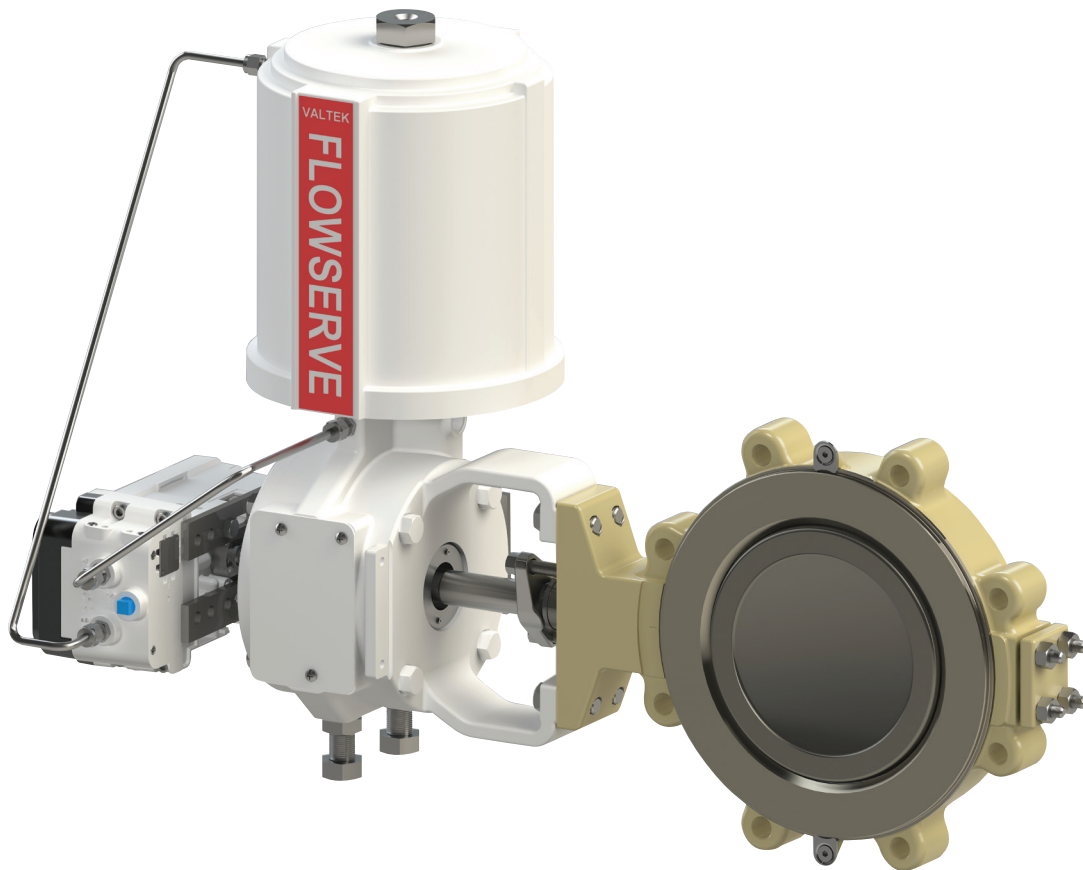


# Valtek<sup>®</sup> Valdisk<sup>™</sup> High-Performance Butterfly Control Valve

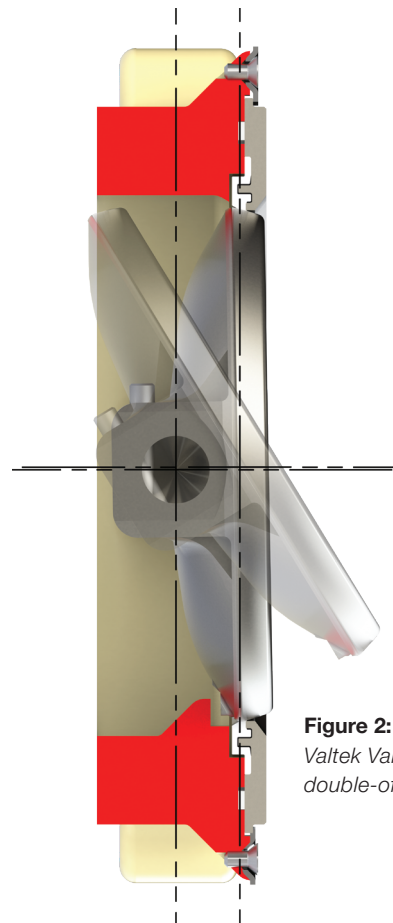


## Valtek Valdisk butterfly control valve

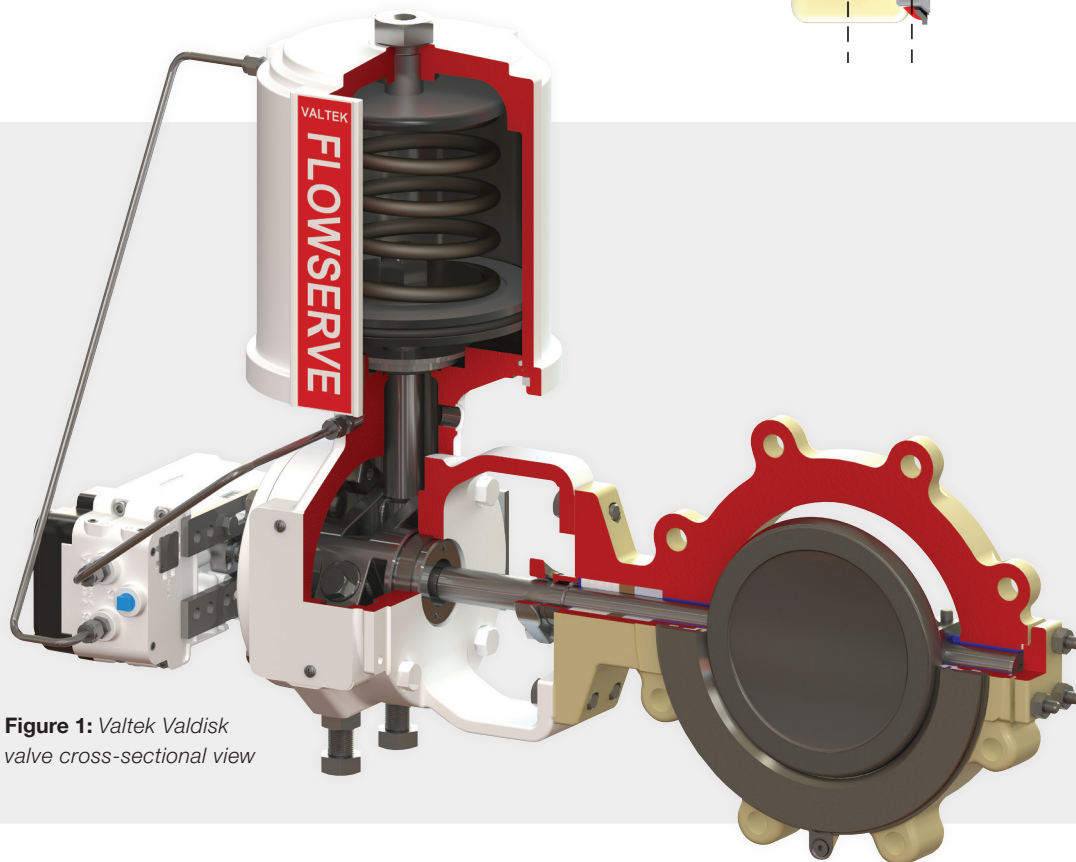
Flowserve has an unrivaled combination of technical expertise and practical experience to help you solve the toughest fluid motion control challenges. We help maximize your systems' efficiency and uptime by applying flow-specific technologies and advanced aftermarket capabilities, all supported by a 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
<b>Eccentric-cammed disc</b>	The disc rotates out of seat immediately, eliminating seat friction, to improve throttling control and reduce seat wear.
<b>Splined shaft end</b>	A one-piece, splined shaft end, combined with actuator lever clamp, eliminates lost motion between shaft and actuator to improve throttling control. <sup>(1)</sup>
<b>Pinned shaft to disc</b>	Tapered shaft to disc pins provide tight connections for excellent control without requiring the shaft to be drilled. <sup>(1)</sup>
<b>Contoured disc</b>	Inherently linear flow characteristic provides good control over the entire flow range.
<b>Excellent shut-off</b>	Soft seat (Class VI) and metal seat (Class IV) provide reliable long-life, shut-off capability.
<b>Multiple packing options</b>	Packing provides low emissions for a variety of applications, complying with industry standards.
