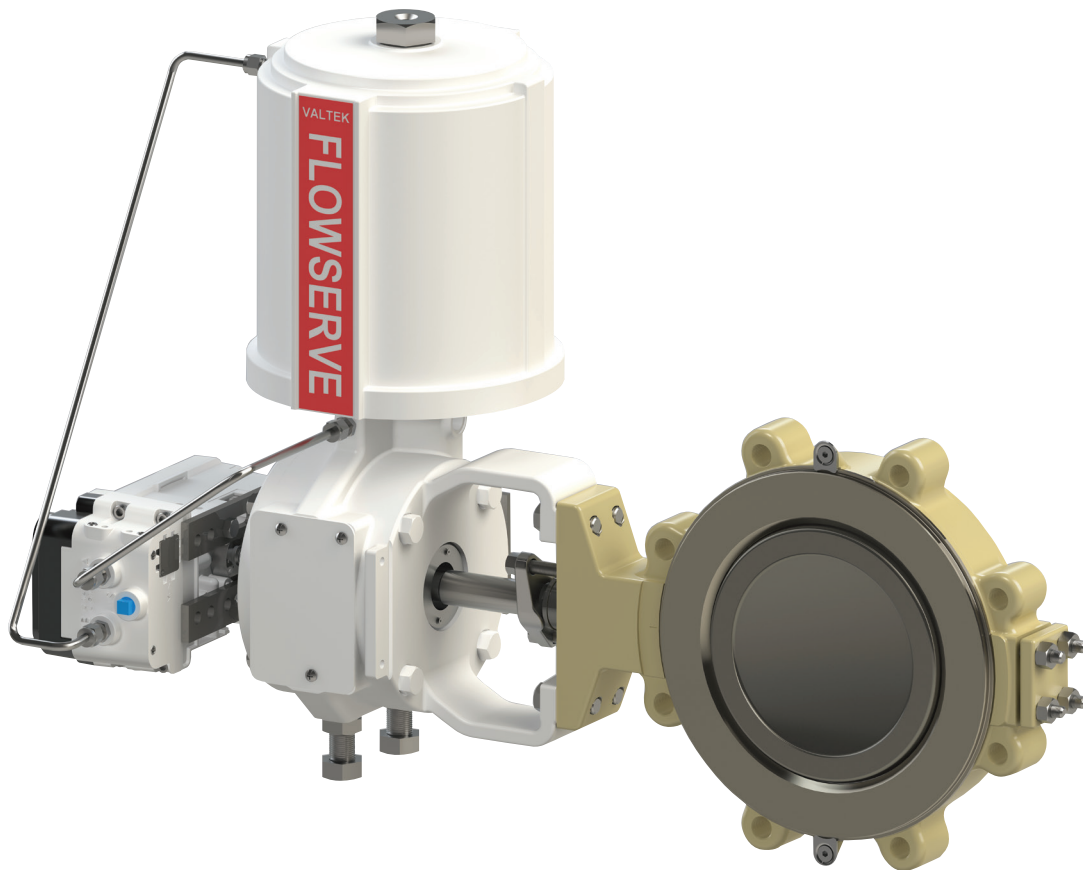


Valtek[®] Valdisk[™] High-Performance Butterfly Control Valve



Valtek Valdisk butterfly control valve

Flowserve has an unrivaled combination of technical expertise and practical experience to help you solve the toughest fluid motion control challenges. We help maximize your systems' efficiency and uptime by applying flow-specific technologies and advanced aftermarket capabilities, all supported by a vast team of technical resources.

Industry-leading throttling performance

The Valtek Valdisk valve is a high-performance butterfly control valve. Its double-offset shaft provides eccentric-cammed disc rotation to lift it out of the seat, thus immediately eliminating seat friction, to improve throttling control and reduce seat wear. A one-piece splined shaft connected to a clamped actuator lever provides excellent throttling control. Its soft seating arrangement is designed for bubble-tight shutoff while maintaining low breakout torque.

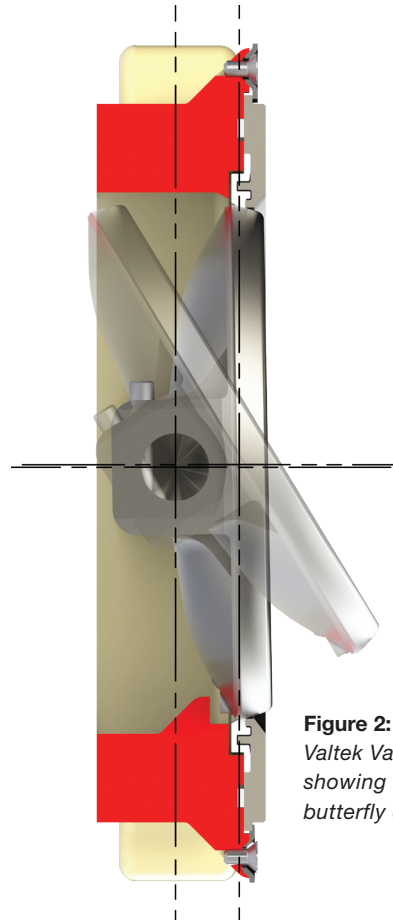


Figure 2: Side view of Valtek Valdisk valve showing double-offset butterfly disc

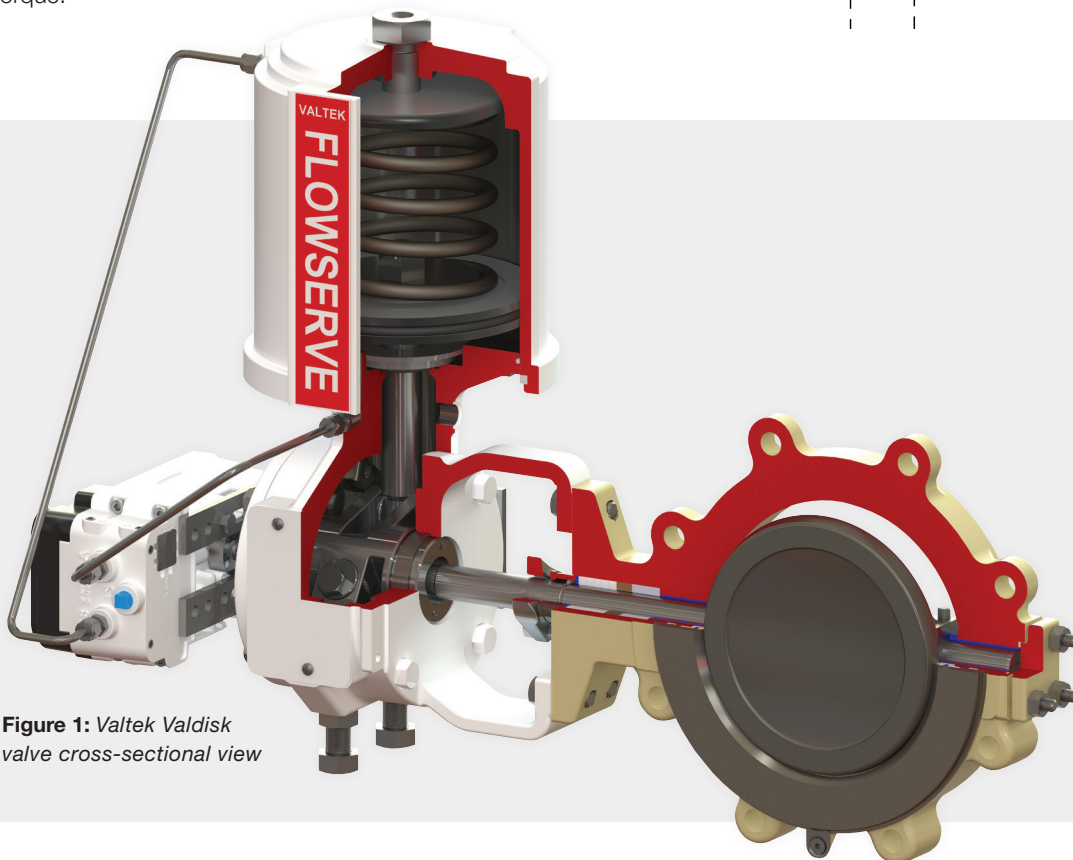


Figure 1: Valtek Valdisk valve cross-sectional view

Table 1: Features and advantages

Features	Advantages
Eccentric-cammed disc	The disc rotates out of seat immediately, eliminating seat friction, to improve throttling control and reduce seat wear.
Splined shaft end	A one-piece, splined shaft end, combined with actuator lever clamp, eliminates lost motion between shaft and actuator to improve throttling control. ⁽¹⁾
Pinned shaft to disc	Tapered shaft to disc pins provide tight connections for excellent control without requiring the shaft to be drilled. ⁽¹⁾
Contoured disc	Inherently linear flow characteristic provides good control over the entire flow range.
Excellent shut-off	Soft seat (Class VI) and metal seat (Class IV) provide reliable long-life, shut-off capability.
Multiple packing options	Packing provides low emissions for a variety of applications, complying with industry standards.
Flow capacity	High flow capacity exceeds that of typical globe valves.
Bolted seat retainer	An uninterrupted gasket surface allows for a wide variety of gasketing.
Bolted shaft flange	Robust design provides safety and eases maintenance.
Shaft retention	Anti-blowout protection provides safety compliance to ASME B16.34 and API 609.
Position indication	Marked for easy visual indication of disc position.
Disc stop in body	The disc stop prevents damage to seat due to over-stroking.
Cylinder actuator	High thrust and stiffness enable precision throttling with air pressure up to 150 psi (10.3 bar).

(1) For sizes up to NPS 16.

