

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.

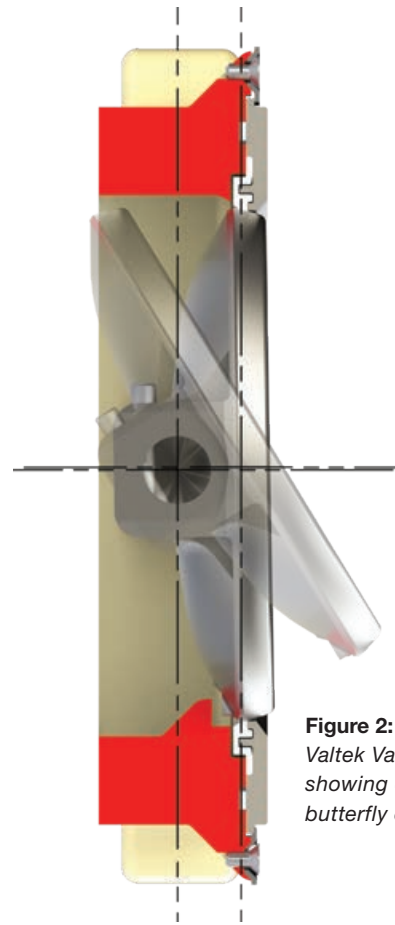


Figure 2: Side view of Valtek Valdisk valve showing double-offset butterfly disc

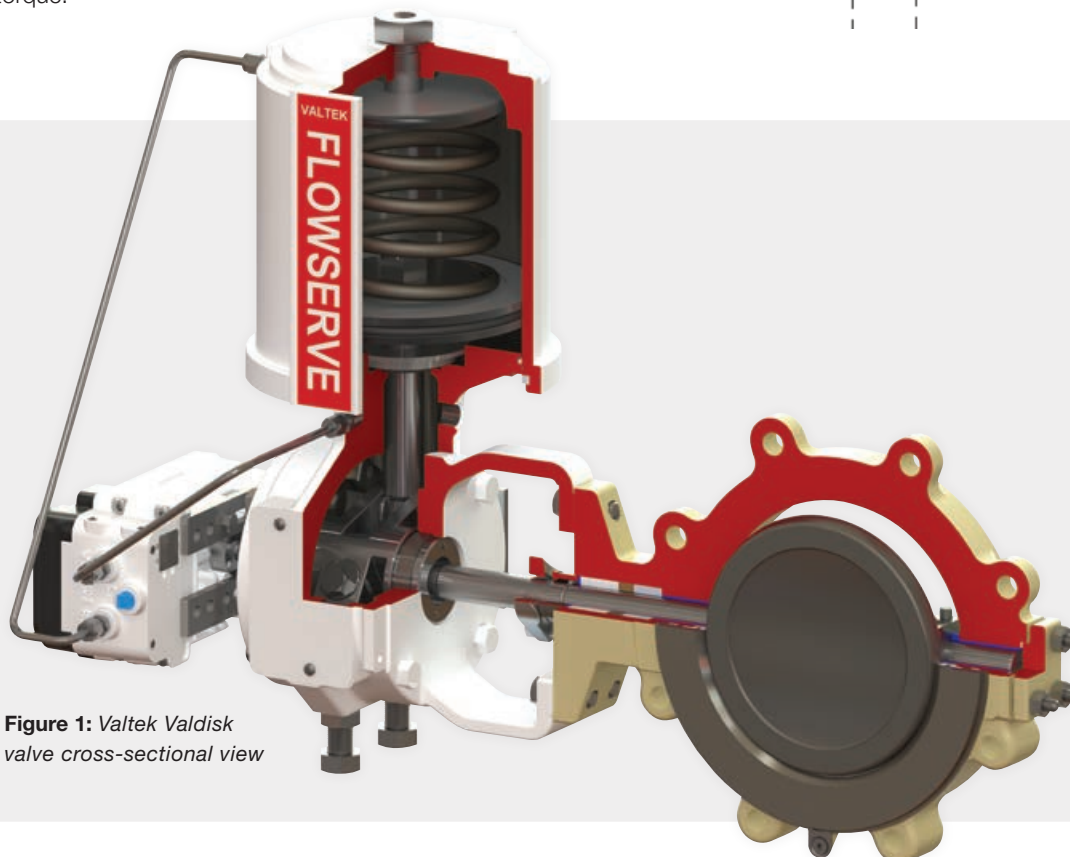


Figure 1: Valtek Valdisk valve cross-sectional view

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

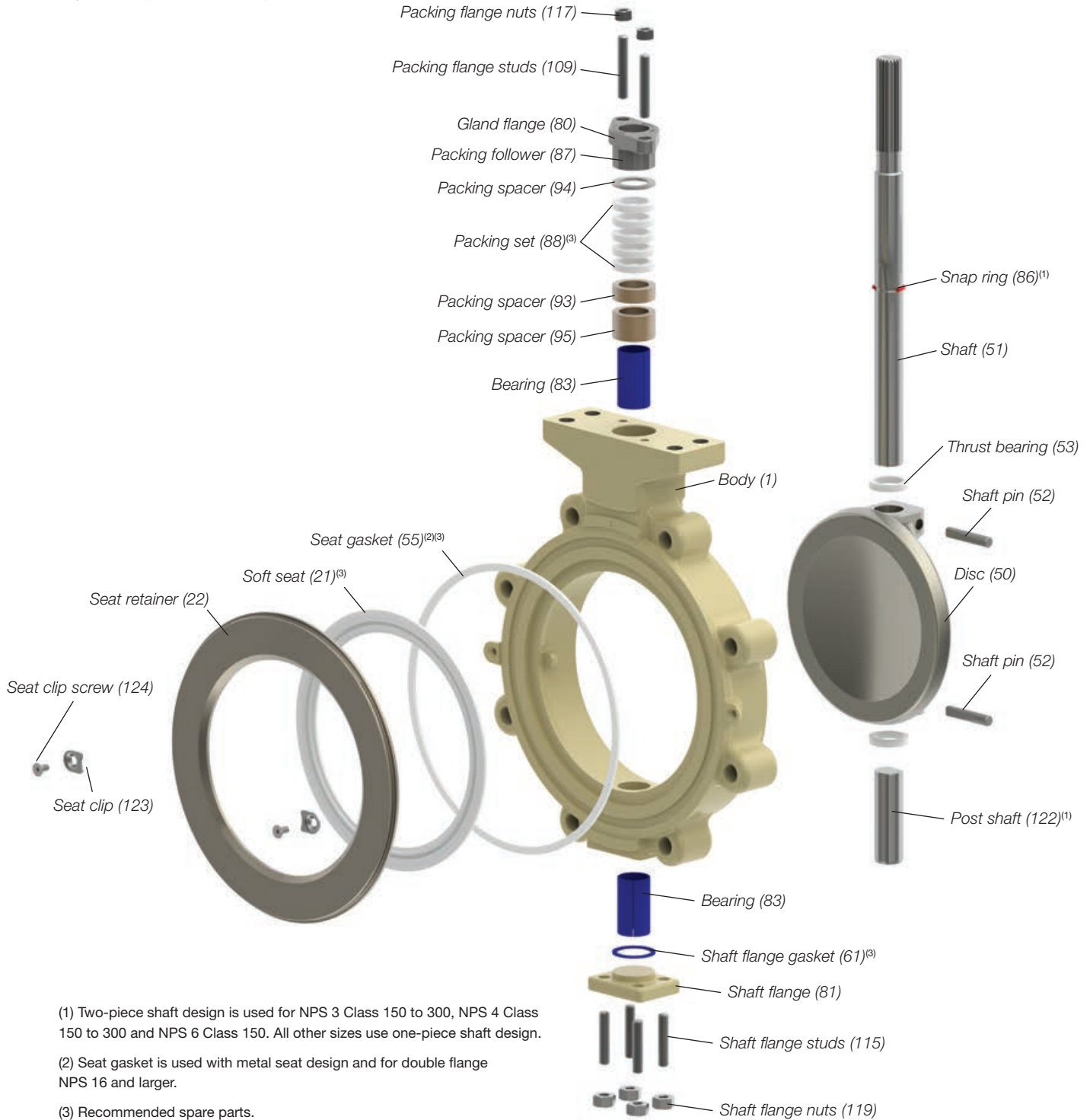
ASME B16.34, ANSI/FCI 70-2

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
		Inconel 625	-198 to 649	-325 to 1,200
88	Packing set ⁽²⁾⁽³⁾	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
		Graphite braid or rib-braid	-51 to 538	-60 to 1,000
117/119	Packing and shaft flange nuts	Carbon braid	-51 to 427	-60 to 800
		Carbon steel	-29 to 427	-20 to 800
109/115	Packing and shaft flange studs	Stainless steel	-254 to 454	-425 to 850
		Carbon steel	-29 to 427	-20 to 800
80	Gland flange	Stainless steel	-254 to 454	-425 to 850
		WCC carbon steel	-29 to 427	-20 to 800
81	Shaft flange	CF8M stainless steel	-254 to 454	-425 to 850
		WCC carbon steel	-29 to 427	-20 to 800
61	Shaft flange gasket	CF8M stainless steel	-254 to 454	-425 to 850
53	Thrust bearing	Graphite	-51 to 538	-60 to 1,000
93/94/95	Packing spacer	316 stainless steel with nitrided surface	-254 to 538	-425 to 1,000
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.