<b>Flow capacity</b>	High flow capacity exceeds that of typical globe valves.
<b>Bolted seat retainer</b>	An uninterrupted gasket surface allows for a wide variety of gasketing.
<b>Bolted shaft flange</b>	Robust design provides safety and eases maintenance.
<b>Shaft retention</b>	Anti-blowout protection provides safety compliance to ASME B16.34 and API 609.
<b>Position indication</b>	Marked for easy visual indication of disc position.
<b>Disc stop in body</b>	The disc stop prevents damage to seat due to over-stroking.
<b>Cylinder actuator</b>	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
<b>Sizes</b>	NPS 2 to 60	DIN 80 to 600
<b>Pressure class</b>	ASME Class 150 to 600	PN 10 to 40
<b>End connection</b>	ASME 16.5 and ASME B16.47	EN 1092-1
<b>Body material</b>	WCC, CF8M; alloys upon request	1.0619, 1.4408; alloys upon request
<b>Face-to-face</b>	API 609 and MSS SP-68; Valtek standard for larger sizes	EN 558 series 20/16
<b>Body style</b>	Lug, wafer (flange-less), double-flanged	Lug, wafer
<b>Packing</b>	PTFE V-ring, braided PTFE, graphite braid, SureGuard™ XT, SafeGuard™	
<b>Packing type</b>	Single, twin, vacuum, live-loaded, fire-safe	
<b>Fire safety</b>	API 607, ISO 10497	
<b>Fugitive emissions</b>	ISO 15848-1	
<b>Temperature</b>	-196°C to 427°C (-320°F to 800°F)	
<b>Shut-off</b>	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**