Table 2: Specifications

Options	ASME	DIN
Sizes	NPS 2 to 60	DIN 80 to 600
Pressure class	ASME Class 150 to 600	PN 10 to 40
End connection	ASME 16.5 and ASME B16.47	EN 1092-1
Body material	WCC, CF8M; alloys upon request	1.0619, 1.4408; alloys upon request
Face-to-face	API 609 and MSS SP-68; Valtek standard for larger sizes	EN 558 series 20/16
Body style	Lug, wafer (flange-less), double-flanged	Lug, wafer
Packing	PTFE V-ring, braided PTFE, graphite braid, SureGuard™ XT, SafeGuard™	
Packing type	Single, twin, vacuum, live-loaded, fire-safe	
Temperature	-196°C to 427°C (-320°F to 800°F)	
Shut-off	ANSI/FCI 70-2: Class IV (metal seat) and VI (soft seat)	

Design standards

ASME (B16.34, B16.10, B16.25), API 609, PED, DIN, CRN, ISO, NACE, EN

Test standards

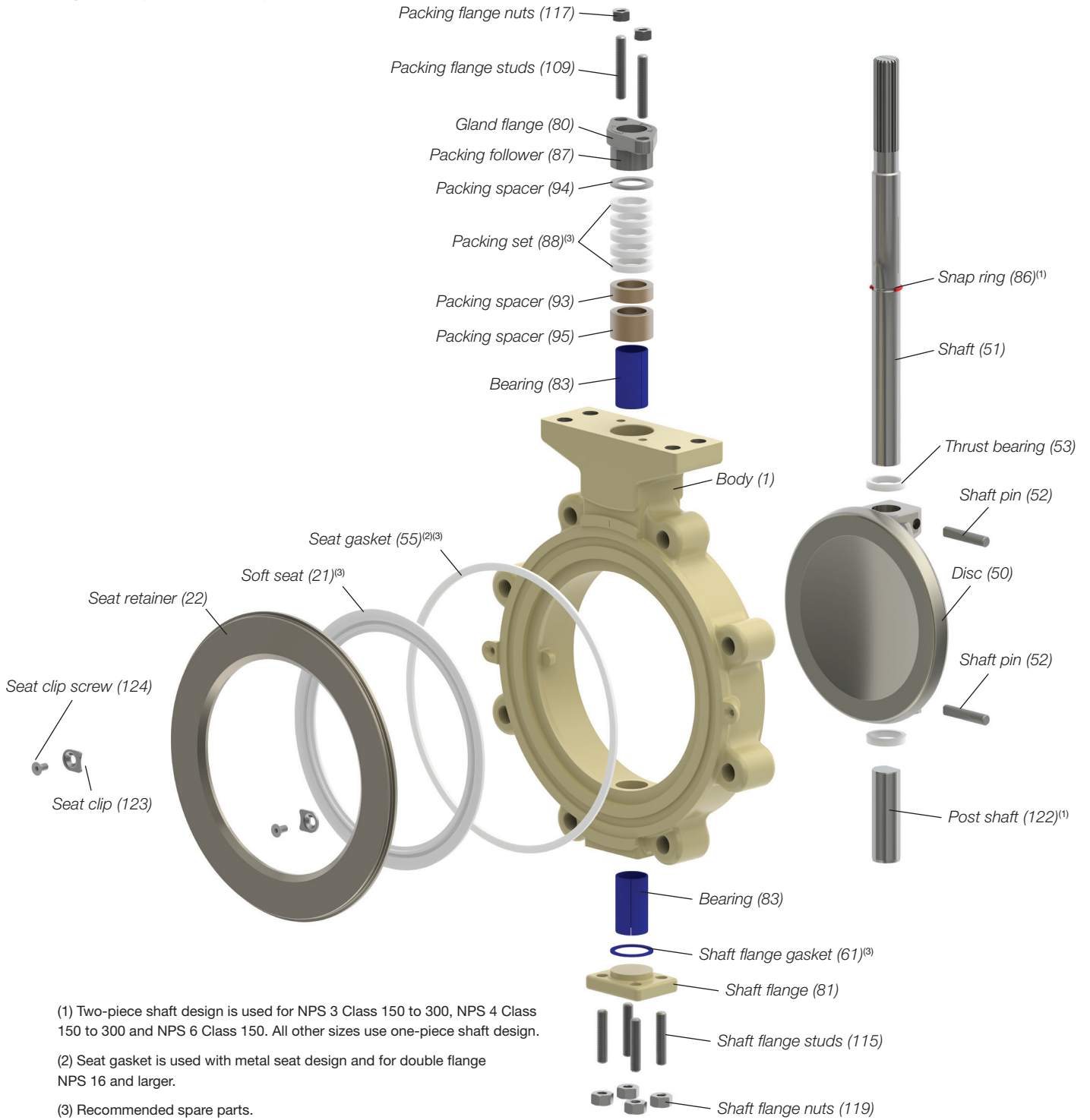
ASME B16.34, ANSI/FCI 70-2

Certifications/approvals

ISO 9001, PED, CRN, TRCU, SIL

Parts list and materials of construction

Figure 3: Exploded view and parts list



(1) Two-piece shaft design is used for NPS 3 Class 150 to 300, NPS 4 Class 150 to 300 and NPS 6 Class 150. All other sizes use one-piece shaft design.

(2) Seat gasket is used with metal seat design and for double flange NPS 16 and larger.

(3) Recommended spare parts.

Table 3: Materials of construction

Item	Part	Material	Temperature Range ⁽¹⁾	
			°C	°F
1/50	Body/disc	WCC carbon steel	-29 to 427	-20 to 800
		CF8M stainless steel	-254 to 454	-425 to 850
		WC9 chrome moly	-29 to 593	-20 to 1,100
		LCC carbon steel	-46 to 343	-50 to 650
		Monel®	-29 to 482	-20 to 900
51/52/122	Shaft/pins/post shaft	Hastelloy C®	-198 to 371	-325 to 700
		17-4 PH H1025	-40 to 427	-40 to 800
		Nitronic 50®	-254 to 538	-425 to 1,000
		Inconel 718®	-253 to 649	-423 to 1,200
		Monel K-500®	-253 to 371	-423 to 700
83	Bearings	Hastelloy C	-198 to 538	-325 to 1,000
		316/PTFE/Kevlar	-101 to 232	-150 to 450
		Inconel 625®/PTFE/Kevlar	-101 to 232	-150 to 450
		Monel/PTFE/Kevlar	-101 to 232	-150 to 450
		Ultimet®	-254 to 427	-425 to 800
21	Soft seat	Alloy 6	-254 to 538	-425 to 1,100
		PTFE	-73 to 177	-100 to 350
		Glass-filled PTFE	-73 to 232	-100 to 450
		UHMWPE	-101 to 85	-150 to 185
		PCTFE	-198 to 149	-325 to 300
55	Seat gasket ⁽³⁾	PEEK™	-73 to 260	-100 to 500
		PTFE	-73 to 177	-100 to 350
		Glass-filled PTFE	-73 to 232	-100 to 450
		UHMWPE	-101 to 85	-150 to 185
		PCTFE	-198 to 149	-325 to 300
20/22	Metal seat/seat retainer	PEEK™	-73 to 260	-100 to 500
		Spiral graphite	-51 to 538	-60 to 1,000
		316 stainless steel	-268 to 316	-450 to 600
		316 stainless steel with Alloy 6	-268 to 649	-450 to 1,200
88	Packing set ⁽²⁾⁽³⁾	Inconel 625	-198 to 649	-325 to 1,200
		Monel K-500	-268 to 316	-450 to 600
		PTFE V-Ring or braid	-73 to 204	-100 to 400
		PTFE/Glass V-Ring	-73 to 260	-100 to 500
		LATTYflon 3265 LM	-73 to 204	-100 to 400
		SafeGuard	-51 to 232	-60 to 450
		SureGuard XT	-29 to 288	-20 to 550
117/119	Packing and shaft flange nuts	Graphite braid or rib-braid	-51 to 538	-60 to 1,000
		Carbon braid	-51 to 427	-60 to 800
109/115	Packing and shaft flange studs	Carbon steel	-29 to 427	-20 to 800
		Stainless steel	-254 to 454	-425 to 850
80	Gland flange	Carbon steel	-29 to 427	-20 to 800
		Stainless steel	-254 to 454	-425 to 850
81	Shaft flange	WCC carbon steel	-29 to 427	-20 to 800
		CF8M stainless steel	-254 to 454	-425 to 850
61	Shaft flange gasket	Graphite	-51 to 538	-60 to 1,000
53	Thrust bearing	316 stainless steel with nitrided surface	-254 to 538	-425 to 1,000
93/94/95	Packing spacer	Same as body		
87	Packing follower	Same as body		
123/124	Seat clip and screw	316 stainless steel	N/A	N/A
86	Snap ring	316 stainless steel	N/A	N/A

(1) Temperature of service fluid.
 (2) Temperature range is extended by 93°C (200°F) in both directions when body extension is used.
 (3) Temperature limited to 427°C (800°F) in oxidizing services.

