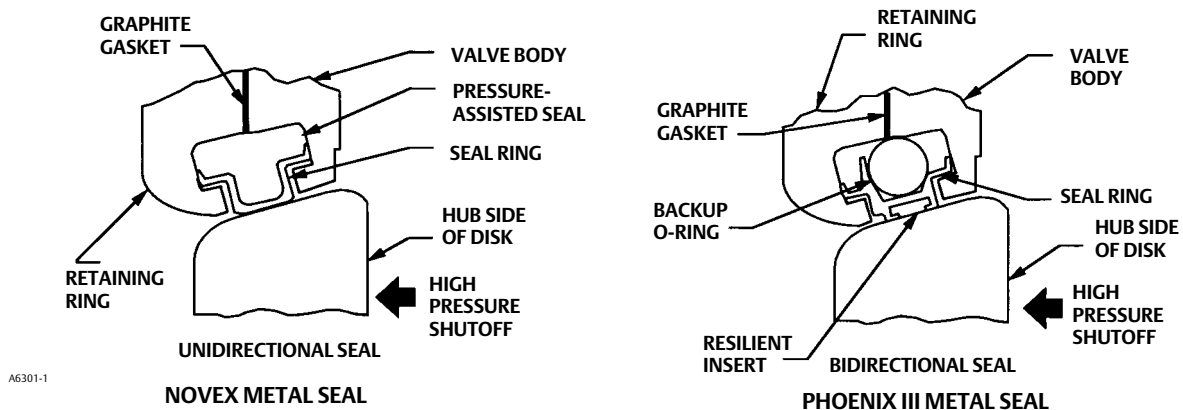
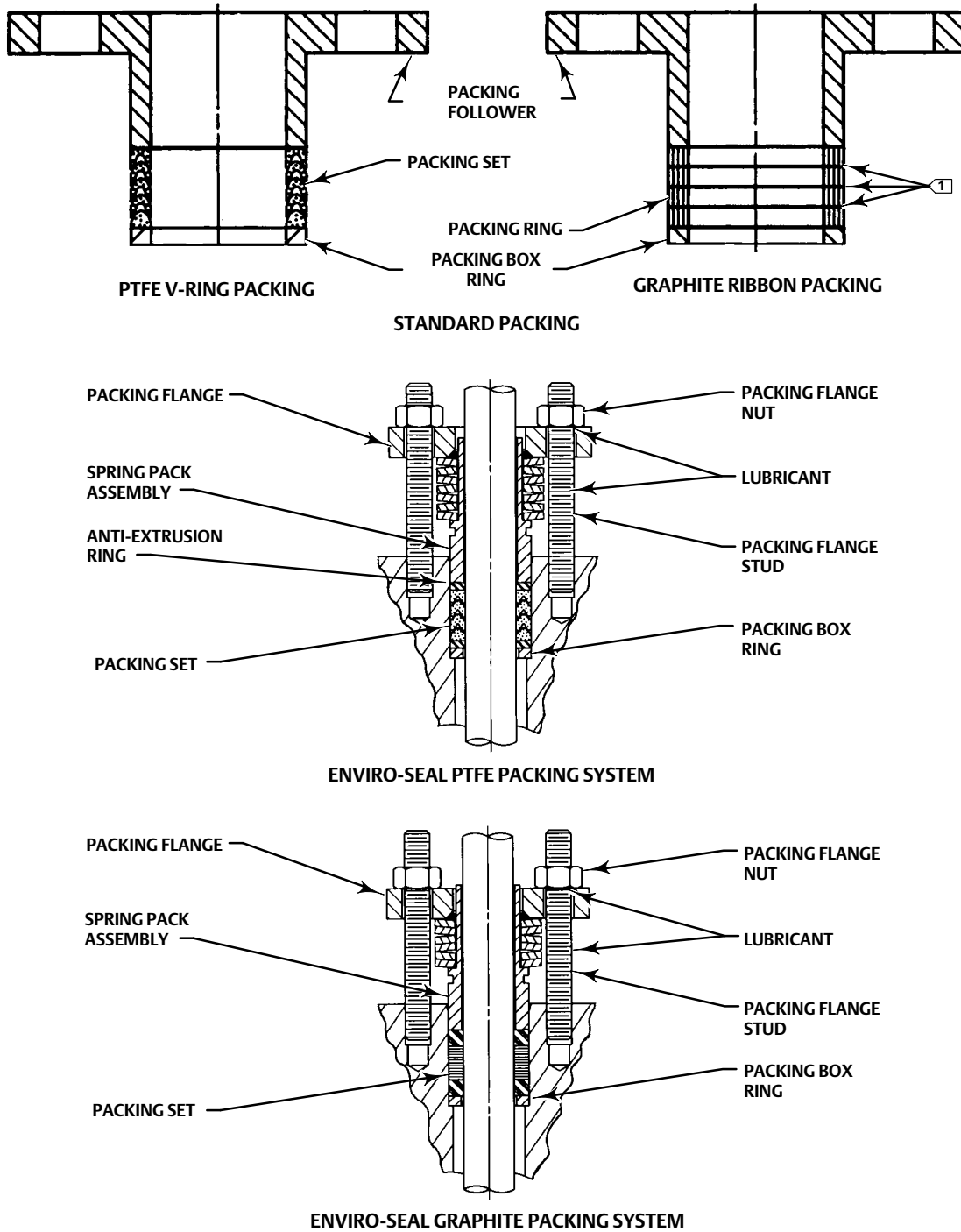