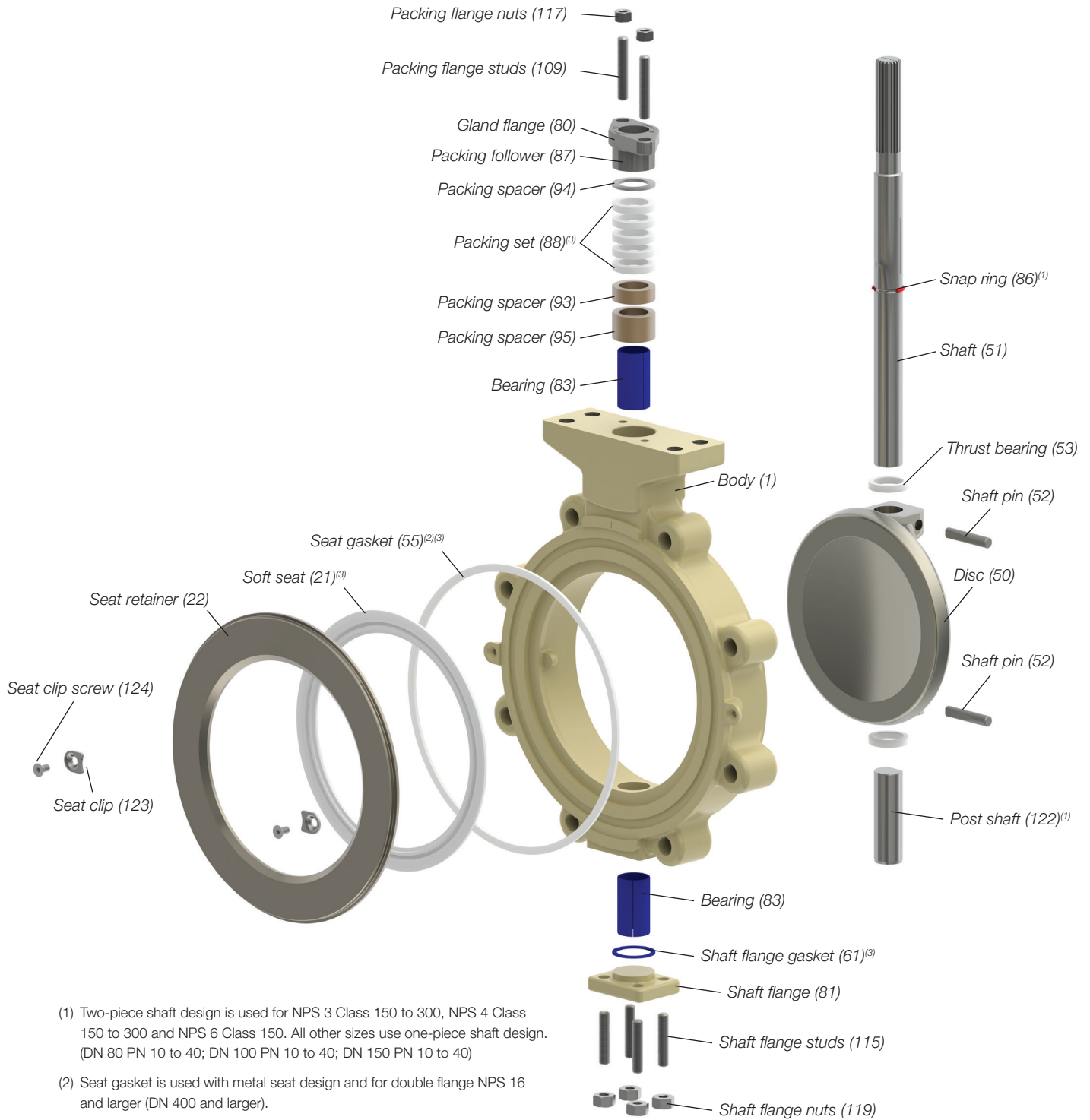
ASME B16.34, ANSI/FCI 70-2

**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. (DN 80 PN 10 to 40; DN 100 PN 10 to 40; DN 150 PN 10 to 40)

(2) Seat gasket is used with metal seat design and for double flange NPS 16 and larger (DN 400 and larger).

(3) Recommended spare parts.

**Table 3: Materials of construction**

Item	Part	Material	Temperature Range <sup>(1)</sup>	
			°C	°F
1/50	Body/disc	WCC carbon steel	-29 to 427	-20 to 800
		1.0619	-29 to 427	-20 to 800
		CF8M stainless steel	-254 to 454	-425 to 850
		1.4408	-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 <sup>(3)</sup>	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 <sup>(2)(3)</sup>	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.

### 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.



Figure 4: Soft seating arrangement

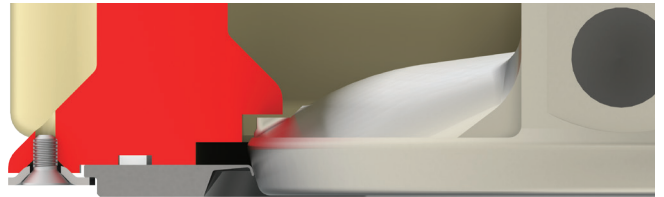


Figure 5: Metal seating arrangement

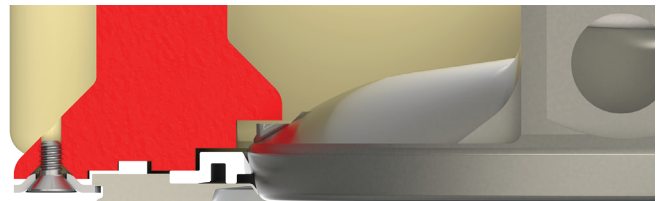


Figure 6: Dual fire-safe seating arrangement

## Bonnets

### Standard bonnet

Standard Valdisk bodies have the bonnet (packing bore) integral to the body.

Temperature Range: -30°C to 400°C (-22°F to 752°F)<sup>1</sup>

### Extended bonnet

The extended bonnet is bolted to the Valdisk body, moving the packing further from the fluid temperature to allow more extreme temperatures.

Temperature Range: -100°C to 800°C (-148°F to 1,472°F)<sup>1</sup>

### Cryogenic bonnet

The cryogenic bonnet is an extension welded to the Valdisk body. When oriented properly in the pipeline, the design of the cryogenic bonnet extension permits stagnated, moderate-temperature gas to form in the bonnet, protecting the packing from colder service fluid.