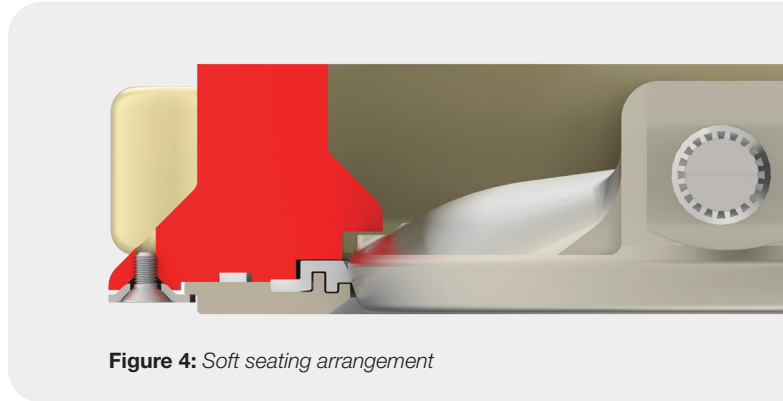
® Hastelloy is a registered trademark of Haynes International.
 ® Inconel is a registered trademark of the International Nickel Co., Inc.
 ® Monel is a registered trademark of International Nickel Co.
 ® Nitronic is a registered trademark of AK Steel.
 ® PEEK is a registered trademark of Victrex plc Corp.

Seats

Soft seat

Unique seat design utilizes the pressure drop across the valve to help energize the soft seat to bubble-tight shutoff in either flow direction, including alternating flow applications. This is done in such a way that seating capacity is increased as differential pressure is increased.

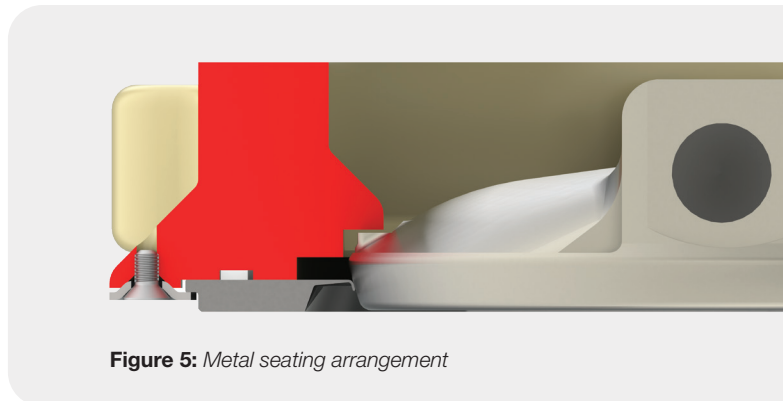
ANSI/FCI 70-2 Class VI shutoff.



Metal seat

Metal seats are used for applications involving temperatures higher than those permitted by the soft seat. The design incorporates a highly flexible lip, which assures full-circle contact between the seat and disc when the valve is closed.

ANSI/FCI 70-2 Class IV shutoff.



Dual fire-safe seat

This seat arrangement incorporates the unique design of the soft seat for tight shutoff plus a metal seat that provides full seat contact in the event a fire damages the soft seat.

ANSI/FCI 70-2 Class VI shutoff.

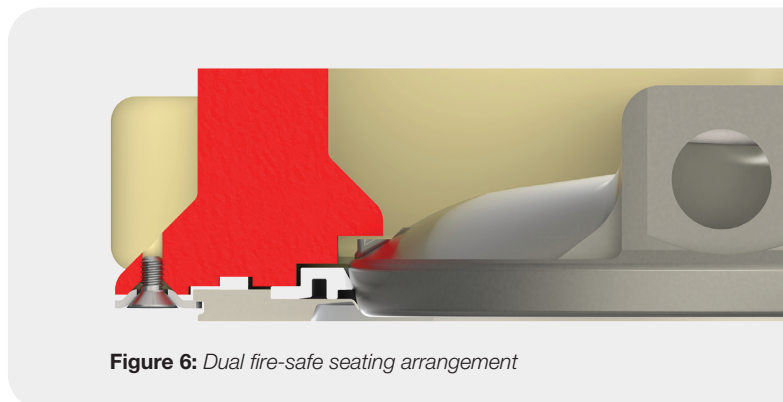
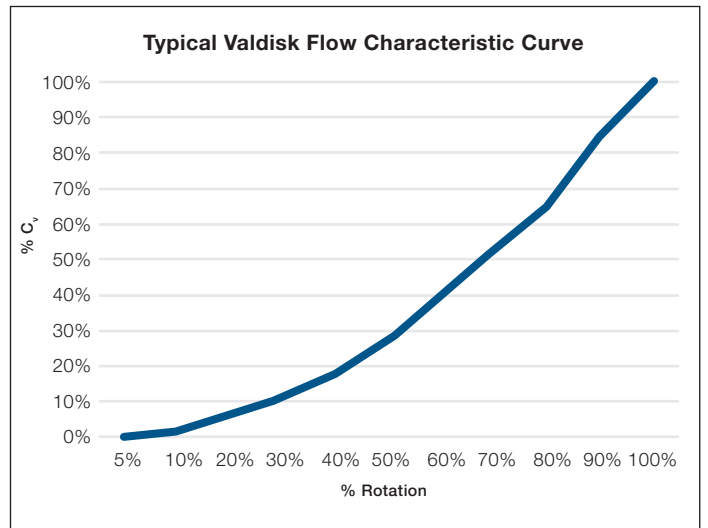


Table 4: Valdisk C_v – Soft and metal seats

Size	Class	Soft Seat		Metal Seat/Dual Seat	
		Shaft Upstream	Shaft Downstream	Shaft Upstream	Shaft Downstream
		C _v 100	C _v 100	C _v 100	C _v 100
2	150	71	72	55	55
	300	71	72	55	55
	600	71	72	55	55
3	150	209	208	177	177
	300	160	169	135	143
	600	160	169	135	143
4	150	478	451	448	423
	300	373	374	344	345
	600	340	341	311	312
6	150	1,200	1,119	1,155	1,080
	300	991	931	941	885
	600	818	798	770	752
8	150	2,240	2,290	2,170	2,220
	300	1,800	1,690	1,750	1,640
	600	1,470	1,430	1,390	1,350
10	150	3,830	3,480	3,760	3,410
	300	3,210	2,800	3,130	2,730
	600	2,270	2,050	2,140	1,940
12	150	5,890	5,390	5,800	5,300
	300	4,990	4,330	4,330	4,250
	600	3,610	3,250	3,460	3,110
14	150	7,550	6,840	7,460	6,760
	300	5,790	5,040	5,640	4,910
	600	3,960	3,580	3,790	3,430
16	150	10,660	9,700	10,600	9,600
	300	7,630	6,670	7,460	6,520
	600	6,330	5,750	6,130	5,570
18	150	12,150	12,100	12,100	11,900
	300	8,340	7,710	8,190	7,580
	600	6,040	5,960	5,880	5,800
20	150	17,300	16,200	17,200	16,100
	300	11,200	9,750	11,000	9,610
	600	8,280	7,720	8,110	7,560
24	150	24,100	24,400	23,500	23,700
	300	16,300	15,500	16,100	15,300
	600	11,400	11,500	11,200	11,300
28	150	36,100	34,000	36,000	33,800
30	150	41,500	39,100	41,400	38,900
36	150	62,300	60,900	62,100	60,700
42	150	83,200	79,900	83,000	79,700
48	150	110,000	109,200	109,800	108,900
54	150	143,000	144,100	142,700	143,800
60	150	177,800	181,600	177,500	181,300

Chart 1: Valdisk C_v – Soft and metal seats



Maximum allowable shutoff pressure drops – Shaft limits

Table 5: Shaft limits, bar

Material	Flow Dir.	Temp, °C	Maximum Allowable Pressure Drop, bar																							
			NPS 2			NPS 3			NPS 4			NPS 6			NPS 8			NPS 10			NPS 12					
			Class 150	Class 300	Class 600	Class 150	Class 300	Class 600	Class 150	Class 300	Class 600	Class 150	Class 300	Class 600	Class 150	Class 300	Class 600	Class 150	Class 300	Class 600	Class 150	Class 300	Class 600			
17-4 PH	SU and SD	-45 to 38	20	52	66	20	52	104	20	52	104	20	52	100	20	52	93	20	52	104	20	48	90			
		93	20	49	49	20	52	104	20	52	104	20	52	96	20	52	89	20	52	104	20	46	86			
		149	20	29	29	20	52	100	20	52	102	20	52	91	20	52	85	20	51	104	20	44	82			
		204	13	13	13	20	51	94	20	52	96	20	52	86	20	52	80	20	48	104	19	41	77			
		260	12	12	12	20	49	90	20	52	92	20	52	82	20	52	77	20	46	104	18	40	74			
		316	11	11	11	20	47	86	20	52	88	20	52	79	20	52	73	20	44	104	17	38	71			
		371	11	11	11	20	45	83	20	52	85	20	52	76	20	52	70	20	42	104	17	36	68			
Inconel 718	SU and SD	427	11	11	11	20	43	79	20	52	80	20	51	72	20	51	67	19	40	104	16	35	65			
		-45 to 38	20	52	66	20	52	104	20	52	104	20	52	101	20	52	94	20	52	104	20	49	91			
		93	20	49	49	20	52	104	20	52	104	20	52	101	20	52	93	20	52	104	20	49	91			
		149	20	29	29	20	52	104	20	52	104	20	52	99	20	52	92	20	52	104	20	48	90			
		204	13	13	13	20	52	104	20	52	104	20	52	98	20	52	91	20	52	104	20	47	89			
		260	12	12	12	20	52	104	20	52	104	20	52	97	20	52	90	20	52	104	20	47	88			
		316	11	11	11	20	52	104	20	52	104	20	52	96	20	52	90	20	52	104	20	46	87			
Nitronic 50	SU and SD	371	11	11	11	20	52	104	20	52	104	20	52	95	20	52	88	20	52	104	20	46	86			
		427	11	11	11	20	52	104	20	52	104	20	52	94	20	52	87	20	52	104	20	45	85			
		-45 to 38	20	52	66	20	39	54	20	52	87	20	52	78	20	52	73	20	40	104	17	38	70			
		93	20	49	49	20	36	49	20	48	80	20	50	71	20	50	66	19	36	104	16	34	64			
		149	20	29	29	20	34	47	20	46	75	20	48	67	20	47	63	18	34	104	15	32	61			
		204	13	13	13	20	32	44	20	44	72	19	45	64	20	45	59	17	33	104	14	31	58			
		260	12	12	12	20	31	42	20	42	69	18	44	61	20	43	57	16	31	104	14	30	55			
Monel K-500	SU and SD	316	11	11	11	20	30	41	20	40	66	17	42	59	19	41	55	15	30	100	13	28	53			
		371	11	11	11	20	28	39	20	38	63	17	40	56	18	40	52	15	29	96	12	27	51			
		427	11	11	11	20	25	34	17	33	55	14	35	49	16	34	45	13	25	83	11	24	44			
		-45 to 38	20	52	60	20	29	40	20	47	77	20	49	69	20	49	64	18	34	104	15	33	62			
		93	20	49	49	20	28	39	20	46	75	20	48	67	20	47	62	18	33	104	15	32	61			
		149	20	29	29	20	28	38	20	45	74	20	47	66	20	46	61	17	32	104	15	32	59			
		204	10	10	10	20	27	38	20	44	73	19	46	65	20	46	61	17	32	104	14	31	59			
Monel K-500	SU and SD	260	3	3	3	20	27	37	20	44	72	19	46	64	20	46	60	17	32	104	14	31	58			
		316	N/A	N/A	N/A	20	27	37	20	44	72	19	45	64	20	45	59	17	31	104	14	31	58			
		371	N/A	N/A	N/A	20	26	36	20	43	70	19	44	63	20	44	58	16	31	104	14	30	57			