Figure 3. Typical Packing Arrangement



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Note:
① Includes zinc washers for graphite ribbon packing only.

Table 3. CL150 Valve Dimensions

Valve Size, NPS	A	E	G	K	M ⁽²⁾	R	S ⁽¹⁾	T	U	W	Y
mm											
3	48	188	79	121	73	189	12.7	117	---	See thread information below	See thread information below
4	54	188	102	143	97	219	15.9	117	---		
6	57	214	129	172	146	273	19.1	152	32		
8	64	214	157	200	191	333	25.4	152	32		
10	71	208	198	254	238	406	31.8	235	46		
12	81	208	230	279	284	476	38.1	235	46		
Inches											
3	1.88	7.38	3.12	4.00	2.88	7.44	1/2	4.62	---	1/2-13	5/8-11 4-holes
4	2.12	7.38	4.00	5.62	3.81	8.62	5/8	4.62	---	1/2-13	5/8-11 8-holes
6	2.25	8.44	5.06	6.75	5.75	10.75	3/4	6.00	1.25	1/2-13	3/4-10 8-holes
8	2.50	8.44	6.19	7.88	7.50	13.12	1	6.00	1.25	1/2-13	3/4-10 8-holes
10	2.81	8.19	7.81	10.00	9.38	16.00	1-1/4	9.25	1.81	5/8-11	7/8-9 12-holes
12	3.19	8.19	9.06	11.00	11.19	18.75	1-1/2	9.25	1.81	5/8-11	7/8-9 12-holes

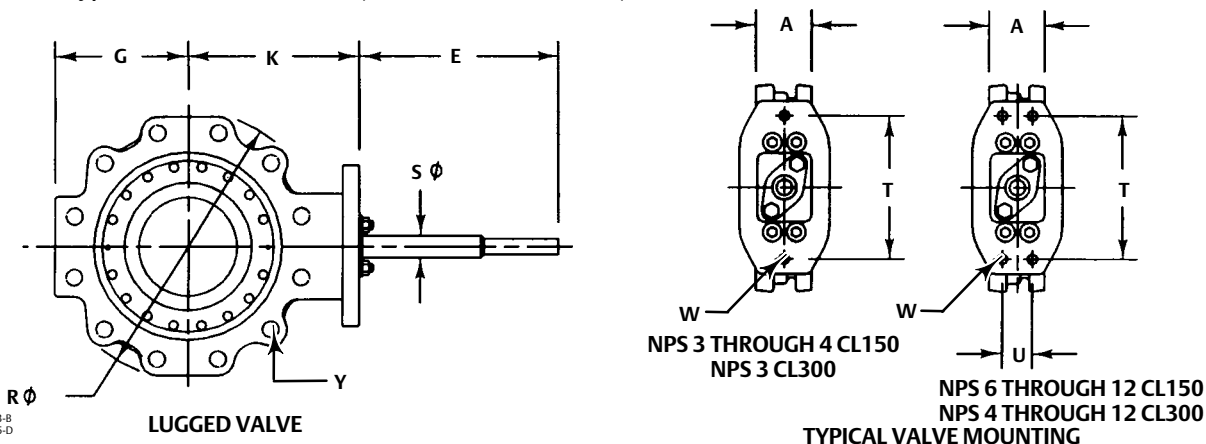
1. This nominal valve shaft diameter is the shaft diameter through the packing box. Use this diameter when selecting Fisher actuators.
2. Disk chordal swing diameter at valve face. Please verify with piping.