Temperature Range: -196°C (-320°F)<sup>1,2</sup>

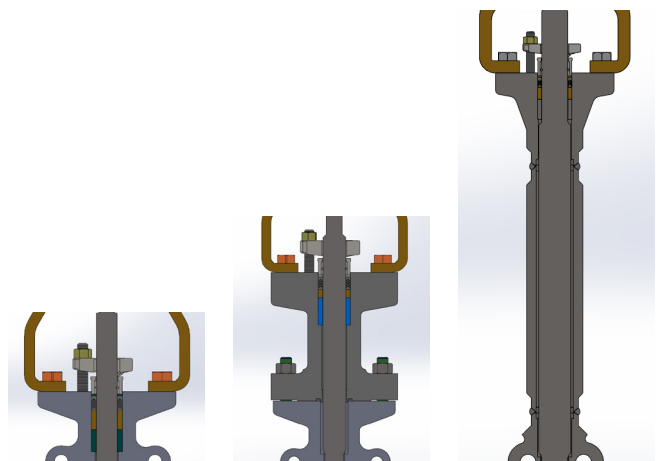


Figure 7: Standard bonnet

Figure 8: Extended bonnet

Figure 9: Cryogenic bonnet

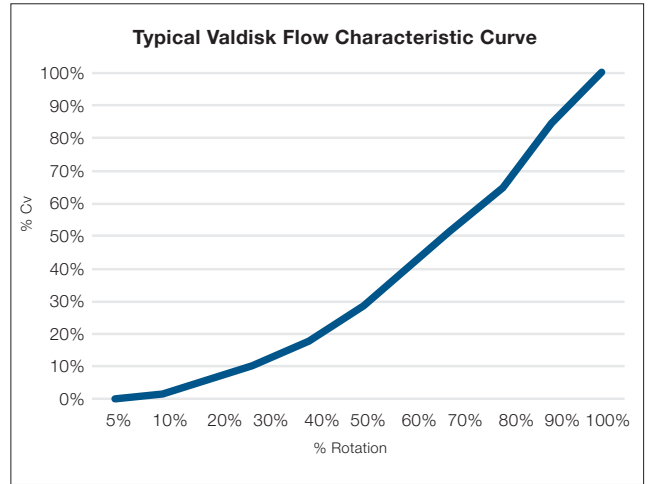
(1) Temperature capabilities are dependent on many factors, including body materials, pressure class and packing selection. See Technical Bulletin for Standard and Environmental Packing Systems for specific temperature limits.

(2) Consult factory for colder temperatures down to -253°C (-423°F).

**Table 4: Valdisk Cv – Soft and metal seats**

Valve Size		Pressure Class		Soft Seat		Metal Seat/Dual Seat	
				Shaft Upstream	Shaft Downstream	Shaft Upstream	Shaft Downstream
NPS	DN	PN	ANSI	Cv 100	Cv 100	Cv 100	Cv 100
2	-	-	150	71	72	55	55
		-	300	71	72	55	55
		-	600	71	72	55	55
3	80	10/16/25	150	209	208	177	177
		40	300	160	169	135	143
		-	600	160	169	135	143
4	100	10/16/25	150	478	451	448	423
		40	300	373	374	344	345
		-	600	340	341	311	312
6	150	10/16/25	150	1,200	1,119	1,155	1,080
		40	300	991	931	941	885
		-	600	818	798	770	752
8	200	10/16/25	150	2,240	2,290	2,170	2,220
		40	300	1,800	1,690	1,750	1,640
		-	600	1,470	1,430	1,390	1,350
10	250	10/16/25	150	3,830	3,480	3,760	3,410
		40	300	3,210	2,800	3,130	2,730
		-	600	2,270	2,050	2,140	1,940
12	300	10/16/25	150	5,890	5,390	5,800	5,300
		40	300	4,990	4,330	4,900	4,250
		-	600	3,610	3,250	3,460	3,110
14	350	10/16/25	150	7,550	6,840	7,460	6,760
		40	300	5,790	5,040	5,640	4,910
		-	600	3,960	3,580	3,790	3,430
16	400	10/16/25	150	10,660	9,700	10,600	9,600
		40	300	7,630	6,670	7,460	6,520
		-	600	6,330	5,750	6,130	5,570
18	450	10/16/25	150	12,150	12,100	12,100	11,900
		40	300	8,340	7,710	8,190	7,580
		-	600	6,040	5,960	5,880	5,800
20	500	10/16/25	150	17,300	16,200	17,200	16,100
		40	300	11,200	9,750	11,000	9,610
		-	600	8,280	7,720	8,110	7,560
24	600	10/16/25	150	24,100	24,400	23,500	23,700
		40	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 Cv – Soft and metal seats**









## Maximum allowable shutoff pressure drops — Bearing limits

Table 7: Bearing limits, bar

Material	Temp, °C	Maximum Allowable Pressure Drop, bar									
		Valve Size									
		NPS 2	NPS 3 (DN 80)	NPS 4 (DN 100)	NPS 6 (DN 150)	NPS 8 (DN 200)	NPS 10 (DN 250)	NPS 12 (DN 300)	NPS 14 (DN 350)	NPS 16 (DN 400)	NPS 18 (DN 450)
316/PTFE/Kevlar	-45 to 93	103	103	103	103	97	103	103	97	97	90
	149	97	97	97	97	90	97	97	90	90	83
	204	83	83	83	83	76	83	83	76	76	69
	260	34	34	34	34	28	34	34	28	28	24
	316 to 427	-	-	-	-	-	-	-	-	-	-
Ultimet	-45 to 93	76	76	76	76	76	76	76	76	76	76
	149	69	69	69	69	69	69	69	69	69	69
	204	62	62	62	62	62	62	62	62	62	62
	260	59	59	59	59	59	59	59	59	59	59
	316	55	55	55	55	55	55	55	55	55	55
	371	52	52	52	52	52	52	52	52	52	52
Alloy 6	-45 to 149	103	103	103	103	103	103	103	103	103	103
	204	97	97	97	97	97	97	97	97	97	97
	260	90	90	90	90	90	90	90	90	90	90
	316	83	83	83	83	83	83	83	83	83	83
	371	76	76	76	76	76	76	76	76	76	76
	427	69	69	69	69	69	69	69	69	69	69