Material	Flow Dir.	Temp, °C	Maximum Allowable Pressure Drop, bar																							
			NPS 14			NPS 16			NPS 18			NPS 20			NPS 24			NPS 28	NPS 30	NPS 36	NPS 42	NPS 48	NPS 54	NPS 60		
			Class 150	Class 300	Class 600	Class 150	Class 300	Class 600	Class 150	Class 300	Class 600	Class 150	Class 300	Class 600	Class 150	Class 300	Class 600	Class 150	Class 300	Class 600	Class 150	Class 300	Class 600	Class 150	Class 300	Class 600
17-4 PH	SU and SD	-45 to 38	20	52	103	20	66	103	20	52	77	20	52	76	20	52	83	20	20	20	21	20	20	20	20	
		93	20	51	99	20	63	99	20	50	73	19	49	72	20	50	79	20	20	19	20	20	19	19	18	
		149	19	48	94	20	60	94	20	48	70	19	47	69	20	48	76	19	20	18	19	19	18	18	18	
		204	18	45	88	20	56	88	20	45	65	17	44	65	19	45	71	18	19	17	18	18	17	17	17	
		260	17	44	85	20	54	85	20	43	63	17	43	62	18	43	68	17	18	16	17	17	16	16	16	
		316	16	42	81	20	52	81	20	41	60	16	41	60	17	41	65	16	18	16	16	16	16	16	16	
		371	16	40	78	19	50	78	20	40	58	15	39	57	17	40	63	16	17	15	16	16	15	15	15	
Inconel 718	SU and SD	427	15	38	74	18	47	74	20	38	55	15	37	54	16	38	59	15	16	14	15	15	14	15		
		-45 to 38	20	52	104	20	52	104	20	52	77	20	52	76	20	52	83	20	20	20	20	20	20	20	20	
		93	20	52	104	20	52	104	20	52	77	20	52	76	20	52	83	20	20	20	20	20	20	20	20	
		149	20	52	103	20	52	102	20	52	76	20	51	75	20	52	82	20	20	20	20	20	20	20	20	
		204	20	52	101	20	52	101	20	51	75	20	51	74	20	51	81	20	20	20	20	20	20	20	20	
		260	20	51	100	20	52	100	20	51	74	20	50	73	20	51	80	20	20	20	20	20	19	20	20	
		316	20	51	100	20	52	99	20	50	74	20	50	73	20	50	80	20	20	20	20	20	19	19	19	
Nitronic 50	SU and SD	371	20	50	98	20	52	98	20	50	73	19	49	72	20	50	79	20	20	20	20	19	19	19		
		427	19	50	97	20	52	96	20	49	72	19	48	71	20	49	77	19	20	19	20	19	19	19		
		-45 to 38	16	41	81	20	51	77	20	41	60	16	40	59	17	41	65	16	17	18	16	16	15	16		
		93	15	38	73	18	47	70	20	37	54	14	37	54	16	37	59	15	16	17	15	15	14	14		
		149	14	36	70	17	44	66	19	35	51	14	35	51	15	35	56	14	15	16	14	14	13	14		
		204	13	34	66	16	42	63	19	33	49	13	33	48	14	33	53	13	14	15	13	14	12	13		
		260	13	33	63	16	40	60	18	32	47	12	32	47	14	32	51	13	14	14	13	13	12	12		
Monel K-500	SU and SD	316	12	31	61	15	38	58	17	31	45	12	30	45	13	31	49	12	13	14	12	12	11	12		
		371	12	30	58	14	37	56	16	30	43	11	29	43	12	30	47	12	13	13	12	12	11	11		
		427	10	26	50	12	32	48	14	26	37	10	25	37	11	26	40	10	11	11	10	10	10	10		
		-45 to 38	14	37	71	18	45	67	20	36	53	14	36	52	15	36	57	14	15	13	14	15	14	14		
		93	14	36	69	17	44	65	19	35	51	14	35	51	15	35	55	14	15	13	14	14	13	14		
		149	14	35	68	17	43	64	19	34	50	13	34	50	15	34	54	14	15	12	14	14	13	13		
		204	13	35	67	17	43	63	19	34	50	13	34	49	14	34	54	13	15	12	13	14	13	13		
Monel K-500	SU and SD	260	13	34	67	16	42	62	19	34	49	13	33	49	14	34	53	13	14	12	13	14	13	13		
		316	13	34	66	16	42	62	19	33	49	13	33	48	14	33	53	13	14	12	13	14	13	13		
		371	13	33	65	16	41	61	18	33	48	13	32	48	14	33	52	13	14	12	13	13	12	13		

Table 6: Shaft limits, psi

Table with 22 columns: Material, Flow Dir., Temp, °F, and Maximum Allowable Pressure Drop (psi) for NPS 2, 3, 4, 6, 8, 10, and 12. Rows include 17-4 PH, Inconel 718, Nitronic 50, and Monel K-500.

Table with 22 columns: Material, Flow Dir., Temp, °F, and Maximum Allowable Pressure Drop (psi) for NPS 14, 16, 18, 20, 24, 28, 30, 36, 42, 48, 54, and 60. Rows include 17-4 PH, Inconel 718, Nitronic 50, and Monel K-500.

Maximum allowable shutoff pressure drops – Bearing limits

Table 7: Bearing limits, bar

Material	Flow Dir.	Temp, °C	Maximum Allowable Pressure Drop, bar						
			NPS						
			2	3	4	6	8	10	12
316/PTFE/Kevlar	SU and SD	-45 to 93	103	103	103	103	97	103	103
		149	97	97	97	97	90	97	97
		204	83	83	83	83	76	83	83
		260	34	34	34	34	28	34	34
		316 to 427	-	-	-	-	-	-	-
Ultimet	SU and SD	-45 to 93	76	76	76	76	76	76	76
		149	69	69	69	69	69	69	69
		204	62	62	62	62	62	62	62
		260	59	59	59	59	59	59	59
		316	55	55	55	55	55	55	55
		371	52	52	52	52	52	52	52
427	48	48	48	48	48	48	48		
Alloy 6	SU and SD	-45 to 149	103	103	103	103	103	103	103
		204	97	97	97	97	97	97	97
		260	90	90	90	90	90	90	90
		316	83	83	83	83	83	83	83
		371	76	76	76	76	76	76	76
		427	69	69	69	69	69	69	69

Material	Flow Dir.	Temp, °C	Maximum Allowable Pressure Drop, bar											
			NPS											
			14	16	18	20	24	28	30	36	42	48	54	60
316/PTFE/Kevlar	SU and SD	-45 to 93	97	97	90	90	83	20	20	20	20	20	20	20
		149	90	90	83	83	76	20	20	20	20	20	20	20
		204	76	76	69	69	62	14	14	14	14	14	14	14
		260	28	28	24	24	21	10	10	10	10	10	10	10
		316 to 427	-	-	-	-	-	-	-	-	-	-	-	-
Ultimet	SU and SD	-45 to 93	76	76	76	76	76	76	76	76	76	76	76	76
		149	69	69	69	69	69	69	69	69	69	69	69	69
		204	62	62	62	62	62	62	62	62	62	62	62	62
		260	59	59	59	59	59	59	59	59	59	59	59	59
		316	55	55	55	55	55	55	55	55	55	55	55	55
		371	52	52	52	52	52	52	52	52	52	52	52	52
427	48	48	48	48	48	48	48	48	48	48	48	48		
Alloy 6	SU and SD	-45 to 149	103	103	103	103	103	103	103	103	103	103	103	103
		204	97	97	97	97	97	97	97	97	97	97	97	97
		260	90	90	90	90	90	90	90	90	90	90	90	90
		316	83	83	83	83	83	83	83	83	83	83	83	83
		371	76	76	76	76	76	76	76	76	76	76	76	76
		427	69	69	69	69	69	69	69	69	69	69	69	69