Figure 4: Soft seating arrangement

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.

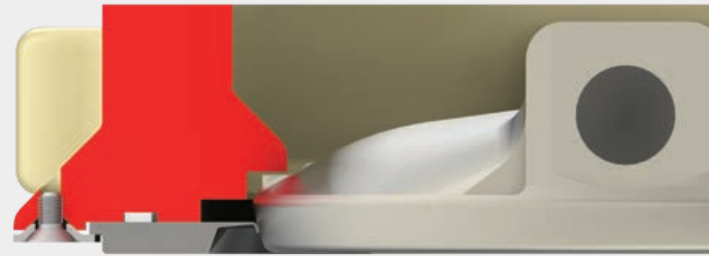


Figure 5: Metal seating arrangement

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.

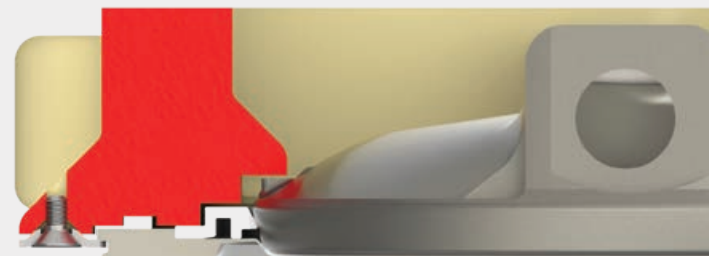


Figure 6: Dual fire-safe seating arrangement

Table 4: Valdisk C_v – Soft and metal seats

Size	Class	Soft Seat		Metal Seat/Dual Seat	
		Shaft Upstream C _v 100	Shaft Downstream C _v 100	Shaft Upstream C _v 100	Shaft Downstream 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