Material	Temp, °C	Maximum Allowable Pressure Drop, bar								
		Valve Size								
		NPS 20 (DN 500)	NPS 24 (DN 600)	NPS 28	NPS 30	NPS 36	NPS 42	NPS 48	NPS 54	NPS 60
316/PTFE/Kevlar	-45 to 93	90	83	20	20	20	20	20	20	20
	149	83	76	20	20	20	20	20	20	20
	204	69	62	14	14	14	14	14	14	14
	260	24	21	10	10	10	10	10	10	10
	316 to 427	-	-	-	-	-	-	-	-	-
Ultimet	-45 to 93	76	76	76	76	76	76	76	76	76
	149	69	69	69	69	69	69	69	69	69
	204	62	62	62	62	62	62	62	62	62
	260	59	59	59	59	59	59	59	59	59
	316	55	55	55	55	55	55	55	55	55
	371	52	52	52	52	52	52	52	52	52
Alloy 6	-45 to 149	103	103	103	103	103	103	103	103	103
	204	97	97	97	97	97	97	97	97	97
	260	90	90	90	90	90	90	90	90	90
	316	83	83	83	83	83	83	83	83	83
	371	76	76	76	76	76	76	76	76	76
	427	69	69	69	69	69	69	69	69	69

**Table 8: Bearing limits, psi**

Material	Temp, °F	Maximum Allowable Pressure Drop, psi									
		Valve Size									
		NPS 2	NPS 3 (DN 80)	NPS 4 (DN 100)	NPS 6 (DN 150)	NPS 8 (DN 200)	NPS 10 (DN 250)	NPS 12 (DN 300)	NPS 14 (DN 350)	NPS 16 (DN 400)	NPS 18 (DN 450)
316/PTFE/Kevlar	-50 to 200	1,500	1,500	1,500	1,500	1,400	1,500	1,500	1,400	1,400	1,300
	300	1,400	1,400	1,400	1,400	1,300	1,400	1,400	1,300	1,300	1,200
	400	1,200	1,200	1,200	1,200	1,100	1,200	1,200	1,100	1,100	1,000
	500	500	500	500	500	400	500	500	400	400	350
	600 to 800	-	-	-	-	-	-	-	-	-	-
Ultimet	-50 to 200	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
	400	900	900	900	900	900	900	900	900	900	900
	500	850	850	850	850	850	850	850	850	850	850
	600	800	800	800	800	800	800	800	800	800	800
	700	750	750	750	750	750	750	750	750	750	750
Alloy 6	-50 to 300	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
	500	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
	700	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

Material	Temp, °F	Maximum Allowable Pressure Drop, psi								
		Valve Size								
		NPS 20 (DN 500)	NPS 24 (DN 600)	NPS 28	NPS 30	NPS 36	NPS 42	NPS 48	NPS 54	NPS 60
316/PTFE/Kevlar	-50 to 200	1,300	1,200	290	290	290	290	290	290	290
	300	1,200	1,100	290	290	290	290	290	290	290
	400	1,000	900	200	200	200	200	200	200	200
	500	350	300	150	150	150	150	150	150	150
	600 to 800	-	-	-	-	-	-	-	-	-
Ultimet	-50 to 200	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
	400	900	900	900	900	900	900	900	900	900
	500	850	850	850	850	850	850	850	850	850
	600	800	800	800	800	800	800	800	800	800
	700	750	750	750	750	750	750	750	750	750
Alloy 6	-50 to 300	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
	500	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
	700	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