Table 8: Bearing limits, psi

Material	Flow Dir.	Temp, °F	Maximum Allowable Pressure Drop, psi						
			NPS						
			2	3	4	6	8	10	12
316/PTFE/Kevlar	SU and SD	-50 to 200	1,500	1,500	1,500	1,500	1,400	1,500	1,500
		300	1,400	1,400	1,400	1,400	1,300	1,400	1,400
		400	1,200	1,200	1,200	1,200	1,100	1,200	1,200
		500	500	500	500	500	400	500	500
		600 to 800	-	-	-	-	-	-	-
Ultimet	SU and SD	-50 to 200	1,100	1,100	1,100	1,100	1,100	1,100	1,100
		300	1,000	1,000	1,000	1,000	1,000	1,000	1,000
		400	900	900	900	900	900	900	900
		500	850	850	850	850	850	850	850
		600	800	800	800	800	800	800	800
		700	750	750	750	750	750	750	750
		800	700	700	700	700	700	700	700
Alloy 6	SU and SD	-50 to 300	1,500	1,500	1,500	1,500	1,500	1,500	1,500
		400	1,400	1,400	1,400	1,400	1,400	1,400	1,400
		500	1,300	1,300	1,300	1,300	1,300	1,300	1,300
		600	1,200	1,200	1,200	1,200	1,200	1,200	1,200
		700	1,100	1,100	1,100	1,100	1,100	1,100	1,100
		800	1,000	1,000	1,000	1,000	1,000	1,000	1,000

Material	Flow Dir.	Temp, °F	Maximum Allowable Pressure Drop, psi											
			NPS											
			14	16	18	20	24	28	30	36	42	48	54	60
316/PTFE/Kevlar	SU and SD	-50 to 200	1,400	1,400	1,300	1,300	1,200	290	290	290	290	290	290	290
		300	1,300	1,300	1,200	1,200	1,100	290	290	290	290	290	290	290
		400	1,100	1,100	1,000	1,000	900	200	200	200	200	200	200	200
		500	400	400	350	350	300	150	150	150	150	150	150	150
		600 to 800	-	-	-	-	-	-	-	-	-	-	-	-
Ultimet	SU and SD	-50 to 200	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
		300	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
		400	900	900	900	900	900	900	900	900	900	900	900	
		500	850	850	850	850	850	850	850	850	850	850	850	
		600	800	800	800	800	800	800	800	800	800	800	800	
		700	750	750	750	750	750	750	750	750	750	750	750	
		800	700	700	700	700	700	700	700	700	700	700	700	
Alloy 6	SU and SD	-50 to 300	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	
		400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	
		500	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	
		600	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	
		700	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	
		800	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	

Maximum allowable shutoff pressure drops — Seat Limits

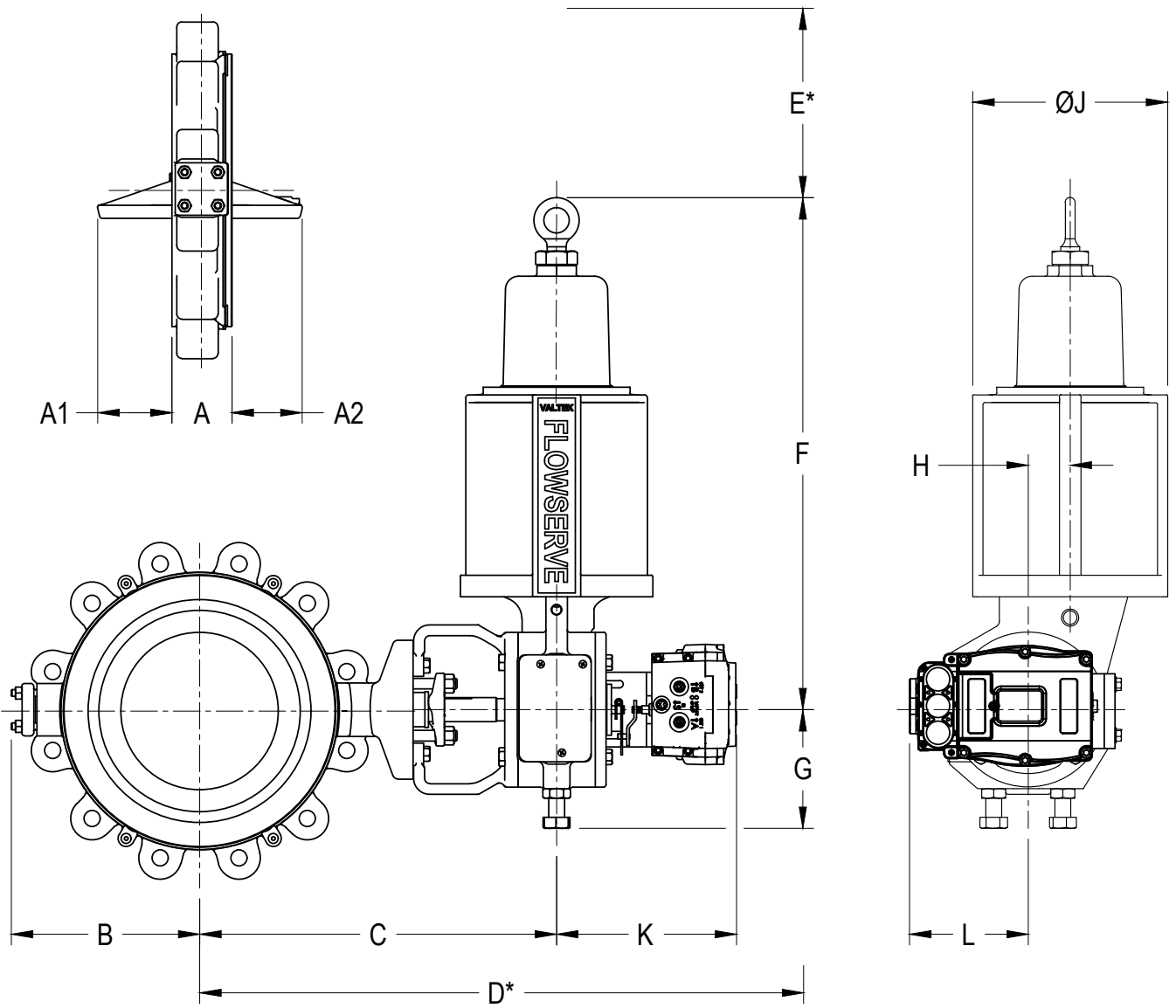
Table 9: Seat limits — NPS 2 to 12, bar and psi

Material	Flow Dir.	Temp, °C	Temp, °F	Maximum Allowable Pressure Drop, bar	Maximum Allowable Pressure Drop, psi
PTFE	SU and SD	-45 to 38	-50 to 100	62	900
		93	200	32	470
		149	300	13	190
		177	350	5	70
		260 to 427	500 to 800	-	-
Glass-filled PTFE	SU and SD	-45 to 38	-50 to 100	72	1,050
		93	200	38	550
		149	300	15	200
		204	400	8	110
		232	450	3	50
		316 to 427	600 to 800	-	-
UHMWPE	SU and SD	-73 to 38	-100 to 100	76	1,100
		93	200	31	450
		149 to 427	300 to 800	-	-
316 SS/316L SS/ 304 SS (with or without Alloy 6)	SU/SD	-45 to 38	-50 to 100	24.1/65.5	350/950
		93	200	24.1/65.5	350/950
		149	300	22.8/59.7	330/865
		204	400	21.4/53.1	310/770
		260	500	19.3/47.6	280/690
		316	600	16.6/41.4	240/600
		371	700	15.2/36.6	220/530
		427	800	13.1/31.7	190/460

Table 10: Seat limits – NPS 14 to 60, bar and psi

Materials	Flow Dir.	Temp, °C	Temp, °F	Maximum Allowable Pressure Drop, bar	Maximum Allowable Pressure Drop, psi
PTFE	SU and SD	-45 to 38	-50 to 100	62	900
		93	200	32	470
		149	300	13	190
		177	350	5	70
		260 to 427	500 to 800	-	-
Glass-filled PTFE	SU and SD	-45 to 38	-50 to 100	72	1,050
		93	200	38	550
		149	300	14	200
		204	400	8	110
		232	450	3	50
		316 to 427	600 to 800	-	-
UHMWPE	SU and SD	-73 to 38	-100 to 100	76	1,100
		93	200	31	450
		149 to 427	300 to 800	-	-
316 SS/316L SS/ 304 SS (with or without Alloy 6)	SU/SD	-45 to 38	-50 to 100	24.1/65.5	350/950
		93	200	24.1/65.5	350/950
		149	300	22.8/59.7	330/865
		204	400	21.4/53.1	310/770
		260	500	19.3/47.6	280/690
		316	600	16.6/41.4	240/600
		371	700	15.2/36.6	220/530
		427	800	13.1/31.7	190/460

Dimensions—Lug style, NPS 3 to 16, Class 150 to 600



* Required for disassembly.