Table 4. CL300 Valve Dimensions

Valve Size, NPS	A	E	G	K	M ⁽²⁾	R	S ⁽¹⁾	T	U	W	Y
mm											
3	48	188	95	137	73	206	15.9	117	---	See thread information below	See thread information below
4	54	214	121	165	97	238	19.1	152	32		
6	59	214	152	197	146	308	25.4	152	32		
8	73	208	183	235	188	375	31.8	235	46		
10	83	208	229	268	233	438	38.1	235	46		
12	92	365	308	308	278	508	44.5	273	51	21	
Inches											
3	1.88	7.38	3.75	5.38	2.88	8.12	5/8	4.62	---	1/2-13	3/4-10 8-holes
4	2.12	8.44	4.75	6.50	3.81	9.38	3/4	6.00	1.25	1/2-13	3/4-10 8-holes
6	2.31	8.44	6.00	7.75	5.69	12.12	1	6.00	1.25	1/2-13	3/4-10 12-holes
8	2.88	8.19	7.19	9.25	7.38	14.75	1-1/4	9.25	1.81	5/8-11	7/8-9 12-holes
10	3.25	8.19	9.00	10.56	9.19	17.25	1-1/2	9.25	1.81	5/8-11	1-8 16-holes
12	3.61	14.00	12.12	12.12	10.94	20.00	1-3/4	10.75	2.00	0.82	1-1/8-8 16-holes

1. This nominal valve shaft diameter is the shaft diameter through the packing box. Use this diameter when selecting Fisher actuators.
2. Disk chordal swing diameter at valve face. Please verify with piping.

Figure 4. Typical Valve Dimensions (also see tables 3 and 4)



Note:
Disk chordal swing diameter at valve face is M. Please verify clearance with piping.

Table 5. CL150 Valve Dimensions

Valve Size, NPS	A	E	G	K	M ⁽²⁾	R	S ⁽¹⁾	Flat Size	Flat Length	T	U	W	Y
mm													
3	48	83	79	121	73	189	12.7	9.50	25.4	83	19	See thread information below	See thread information below
4	54	83	102	124	97	219	15.9	11.07	25.4	83	19		
6	57	83	129	152	146	273	19.1	14.25	25.4	95	25		
8	64	83	157	181	191	333	25.4	17.45	25.4	95	25		
10	71	89	198	229	238	406	31.8	20.60	25.4	133	38		
12	81	89	230	254	284	476	38.1	25.37	38.1	133	38		
Inches													
3	1.88	3.25	3.12	4.00	2.88	7.44	1/2	0.374	1	3.25	0.75	3/8-16	5/8-11 4-holes
4	2.12	3.25	4.00	4.88	3.81	8.62	5/8	0.436	1	3.25	0.75	3/8-16	5/8-11 8-holes
6	2.25	3.25	5.06	6.00	5.75	10.75	3/4	0.561	1	3.75	1.00	1/2-13	3/4-10 8-holes
8	2.50	3.25	6.19	7.12	7.50	13.12	1	0.687	1	3.75	1.00	1/2-13	3/4-10 8-holes
10	2.81	3.50	7.81	9.00	9.38	16.00	1-1/4	0.811	1	5.25	1.50	5/8-11	7/8-9 12-holes
12	3.19	3.50	9.06	10.00	11.19	18.75	1-1/2	0.999	1.5	5.25	1.50	5/8-11	7/8-9 12-holes

1. This nominal valve shaft diameter is the shaft diameter through the packing box. Use this diameter when selecting Fisher actuators.
2. Disk chordal swing diameter at valve face. Please verify clearance with piping.