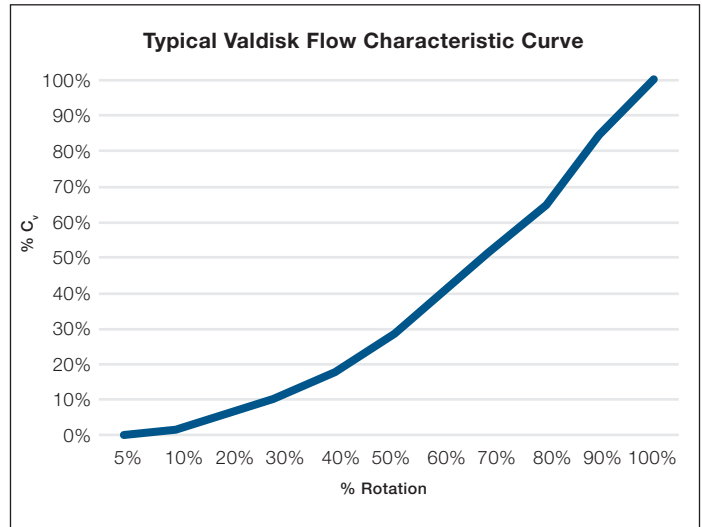


Table 6: Shaft limits, psi

Material	Flow Dir.	Temp, °F	Maximum Allowable Pressure Drop, psi																				
			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	-50 to 100	290	750	954	290	750	1,500	290	750	1,500	290	750	1,500	290	750	1,350	290	750	1,500	290	700	1,310
		200	290	705	705	290	750	1,500	290	750	1,500	290	750	1,386	290	750	1,290	290	750	1,500	290	669	1,252
		300	290	420	420	290	750	1,451	290	750	1,483	290	750	1,323	290	750	1,232	290	742	1,500	290	639	1,195
		400	185	185	185	290	742	1,360	290	750	1,390	290	750	1,240	290	750	1,154	290	695	1,500	274	599	1,120
		500	171	171	171	290	715	1,310	290	750	1,339	290	750	1,194	290	750	1,112	290	670	1,500	264	577	1,079
		600	159	159	159	290	683	1,252	290	750	1,279	290	750	1,141	290	750	1,063	290	640	1,500	252	551	1,031
		700	157	157	157	290	656	1,202	290	748	1,228	290	750	1,096	290	750	1,020	287	615	1,500	242	529	990
		800	155	155	155	290	623	1,142	290	711	1,167	290	740	1,041	290	736	969	273	584	1,500	230	503	941
Inconel 718	SU and SD	-50 to 100	290	750	954	290	750	1,500	290	750	1,500	290	750	1,459	290	750	1,358	290	750	1,500	290	704	1,318
		200	290	705	705	290	750	1,500	290	750	1,459	290	750	1,459	290	750	1,351	290	750	1,500	290	704	1,318
		300	290	420	420	290	750	1,500	290	750	1,500	290	750	1,440	290	750	1,341	290	750	1,500	290	695	1,301
		400	185	185	185	290	750	1,500	290	750	1,500	290	750	1,421	290	750	1,323	290	750	1,500	290	686	1,284
		500	171	171	171	290	750	1,500	290	750	1,500	290	750	1,404	290	750	1,308	290	750	1,500	290	678	1,269
		600	159	159	159	290	750	1,500	290	750	1,500	290	750	1,395	290	750	1,299	290	750	1,500	290	674	1,260
		700	157	157	157	290	750	1,500	290	940	1,500	290	750	1,376	290	750	1,281	290	750	1,500	290	664	1,244
		800	155	155	155	290	750	1,500	290	927	1,500	290	750	1,358	290	750	1,264	290	750	1,500	290	665	1,227
Nitronic 50	SU and SD	-50 to 100	290	750	954	290	569	784	290	750	1,268	290	750	1,131	290	750	1,053	290	579	1,500	250	546	1,022
		200	290	705	705	290	518	714	290	703	1,154	290	732	1,030	290	728	959	270	527	1,500	200	527	941
		300	290	420	420	290	490	675	290	665	1,092	289	692	974	290	689	907	255	499	1,500	215	470	880
		400	185	185	185	290	466	642	290	633	1,038	275	658	927	290	655	863	243	474	1,500	204	447	837
		500	171	171	171	290	447	616	290	607	996	264	631	889	283	628	828	233	455	1,500	196	429	803
		600	159	159	159	290	428	590	290	581	954	253	605	851	271	602	793	223	436	1,443	188	411	769
		700	157	157	157	290	411	567	290	558	916	243	581	817	260	578	761	214	419	1,386	180	395	739
		800	155	155	155	290	355	490	253	482	792	210	502	706	225	499	658	185	362	1,197	156	341	638
Monel K-500	SU and SD	-50 to 100	290	750	865	290	420	578	290	683	1,121	290	711	1,001	290	707	932	262	489	1,500	221	483	904
		200	290	705	705	290	408	561	290	663	1,089	288	690	972	290	687	905	255	475	1,500	214	469	878
		300	290	420	420	290	400	551	290	651	1,068	283	677	953	290	674	888	250	466	1,500	210	460	861
		400	150	150	150	290	397	546	290	645	1,059	281	671	945	290	668	880	248	462	1,500	209	456	854
		500	50	50	50	290	392	540	290	638	1,048	277	664	935	290	661	870	245	457	1,500	206	451	845
		600	N/A	N/A	N/A	290	389	535	290	633	1,038	275	658	927	290	655	863	243	453	1,500	204	447	837
		700	N/A	N/A	N/A	290	381	525	290	620	1,018	270	645	908	290	642	845	238	444	1,500	200	438	820