Table 11: Valdisk dimensions – Lug style, NPS 3 to 16, Class 150 to 600

Valve Size	Class	Actuator Size	A	A1	A2	B	C	C1	D	E	F	G	H	J	K	L	Weight
			mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
3	150	VR25	48	20	10	99	170	124	706	152	338	119	28	165	201	147	24
	300	VR25	48	20	10	124	170	124	706	152	338	119	28	165	201	147	26
	600	VR25	54	16	8	124	170	124	706	152	338	119	28	165	201	147	27
4	150	VR25	54	28	23	128	170	141	723	152	338	119	28	165	201	147	29
	300	VR25	54	28	19	145	170	161	743	152	338	119	28	165	201	147	32
	600	VR50	64	24	13	160	170	168	912	203	467	145	51	231	213	145	50
6	150	VR50	57	49	42	142	170	186	930	203	467	145	51	231	213	145	49
	300	VR50	59	49	40	181	170	192	937	203	467	145	51	231	213	145	57
	600	VR50	78	37	30	211	170	197	941	203	467	145	51	231	213	145	72
8	150	VR50	64	70	60	185	170	223	968	203	467	145	51	231	213	145	61
	300	VR50	73	61	59	221	170	229	973	203	467	145	51	231	213	145	73
	600	VR100	102	45	45	255	170	233	1,061	279	577	193	61	318	216	142	137
10	150	VR50	71	88	83	224	170	254	998	203	467	145	51	231	213	145	76
	300	VR100	83	82	79	250	170	266	1,094	279	577	193	61	318	216	142	138
	600	VR100	117	69	50	311	170	282	1,110	279	577	193	61	318	216	142	198
12	150	VR50	81	113	105	271	170	292	1,036	203	467	145	51	231	213	145	101
	300	VR100	92	100	98	295	170	302	1,130	279	577	193	61	318	216	142	167
	600	VR100	140	82	65	342	170	321	1,149	279	577	193	61	318	216	142	249
14	150	VR100	92	115	118	295	170	305	1,133	279	577	193	61	318	216	142	157
	300	VR200	117	108	95	340	170	325	1,153	279	592	193	61	445	216	142	257
	600	VR200	155	82	67	372	170	356	1,184	279	592	193	61	445	216	142	341
16	150	VR100	102	138	138	329	170	353	1,181	279	577	193	61	318	216	142	196
	300	VR200	133	124	108	370	170	397	1,225	279	592	193	61	445	216	142	316
	600	VR200	178	97	87	406	170	404	1,232	279	592	193	61	445	216	142	441

Valve Size	Class	Actuator Size	A	A1	A2	B	C	C1	D	E	F	G	H	J	K	L	Weight
			in	in	in	in	in	in	in	in	in	in	in	in	in	in	in
3	150	VR25	1.88	0.8	0.4	3.9	6.7	4.9	27.8	6.0	13.3	4.7	1.1	6.5	7.9	5.8	54
	300	VR25	1.88	0.8	0.4	4.9	6.7	4.9	27.8	6.0	13.3	4.7	1.1	6.5	7.9	5.8	58
	600	VR25	2.12	0.6	0.3	4.9	6.7	4.9	27.8	6.0	13.3	4.7	1.1	6.5	7.9	5.8	60
4	150	VR25	2.12	1.1	0.9	5.0	6.7	5.6	28.5	6.0	13.3	4.7	1.1	6.5	7.9	5.8	63
	300	VR25	2.12	1.1	0.8	5.7	6.7	6.3	29.2	6.0	13.3	4.7	1.1	6.5	7.9	5.8	70
	600	VR50	2.50	0.9	0.5	6.3	6.7	6.6	35.9	8.0	18.4	5.7	2.0	9.1	8.4	5.7	110
6	150	VR50	2.25	1.9	1.7	5.6	6.7	7.3	36.6	8.0	18.4	5.7	2.0	9.1	8.4	5.7	109
	300	VR50	2.31	1.9	1.6	7.1	6.7	7.6	36.9	8.0	18.4	5.7	2.0	9.1	8.4	5.7	125
	600	VR50	3.06	1.5	1.2	8.3	6.7	7.8	37.1	8.0	18.4	5.7	2.0	9.1	8.4	5.7	159
8	150	VR50	2.50	2.8	2.4	7.3	6.7	8.8	38.1	8.0	18.4	5.7	2.0	9.1	8.4	5.7	134
	300	VR50	2.88	2.4	2.3	8.7	6.7	9.0	38.3	8.0	18.4	5.7	2.0	9.1	8.4	5.7	160
	600	VR100	4.00	1.8	1.8	10.0	6.7	9.2	41.8	11.0	22.7	7.6	2.4	12.5	8.5	5.6	302
10	150	VR50	2.81	3.5	3.3	8.8	6.7	10.0	39.3	8.0	18.4	5.7	2.0	9.1	8.4	5.7	168
	300	VR100	3.25	3.2	3.1	9.9	6.7	10.5	43.1	11.0	22.7	7.6	2.4	12.5	8.5	5.6	304
	600	VR100	4.62	2.7	2.0	12.2	6.7	11.1	43.7	11.0	22.7	7.6	2.4	12.5	8.5	5.6	436
12	150	VR50	3.19	4.4	4.1	10.7	6.7	11.5	40.8	8.0	18.4	5.7	2.0	9.1	8.4	5.7	223
	300	VR100	3.62	3.9	3.9	11.6	6.7	11.9	44.5	11.0	22.7	7.6	2.4	12.5	8.5	5.6	369
	600	VR100	5.50	3.2	2.5	13.5	6.7	12.6	45.2	11.0	22.7	7.6	2.4	12.5	8.5	5.6	550
14	150	VR100	3.62	4.5	4.6	11.6	6.7	12.0	44.6	11.0	22.7	7.6	2.4	12.5	8.5	5.6	346
	300	VR200	4.62	4.3	3.8	13.4	6.7	12.8	45.4	11.0	23.3	7.6	2.4	17.5	8.5	5.6	567
	600	VR200	6.12	3.2	2.6	14.7	6.7	14.0	46.6	11.0	23.3	7.6	2.4	17.5	8.5	5.6	752
16	150	VR100	4.00	5.4	5.4	12.9	6.7	13.9	46.5	11.0	22.7	7.6	2.4	12.5	8.5	5.6	432
	300	VR200	5.25	4.9	4.3	14.6	6.7	15.6	48.2	11.0	23.3	7.6	2.4	17.5	8.5	5.6	697
	600	VR200	7.00	3.8	3.4	16.0	6.7	15.9	48.5	11.0	23.3	7.6	2.4	17.5	8.5	5.6	972

* Dimensions are standard spring.