Table 6. CL300 Valve Dimensions

Valve Size, NPS	A	E	G	K	M ⁽²⁾	R	S ⁽¹⁾	Flat Size	Flat Length	T	U	W	Y
mm													
3	48	83	95	119	73	206	15.7	11.07	25.4	83	19	See thread information below	See thread information below
4	54	83	121	146	97	238	19.0	14.25	25.4	95	25		
6	59	83	152	178	145	308	25.4	17.45	25.4	95	25		
8	73	89	183	210	188	375	31.8	20.60	25.4	133	38		
10	83	89	229	243	233	438	38.1	25.37	38.1	133	38		
12	92	89	308	279	278	508	44.4	28.55	38.1	146	38		
Inches													
3	1.88	3.25	3.75	4.69	2.88	8.12	5/8	0.436	1	3.25	0.75	3/8-16	3/4-10 8-holes
4	2.12	3.25	4.75	5.75	3.81	9.38	3/4	0.561	1	3.75	1.00	1/2-13	3/4-10 8-holes
6	2.31	3.25	6.00	7.00	5.69	12.12	1	0.687	1	3.75	1.00	1/2-13	3/4-10 12-holes
8	2.88	3.50	7.19	8.25	7.38	14.75	1-1/4	0.811	1	5.25	1.50	5/8-11	7/8-9 12-holes
10	3.25	3.50	9.00	9.56	9.19	17.25	1-1/2	0.999	1.5	5.25	1.50	5/8-11	1-8 16-holes
12	3.62	3.50	12.12	11.00	10.94	20.00	1-3/4	1.124	1.5	5.75	1.50	3/4-10	1 1/8-8 16-holes

1. This nominal valve shaft diameter is the shaft diameter through the packing box. Use this diameter when selecting Fisher actuators.
2. Disk chordal swing diameter at valve face. Please verify clearance with piping.

Figure 5. Typical Valve Dimensions with Double D Shaft (also see tables 5 and 6)

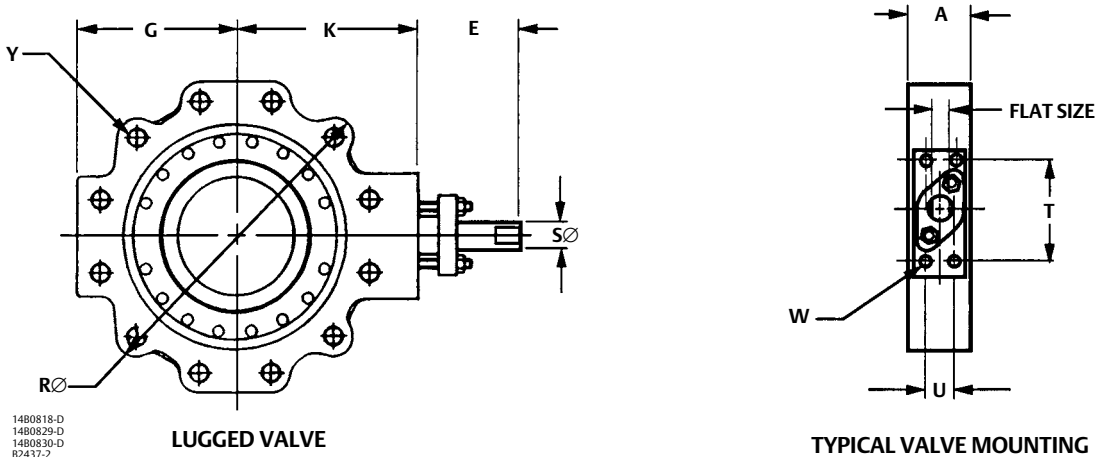
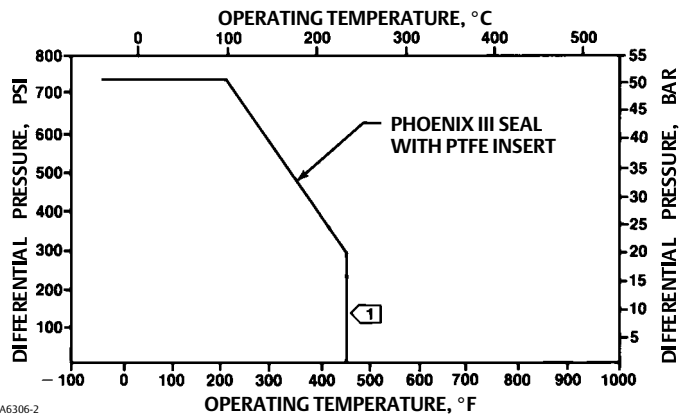