Material	Flow Dir.	Temp, °F	Maximum Allowable Pressure Drop, psi																						
			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 150	Class 150	Class 150	Class 150	Class 150	Class 150	Class 150
17-4 PH	SU and SD	-50 to 100	290	750	1,500	290	750	1,500	290	750	1,110	290	750	1,100	290	750	1,200	290	290	290	290	290	290	290	290
		200	287	736	1,433	290	750	1,433	290	726	1,061	282	717	1,051	290	726	1,147	286	290	277	285	290	277	280	
		300	274	703	1,369	290	750	1,369	290	694	1,013	269	684	1,004	290	694	1,095	273	290	265	272	281	265	267	
		400	257	658	1,283	290	750	1,283	290	650	949	252	641	941	274	650	1,026	256	278	248	255	263	248	251	
		500	247	634	1,236	290	750	1,236	290	626	914	243	618	906	264	626	989	246	268	239	245	254	239	241	
		600	236	606	1,181	290	748	1,181	290	598	874	232	590	866	252	598	945	235	256	228	235	242	228	231	
		700	227	582	1,134	280	718	1,134	290	574	839	223	567	831	242	574	907	226	246	219	225	233	219	221	
		800	215	553	1,077	266	682	1,077	290	546	797	212	539	790	230	546	862	215	233	208	214	221	208	210	
Inconel 718	SU and SD	-50 to 100	290	750	1,500	290	750	1,500	290	750	1,117	290	750	1,107	290	750	1,207	290	290	290	290	290	290	290	
		200	290	750	1,500	290	750	1,500	290	750	1,117	290	750	1,107	290	750	1,207	290	290	290	290	290	290	290	
		300	290	750	1,490	290	750	1,483	290	750	1,102	290	745	1,092	290	750	1,192	290	290	290	290	290	288	290	
		400	290	750	1,470	290	750	1,463	290	745	1,088	289	735	1,078	290	745	1,176	290	290	290	290	290	285	287	
		500	290	746	1,453	290	750	1,446	290	736	1,075	286	726	1,065	290	736	1,162	290	290	290	289	290	281	284	
		600	289	741	1,443	290	750	1,437	290	731	1,068	284	722	1,058	308	731	1,155	288	290	290	287	290	279	282	
		700	285	731	1,424	290	750	1,417	290	721	1,054	280	712	1,044	304	721	1,139	284	290	290	283	290	276	278	
		800	281	721	1,405	290	750	1,398	290	712	1,039	276	702	1,030	300	712	1,124	280	290	290	279	289	272	275	
Nitronic 50	SU and SD	-50 to 100	234	601	1,170	289	741	1,114	290	593	866	230	585	858	250	593	936	232	252	265	232	239	221	228	
		200	213	547	1,065	263	675	1,014	290	540	788	210	533	781	227	540	852	211	229	241	211	218	201	208	
		300	202	517	1,008	249	638	960	282	511	746	198	504	739	215	511	806	200	217	228	200	206	190	196	
		400	192	492	959	236	607	913	268	486	709	189	479	703	204	486	767	190	206	217	190	196	181	187	
		500	184	472	920	227	582	876	257	466	680	181	460	674	196	466	736	182	198	208	182	188	174	179	
		600	176	452	881	217	558	838	247	446	652	173	440	646	188	446	704	175	190	199	175	180	166	172	
		700	169	434	846	209	536	805	237	428	626	166	423	620	180	428	677	168	182	192	168	173	160	165	
		800	146	375	731	180	463	696	205	370	541	144	365	536	156	370	585	145	157	166	145	149	138	142	
Monel K-500	SU and SD	-50 to 100	207	531	1,035	255	656	967	290	524	766	204	518	759	221	524	828	206	224	190	206	213	196	203	
		200	201	516	1,005	248	637	939	281	509	744	198	503	737	214	509	804	20							

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
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	
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