Dimensions—Lug style, NPS 18 to 60, Class 150 to 600

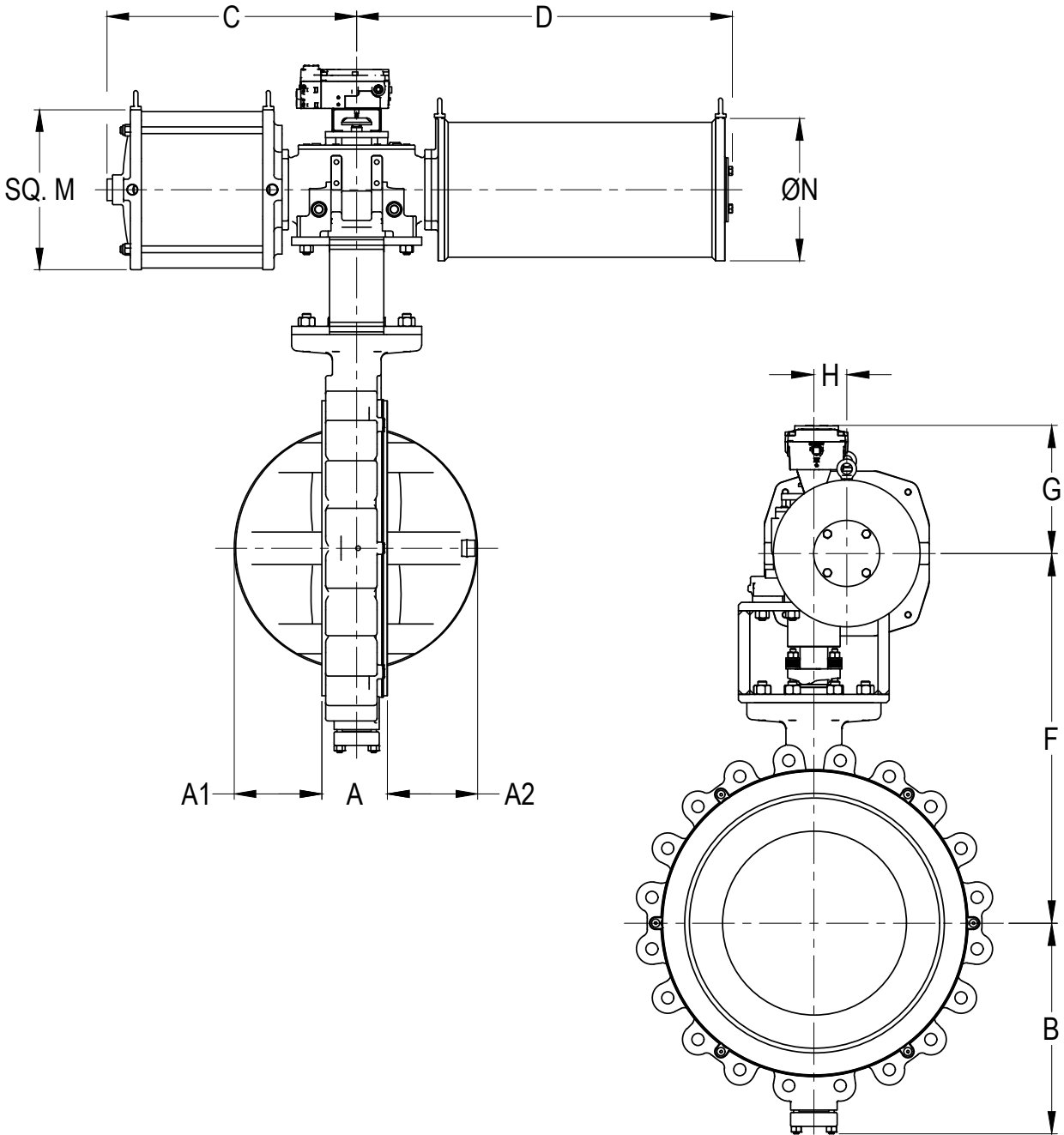


Table 12: Valdisk dimensions – Lug style, NPS 18 to 60, Class 150 to 600

Valve Size	Class	Actuator Size	Actuator Mounting Pattern	A	A1	A2	B	C	D	F	F1	G	H	N	Body Sub-Assembly Weight
				mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg
18	150	RG2	F16	114	154	151	381	530	749	894	396	290	66	323	170
	300	RG4	F30	149	132	128	417	808	1,110	930	404	320	91	467	313
	600	RG5	F35	200	100	103	454	1,029	1,321	1,125	442	335	145	569	469
20	150	RG3	F25	127	173	181	414	620	881	933	441	302	76	381	240
	300	RG4	F30	159	147	147	454	808	1,110	980	454	320	91	467	370
	600	RG6	F40	216	109	123	474	1,151	2,035	1,224	507	376	185	599	642
24	150	RG3	F25	154	205	212	479	620	881	998	505	302	76	381	370
	300	RG5	F35	181	189	182	524	1,029	1,321	1,227	543	335	145	569	629
	600	RG6	F40	232	143	152	545	1,151	2,035	1,396	553	376	185	599	952
28	150	RG3	F25	162	261	254	542	620	881	1,256	637	302	76	381	528
30	150	RG4	F30	165	290	274	580	808	1,110	1,322	669	320	91	467	624
36	150	RG5	F35	200	349	332	681	1,029	1,321	1,588	777	335	145	569	1,313
42	150	RG6	F40	251	399	370	793	1,151	2,035	1,725	881	376	185	599	1,615
48	150	RG7	F48	276	458	436	881	1,311	2,530	1,882	983	432	221	615	2,263
54	150	RG7	F48	275	533	520	956	1,311	2,530	1,966	1,067	432	221	615	2,946
60	150	RG7	F48	286	609	583	1,034	1,311	2,530	2,051	1,151	432	221	615	3,810

Valve Size	Class	Actuator Size	Actuator Mounting Pattern	A	A1	A2	B	C	D	F	F1	G	H	N	Body Sub-Assembly Weight
				in	in	in	in	in	in	in	in	in	in	in	in
18	150	RG2	F16	4.50	6.1	6.0	15.0	20.9	29.5	35.2	15.6	11.4	2.6	12.7	375
	300	RG4	F30	5.88	5.2	5.0	16.4	31.8	43.7	36.6	15.9	12.6	3.6	18.4	690
	600	RG5	F35	7.88	3.9	4.1	17.9	40.5	52.0	44.3	17.4	13.2	5.7	22.4	1,035
20	150	RG3	F25	5.00	6.8	7.1	16.3	24.4	34.7	36.8	17.4	11.9	3.0	15.0	530
	300	RG4	F30	6.25	5.8	5.8	17.9	31.8	43.7	38.6	17.9	12.6	3.6	18.4	815
	600	RG6	F40	8.50	4.3	4.9	18.7	45.3	80.1	48.2	20.0	14.8	7.3	23.6	1,415
24	150	RG3	F25	6.06	8.1	8.3	18.9	24.4	34.7	39.3	19.9	11.9	3.0	15.0	816
	300	RG5	F35	7.12	7.5	7.2	20.6	40.5	52.0	48.3	21.4	13.2	5.7	22.4	1,388
	600	RG6	F40	9.13	5.6	6.0	21.5	45.3	80.1	55.0	21.8	14.8	7.3	23.6	2,100
28	150	RG3	F25	6.38	10.3	10.0	21.4	24.4	34.7	49.5	25.1	11.9	3.0	15.0	1,165
30	150	RG4	F30	6.50	11.4	10.8	22.8	31.8	43.7	52.1	26.4	12.6	3.6	18.4	1,377
36	150	RG5	F35	7.88	13.7	13.1	26.8	40.5	52.0	62.5	30.6	13.2	5.7	22.4	2,895
42	150	RG6	F40	9.88	15.7	14.6	31.2	45.3	80.1	67.9	34.7	14.8	7.3	23.6	3,560
48	150	RG7	F48	10.88	18.1	17.2	34.7	51.6	99.6	74.1	38.7	17.0	8.7	24.2	4,990
54	150	RG7	F48	10.81	21.0	20.5	37.6	51.6	99.6	77.4	42.0	17.0	8.7	24.2	6,496
60	150	RG7	F48	11.25	24.0	23.0	40.7	51.6	99.6	80.7	45.3	17.0	8.7	24.2	8,400

Actuator dimensions

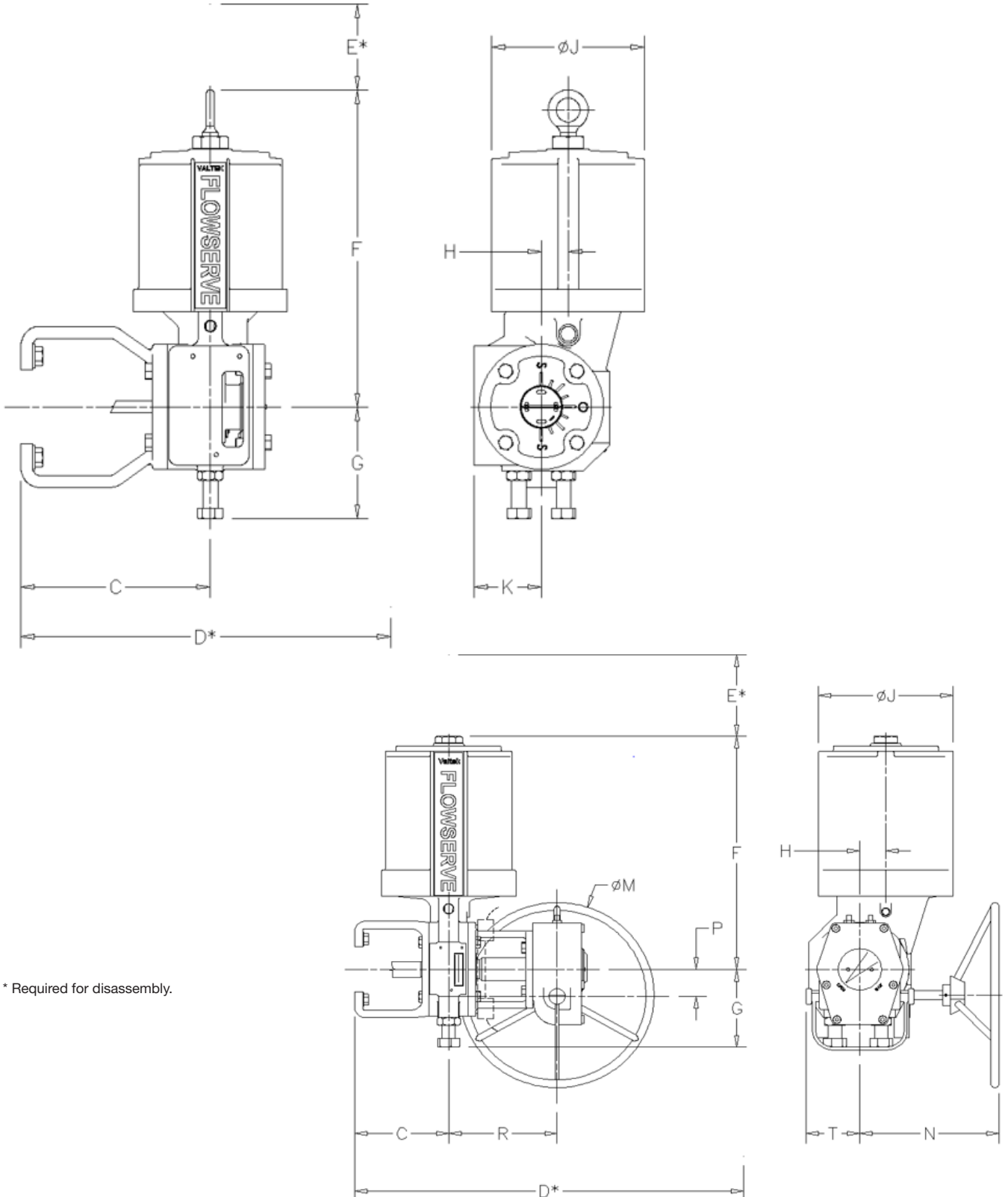


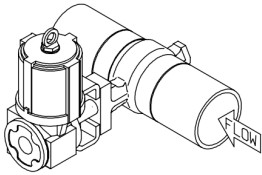
Table 13: Actuator dimensions and weights