## Maximum allowable shutoff pressure drops — Seat Limits

**Table 9: Seat limits — NPS 2 to 12 (DN 80 to 300), bar and psi**

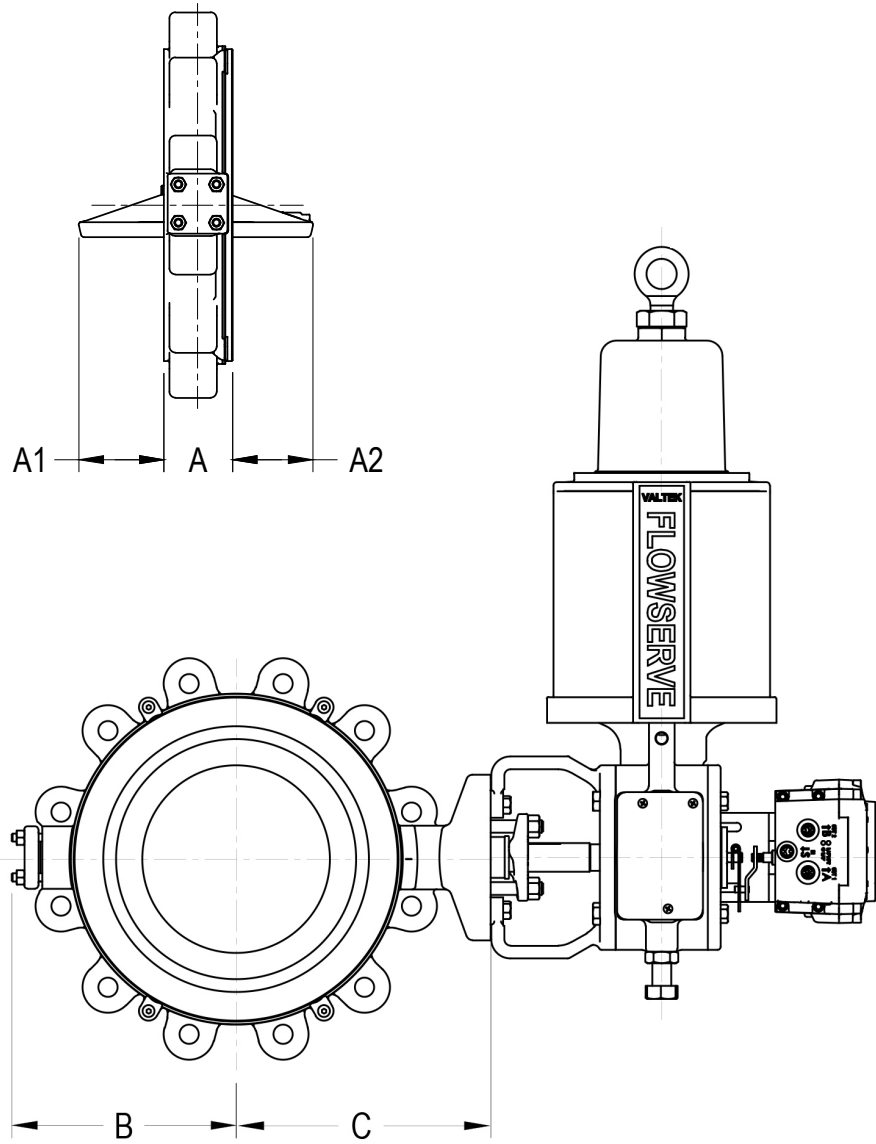
Material	Temperature		Maximum Allowable Pressure Drop	
	°C	°F	bar	psi
PTFE	-45 to 38	-50 to 100	62	900
	93	200	32	470
	149	300	13	190
	177	350	5	70
	260 to 427	500 to 800	-	-
Glass-filled PTFE	-45 to 38	-50 to 100	72	1,050
	93	200	38	550
	149	300	15	200
	204	400	8	110
	232	450	3	50
	316 to 427	600 to 800	-	-
UHMWPE	-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)	-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 (DN 350 to 600), bar and psi**

Material	Temperature		Maximum Allowable Pressure Drop	
	°C	°F	bar	psi
PTFE	-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	-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	-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)	-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 (DN 80 to 400), Class 150 to 600 (PN 10 to 40)



**Table 11: Dimensions<sup>(1)</sup> – Lug style, NPS 3 to 16 (DN 80 to 400), Class 150 to 600 (PN 10 to 40)**

**Metric**

Valve Size	ASME, mm						Valve Size	DIN, mm						Weight <sup>(2)</sup> , kg
	Class	A	A1	A2	B	C		Pressure Rating	A	A1	A2	B	C	
3	150	48	20	10	99	124	DN 80	PN 10/16/25	46	22	11	123	124	24
	300	48	20	10	124	124		PN 40	64	9	11	124	125	26
	600	54	16	8	124	124		-	-	-	-	-	-	27
4	150	54	28	23	128	141	DN 100	PN 10/16/25	52	30	23	126	141	29
	300	54	28	19	145	161		PN 40	64	18	19	142	161	32
	600	64	24	13	160	168		-	-	-	-	-	-	50
6	150	57	49	42	142	186	DN 150	PN 10/16/25	56	50	42	146	186	49
	300	59	49	40	181	192		PN 40	76	39	33	188	192	57
	600	78	37	30	211	197		-	-	-	-	-	-	72
8	150	64	70	60	185	223	DN 200	PN 10/16/25	60	74	60	200	223	61
	300	73	61	59	221	229		PN 40	89	45	59	220	229	73
	600	102	45	45	255	233		-	-	-	-	-	-	137
10	150	71	88	83	224	254	DN 250	PN 10/16/25	68	91	84	223	253	76
	300	83	82	79	250	266		PN 40	114	56	74	256	266	138
	600	117	69	50	311	282		-	-	-	-	-	-	198
12	150	81	113	105	271	292	DN 300	PN 10/16/25	78	115	104	280	292	101
	300	92	100	98	295	302		PN 40	114	85	92	295	302	167
	600	140	82	65	342	321		-	-	-	-	-	-	249
14	150	92	115	118	295	305	DN 350	PN 10/16/25	79	126	119	319	305	157
	300	117	108	95	340	325		PN 40	127	103	91	340	325	257
	600	155	82	67	372	356		-	-	-	-	-	-	341
16	150	102	138	138	329	353	DN 400	PN 10/16/25	102	137	138	344	353	196
	300	133	124	108	370	397		PN 40	140	119	107	374	397	316
	600	178	97	87	406	404		-	-	-	-	-	-	441