Figure 6. Maximum Pressure-Temperature Ratings

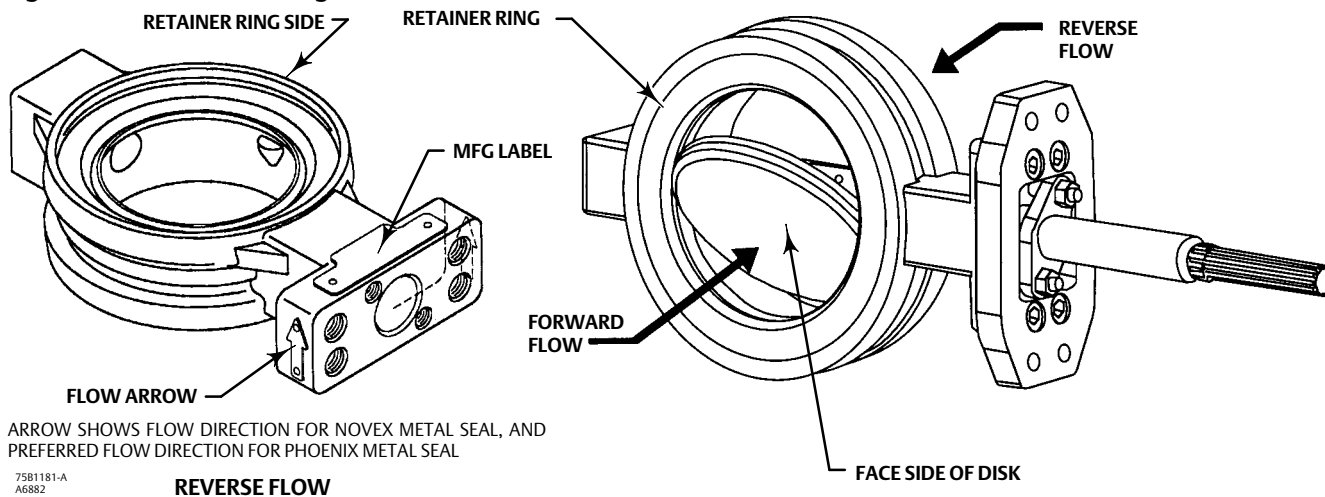


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Note:

1 Temperature limitations do not account for the additional limitations imposed by the backup ring used with this seal. To determine the effective temperature limitation of the appropriate seal/backup ring combination, refer to table 2.

Figure 7. Actuator Mounting



ARROW SHOWS FLOW DIRECTION FOR NOVEX METAL SEAL, AND PREFERRED FLOW DIRECTION FOR PHOENIX METAL SEAL

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Emerson Automation Solutions
Marshalltown, Iowa 50158 USA
Sorocaba, 18087 Brazil
Cernay, 68700 France
Dubai, United Arab Emirates
Singapore 128461 Singapore

www.Fisher.com