Actuator Size	Hand-wheel	Spring	C		D		E		F		G		H		J		Weight	
			mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	kg	lbs
25	None	Standard	170	6.7	439	17.3	152	6.0	338	13.3	119	4.7	28	1.1	165	6.5	12	26
		Extended	170	6.7	439	17.3	236	9.3	439	17.3	119	4.7	28	1.1	165	6.5	14	31
	HW	Standard	170	6.7	752	29.6	152	6.0	338	13.3	119	4.7	28	1.1	165	6.5	26	57
		Extended	170	6.7	752	29.6	236	9.3	439	17.3	119	4.7	28	1.1	165	6.5	28	62
50	None	Standard	170	6.7	597	23.5	203	8.0	467	18.4	145	5.7	51	2.0	231	9.1	27	59
		Extended	170	6.7	597	23.5	249	9.8	610	24.0	145	5.7	51	2.0	231	9.1	32	71
	HW	Standard	170	6.7	1,003	39.5	203	8.0	467	18.4	145	5.7	51	2.0	231	9.1	62	137
		Extended	170	6.7	1,003	39.5	249	9.8	610	24.0	145	5.7	51	2.0	231	9.1	68	149
100	None	Standard	170	6.7	686	27.0	279	11.0	577	22.7	193	7.6	61	2.4	318	12.5	63	140
		Dual	170	6.7	686	27.0	279	11.0	577	22.7	193	7.6	61	2.4	318	12.5	68	150
	HW	Standard	170	6.7	1,171	46.1	279	11.0	577	22.7	193	7.6	61	2.4	318	12.5	124	273
		Dual	170	6.7	1,171	46.1	279	11.0	577	22.7	193	7.6	61	2.4	318	12.5	128	283
200	None	Standard	170	6.7	686	27.0	279	11.0	592	23.3	193	7.6	61	2.4	445	17.5	91	200
		Dual	170	6.7	686	27.0	279	11.0	592	23.3	193	7.6	61	2.4	445	17.5	95	210
	HW	Standard	170	6.7	1,171	46.1	279	11.0	592	23.3	193	7.6	61	2.4	445	17.5	113	250
		Dual	170	6.7	1,171	46.1	279	11.0	592	23.3	193	7.6	61	2.4	445	17.5	118	260

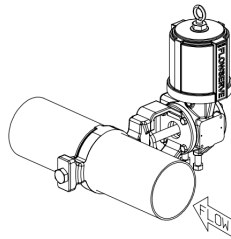
Actuator Size	Hand-wheel	Spring	K		M		N		P		R		T		Weight		
			mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	kg	lbs	
25	None	Standard	71	2.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	12	26
		Extended	71	2.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	14	31
	HW	Standard	N/A	N/A	249	9.8	269	10.6	79	3.1	188	7.4	74	2.9	26	57	
		Extended	N/A	N/A	249	9.8	269	10.6	79	3.1	188	7.4	74	2.9	28	62	
50	None	Standard	94	3.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	27	59
		Extended	94	3.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	32	71
	HW	Standard	N/A	N/A	300	11.8	295	11.6	132	5.2	257	10.1	137	5.4	62	137	
		Extended	N/A	N/A	300	11.8	295	11.6	132	5.2	257	10.1	137	5.4	68	149	
100	None	Standard	122	4.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	63	140
		Dual	122	4.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	68	150
	HW	Standard	N/A	N/A	457	18.0	338	13.3	64	2.5	257	10.1	127	5.0	124	273	
		Dual	N/A	N/A	457	18.0	338	13.3	64	2.5	257	10.1	127	5.0	128	283	
200	None	Standard	122	4.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	91	200
		Dual	122	4.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	95	210
	HW	Standard	N/A	N/A	457	18.0	338	13.3	64	2.5	257	10.1	127	5.0	113	250	
		Dual	N/A	N/A	457	18.0	338	13.3	64	2.5	257	10.1	127	5.0	118	260	

Mounting orientations

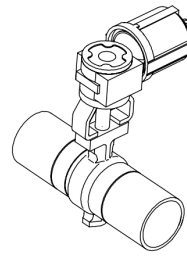
Figure 7: Valve orientations



Left-hand mount (standard)



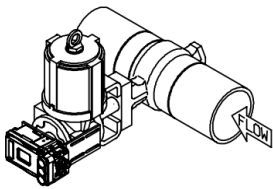
Right-hand mount



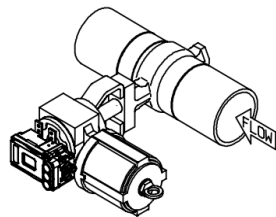
Vertical shaft mount

Note: Valve orientations not applicable for vertical pipe.

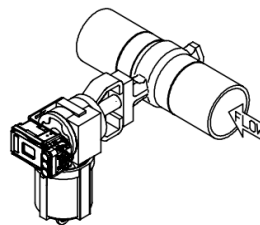
Figure 8: Actuator orientations



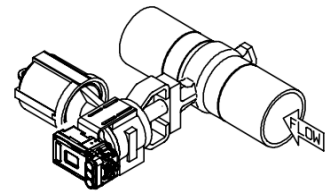
Orientation 1 (standard)



Orientation 2



Orientation 3



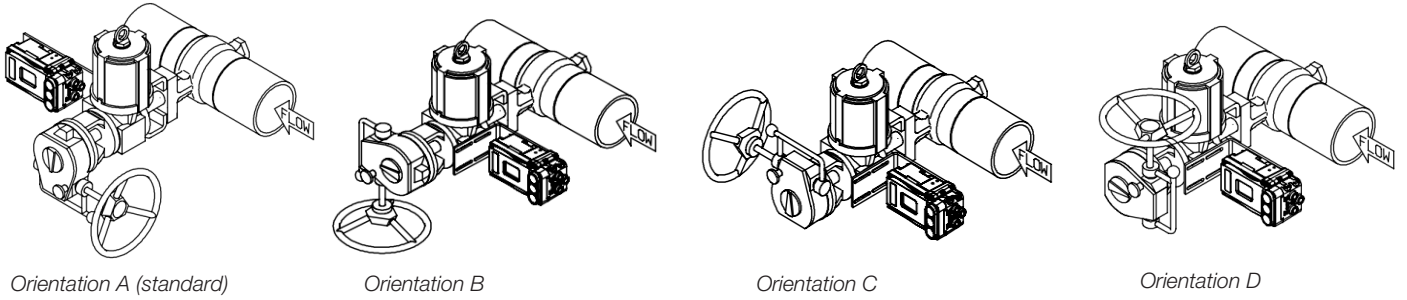
Orientation 4

Note: Images shown with the valve mounted in the left-hand orientation as an example only. Actuator orientations may also accommodate the valve mounted in the right-hand or vertical shaft orientations.

- For right-hand mount, move flow arrow point of view to opposite end of the pipe.
- For vertical shaft mount, rotate valve shaft to vertical orientation.

Note: Orientation 3 is not recommended by factory due to retaining ring corrosion and subsequent failure from water standing in actuator.

Figure 9: Handwheel orientations



Note: Images shown with the valve mounted in the left-hand orientation as an example only. Actuator orientations may also accommodate the valve mounted in the right-hand or vertical shaft orientations.

- For right-hand mount, move flow arrow point of view to opposite end of the pipe.
- For vertical shaft mount, rotate valve shaft to vertical orientation.

Note: Orientation D is not recommended, as handwheel may collide with larger actuators. Consult factory if chosen.

Logix™ 3800 digital positioner

You can have it all: simple configuration and calibration, powerful diagnostics and reliable performance.

The Logix 3800 digital positioner from Flowserve helps plant owners and operators maximize production while minimizing operating costs. This high-precision positioner simplifies installation through easy configuration and calibration. It also facilitates improvements in process uptime, reliability and throughput. Advanced diagnostics not only identify developing problems in the control valve, but also help guide corrective actions to ensure reduced return-to-operation times.

Predictive diagnostics

With five pressure sensors, the Logix 3800 digital positioner enables operators to identify and assess the severity of developing problems in valves and actuators so action can be taken before a critical event.

- Supply pressure warning — Monitors the instrument air supply pressure
- Friction high/low warnings — Monitor the adjustment of the packing and seals
- Pneumatic leak warning — Monitors excessive air consumption indicating leaks in actuator or tubing
- Fail-safe position error — Detects problems with the fail-safe actuator spring
- Backlash warning — Monitors the linkage of the actuator to the valve and detects loose connections



Global service network



Service when and where you need it most

Flowserve Quick Response Centers (QRCs) are strategically located around the world to ensure rapid response to your time-critical repair needs, routine maintenance and product upgrades.

Single point of contact

Our QRCs serve as a local, single point of contact for the full inventory of Flowserve products and services, including the machinery to manufacture custom-built units. We offer better than 95% on-time performance for all repairs and can turn around new and custom-built units within 72 hours.

Time-critical repairs

To meet your time-critical repair needs, Flowserve offers 24-hour emergency repair, free pick-up and delivery within QRC service areas, and mobile and on-site repairs. When a service technician is needed on-site, we can have one there within 24 hours anywhere in North America, and 48 hours outside of North America.

To locate a Flowserve representative near you, visit www.flowserve.com



Flowserve Corporation
5215 North O'Connor Blvd.
Suite 2300
Irving, Texas 75039-5421 USA
Telephone: +1 937 890 5839

VATB000262 (EN/A4) February 2021

Flowserve Corporation has established industry leadership in the design and manufacture of its products. When properly selected, this Flowserve product is designed to perform its intended function safely during its useful life. However, the purchaser or user of Flowserve products should be aware that Flowserve products might be used in numerous applications under a wide variety of industrial service conditions. Although Flowserve can provide general guidelines, it cannot provide specific data and warnings for all possible applications. The purchaser/user must therefore assume the ultimate responsibility for the proper sizing and selection, installation, operation, and maintenance of Flowserve products. The purchaser/user should read and understand the Installation Instructions included with the product, and train its employees and contractors in the safe use of Flowserve products in connection with the specific application.

While the information and specifications contained in this literature are believed to be accurate, they are supplied for informative purposes only and should not be considered certified or as a guarantee of satisfactory results by reliance thereon. Nothing contained herein is to be construed as a warranty or guarantee, express or implied, regarding any matter with respect to this product. Because Flowserve is continually improving and upgrading its product design, the specifications, dimensions and information contained herein are subject to change without notice. Should any question arise concerning these provisions, the purchaser/user should contact Flowserve Corporation at any one of its worldwide operations or offices.

©2021 Flowserve Corporation. All rights reserved. This document contains registered and unregistered trademarks of Flowserve Corporation. Other company, product, or service names may be trademarks or service marks of their respective companies.