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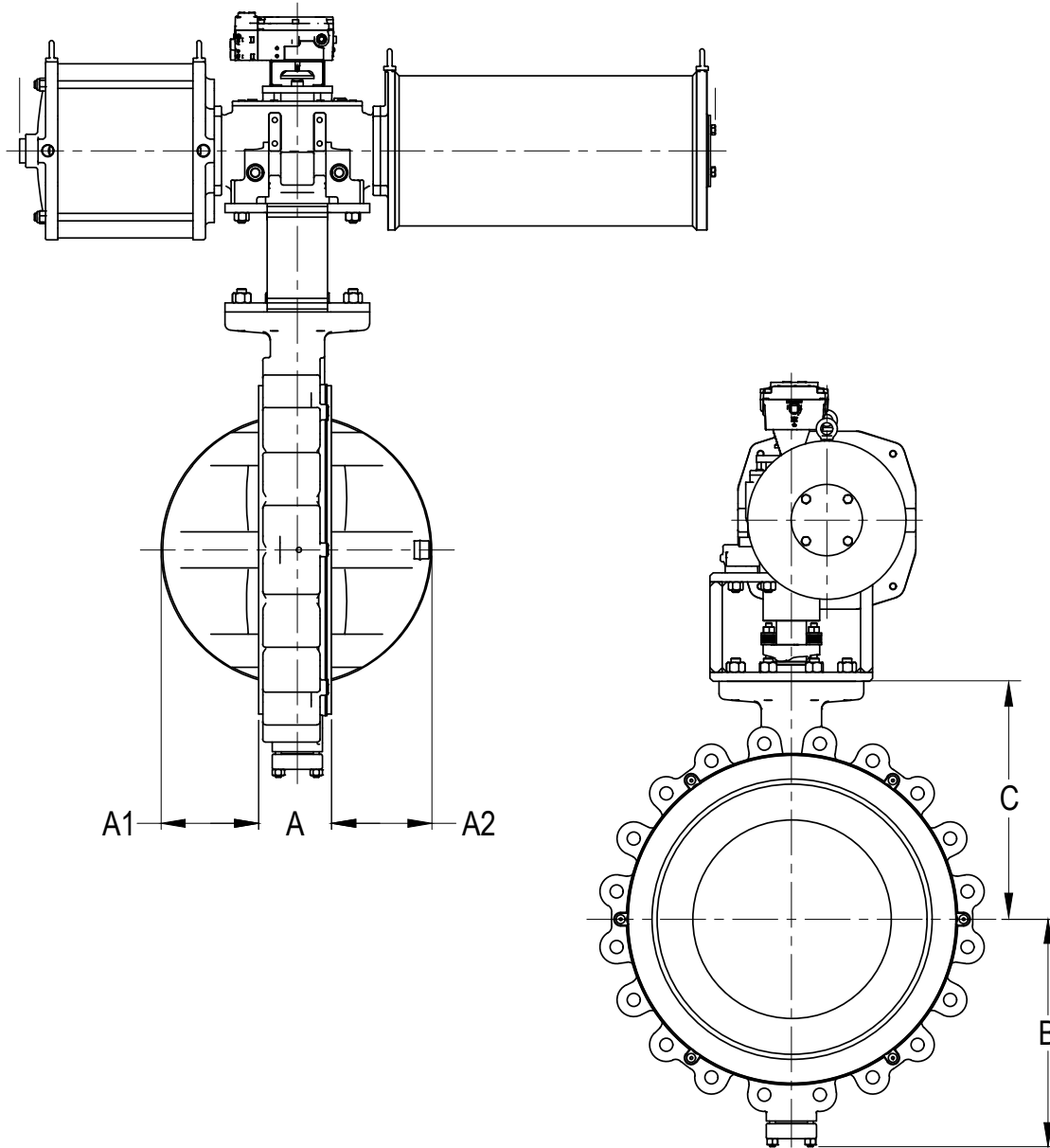
Valve Size	ASME, in.						Weight <sup>(2)</sup> , lb
	Class	A	A1	A2	B	C	
3	150	1.88	0.8	0.4	3.9	4.9	54
	300	1.88	0.8	0.4	4.9	4.9	58
	600	2.12	0.6	0.3	4.9	4.9	60
4	150	2.12	1.1	0.9	5.0	5.6	63
	300	2.12	1.1	0.8	5.7	6.3	70
	600	2.50	0.9	0.5	6.3	6.6	110
6	150	2.25	1.9	1.7	5.6	7.3	109
	300	2.31	1.9	1.6	7.1	7.6	125
	600	3.06	1.5	1.2	8.3	7.8	159
8	150	2.50	2.8	2.4	7.3	8.8	134
	300	2.88	2.4	2.3	8.7	9.0	160
	600	4.00	1.8	1.8	10.0	9.2	302
10	150	2.81	3.5	3.3	8.8	10.0	168
	300	3.25	3.2	3.1	9.9	10.5	304
	600	4.62	2.7	2.0	12.2	11.1	436
12	150	3.19	4.4	4.1	10.7	11.5	223
	300	3.62	3.9	3.9	11.6	11.9	369
	600	5.50	3.2	2.5	13.5	12.6	550
14	150	3.62	4.5	4.6	11.6	12.0	346
	300	4.62	4.3	3.8	13.4	12.8	567
	600	6.12	3.2	2.6	14.7	14.0	752
16	150	4.00	5.4	5.4	12.9	13.9	432
	300	5.25	4.9	4.3	14.6	15.6	697
	600	7.00	3.8	3.4	16.0	15.9	972

(1) For actuator dimensions, refer to pages 18 and 19.

(2) Weight equals weight of the valve plus the actuator.

## Dimensions<sup>(1)</sup>

Lug style, NPS 18 to 60 (DN 450 to 600), Class 150 to 600 (PN 10 to 40)



(1) For actuator dimensions, refer to the relevant actuator technical bulletin.