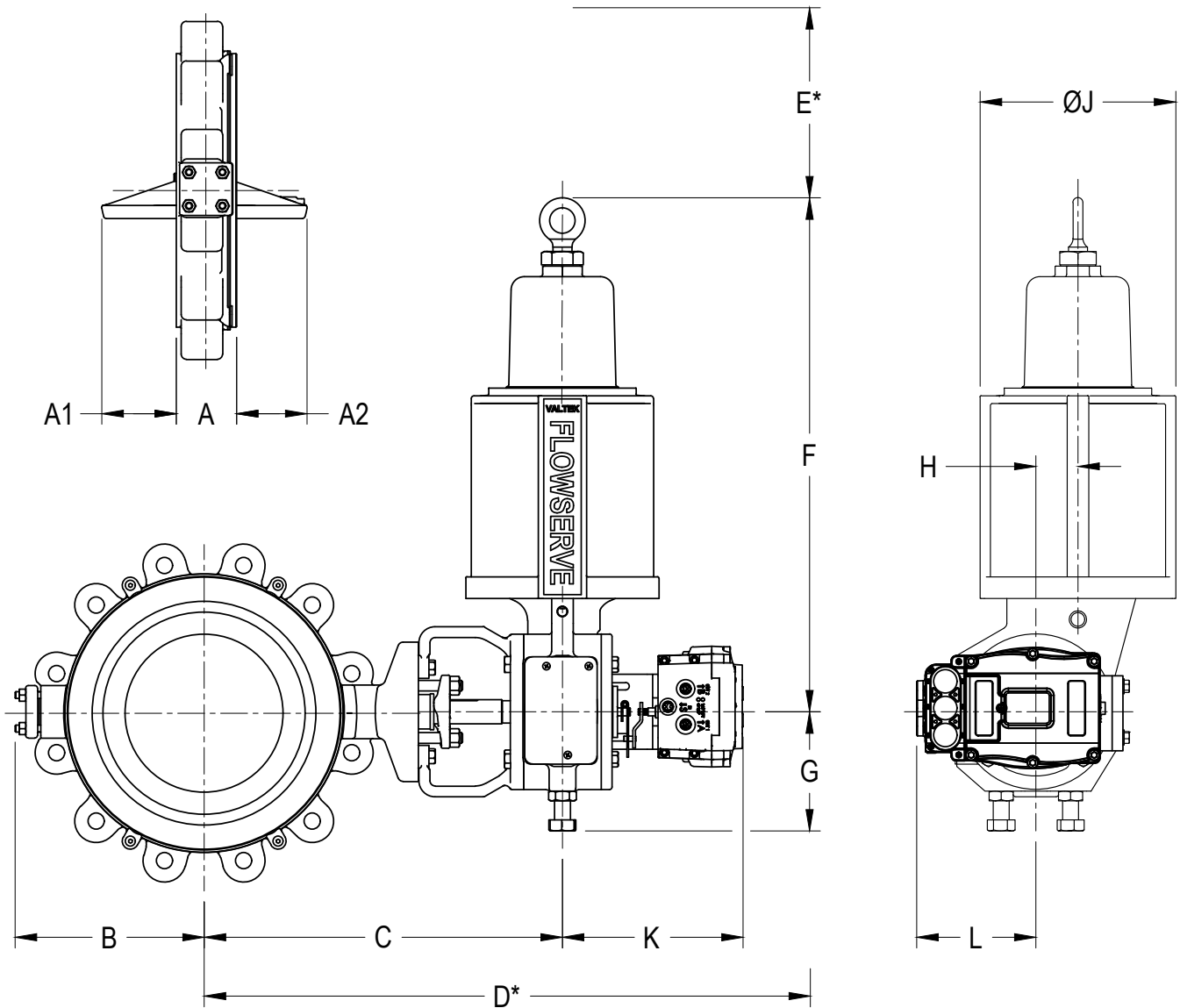
Table 9: Seat limits – NPS 2 to 12, bar and psi

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

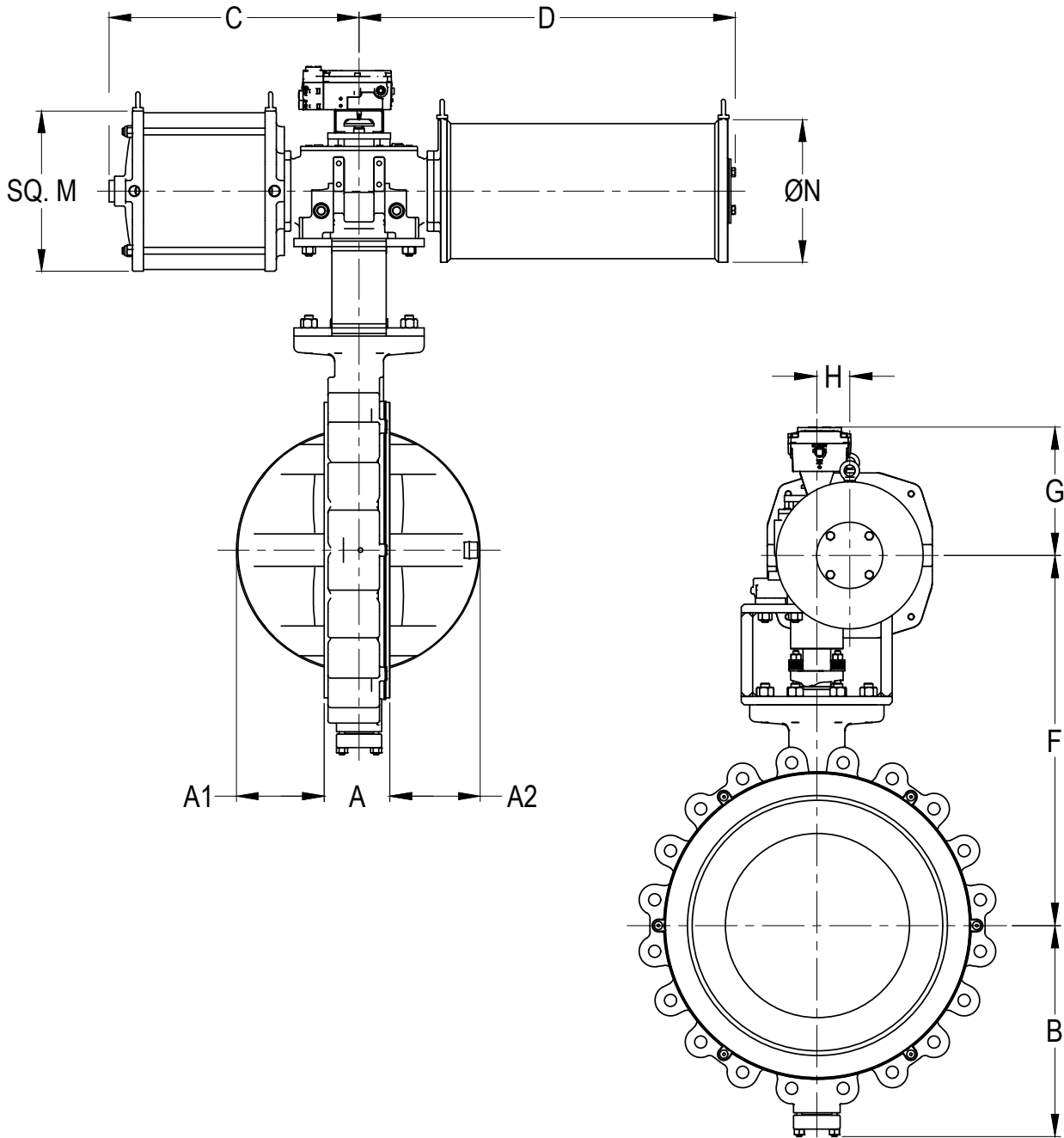
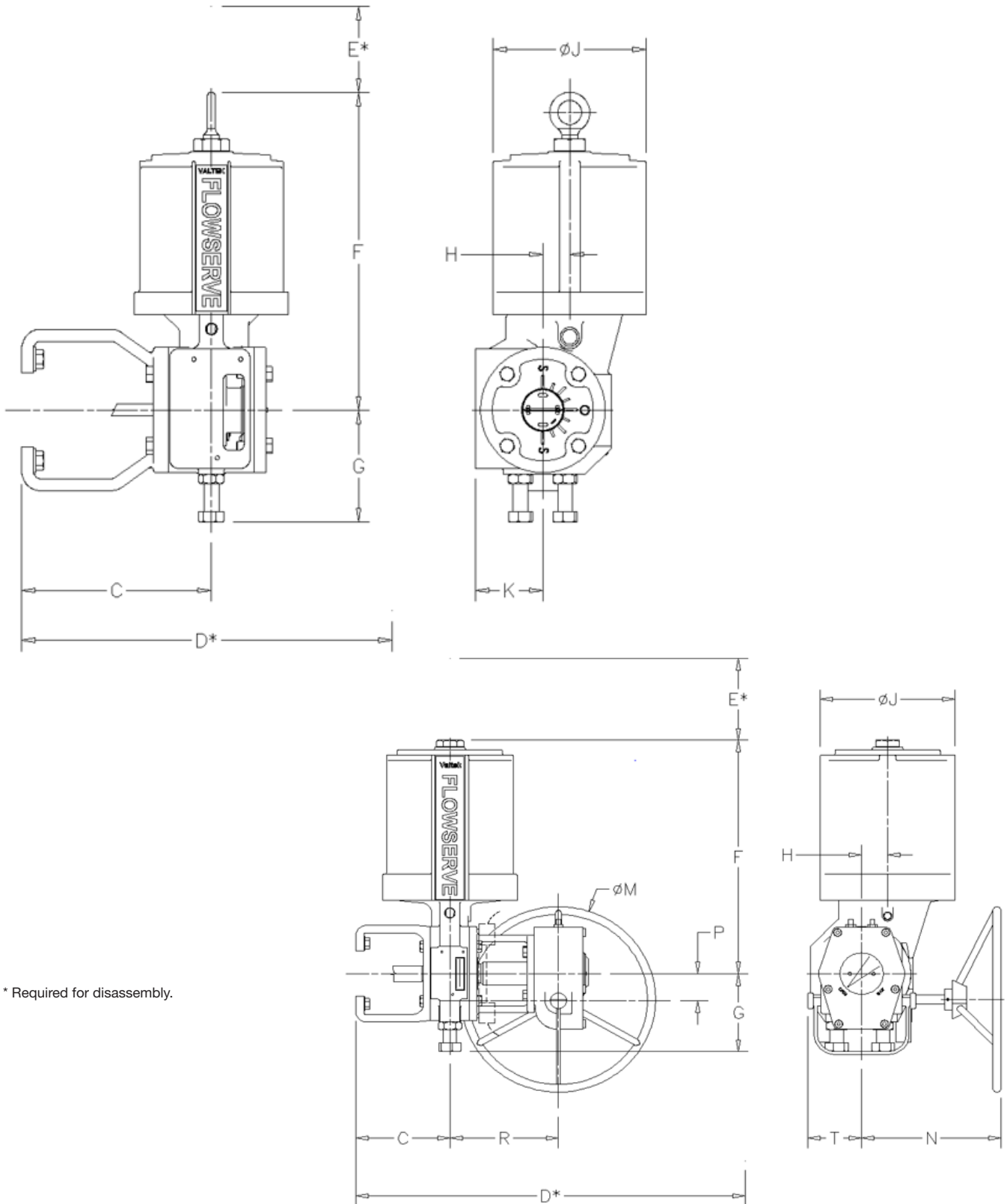


Table 12: Valdisk dimensions – Lug style, NPS 18 to 60, Class 150 to 600

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	mm
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



* Required for disassembly.

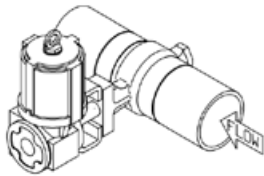
Table 13: Actuator dimensions and weights

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

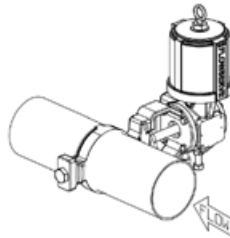
Actuator Size	Hand-wheel	Spring	K		M		N		P		R		T		Weight		
			mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	kg	lbs	
25	None	Standard	71	2.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	12	26
		Extended	71	2.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	14	31
	HW	Standard	N/A	N/A	249	9.8	269	10.6	79	3.1	188	7.4	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

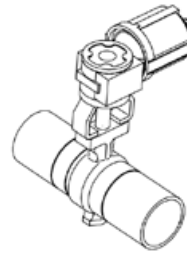
Figure 7: Valve orientations



Left-hand mount (standard)



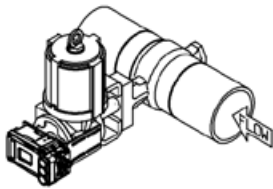
Right-hand mount



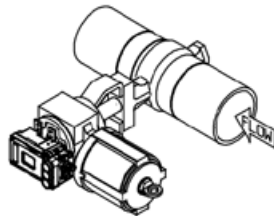
Vertical shaft mount

Note: Valve orientations not applicable for vertical pipe.

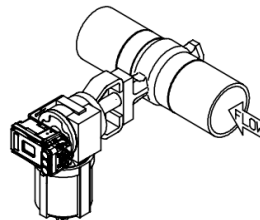
Figure 8: Actuator orientations



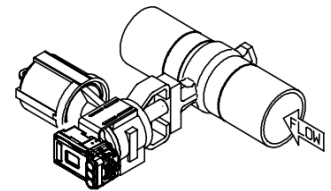
Orientation 1 (standard)



Orientation 2



Orientation 3



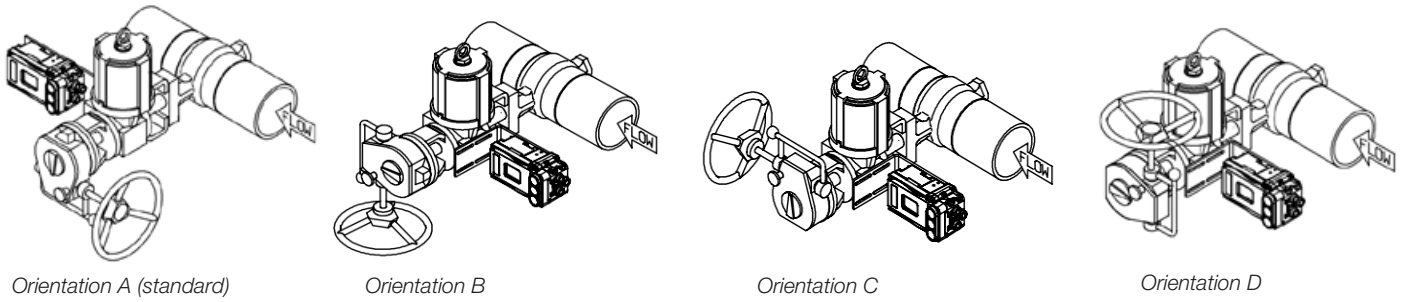
Orientation 4

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.

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

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