**Table 12: Dimensions<sup>(1)</sup> – Lug style, NPS 18 to 60 (DN 450 to 600), Class 150 to 600 (PN 10 to 40)**

**Metric**

Valve Size	ASME, mm						Valve Size	Pressure Rating	DIN, mm					Actuator Mounting Pattern	Weight <sup>(2)</sup> , kg
	Class	A	A1	A2	B	C			A	A1	A2	B	C		
18	150	114	154	151	381	396	DN 450	PN 10/16/25	114	154	151	398	396	F16	170
	300	149	132	128	417	404		PN 40	152	132	125	410	404	F30	313
	600	200	100	103	454	442		-	-	-	-	-	-	F35	469
20	150	127	173	181	414	441	DN 500	PN 10/16/25	127	173	181	413	438	F25	240
	300	159	147	147	454	454		PN 40	152	153	146	450	454	F30	370
	600	216	109	123	474	507		-	-	-	-	-	-	F40	642
24	150	154	205	212	479	505	DN 600	PN 10/16/25	154	205	212	478	502	F25	370
	300	181	189	182	524	543		PN 40	178	189	182	528	538	F35	629
	600	232	143	152	545	553		-	-	-	-	-	-	F40	952
28	150	162	261	254	542	637	-	-	-	-	-	-	-	F25	528
30	150	165	290	274	580	669	-	-	-	-	-	-	-	F30	624
36	150	200	349	332	681	777	-	-	-	-	-	-	-	F35	1,313
42	150	251	399	370	793	881	-	-	-	-	-	-	-	F40	1,615
48	150	276	458	436	881	983	-	-	-	-	-	-	-	F48	2,263
54	150	270	533	520	956	1,067	-	-	-	-	-	-	-	F48	2,946
60	150	286	609	583	1,034	1,151	-	-	-	-	-	-	-	F48	3,810

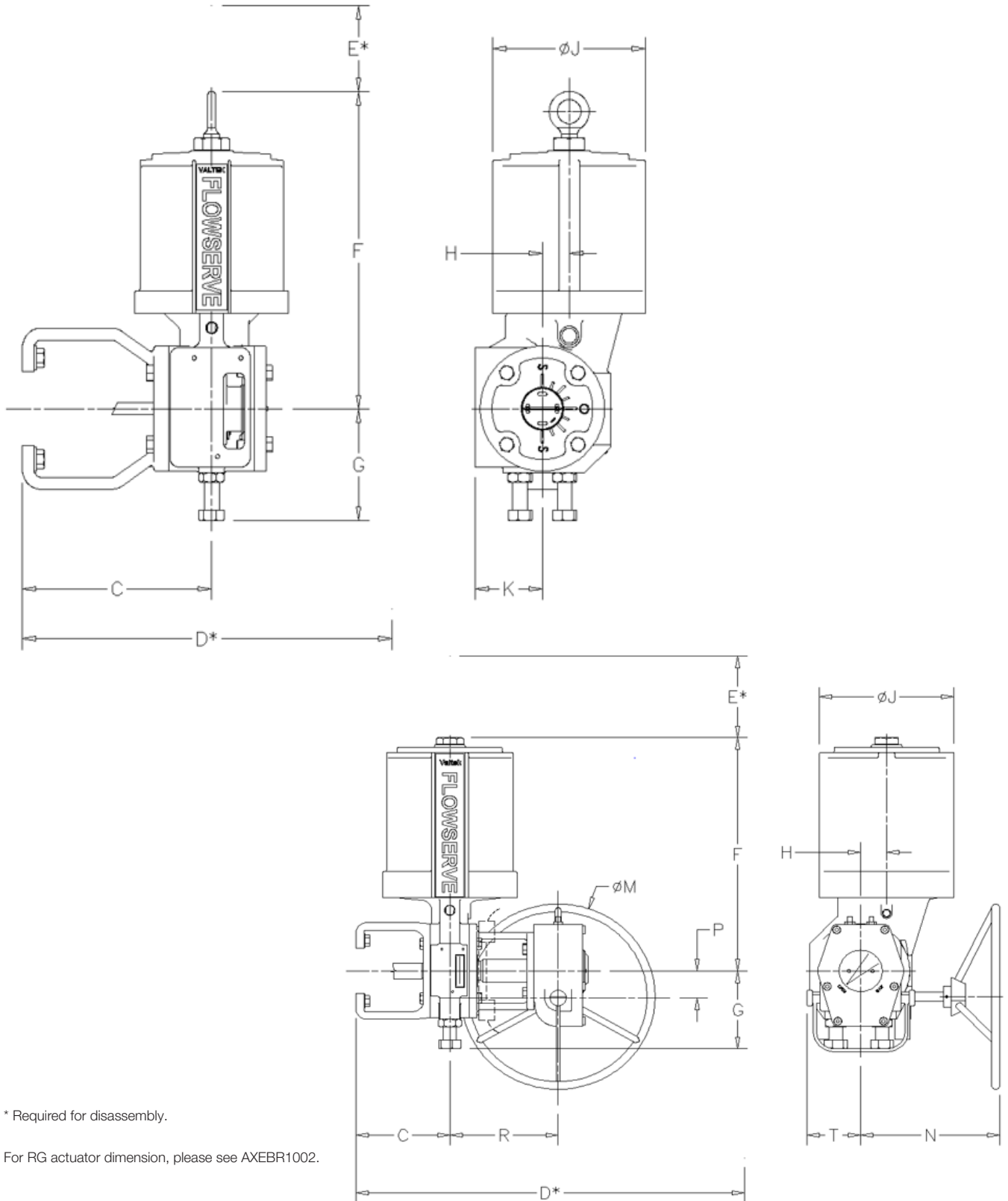
**U.S.**

Valve Size	ASME, in.						Actuator Mounting Pattern	Weight <sup>(2)</sup> , lb
	Class	A	A1	A2	B	C		
18	150	4.50	6.1	6.0	15.0	15.6	F16	375
	300	5.88	5.2	5.0	16.4	15.9	F30	690
	600	7.88	3.9	4.1	17.9	17.4	F35	1,035
20	150	5.00	6.8	7.1	16.3	17.4	F25	530
	300	6.25	5.8	5.8	17.9	17.9	F30	815
	600	8.50	4.3	4.9	18.7	20.0	F40	1,415
24	150	6.06	8.1	8.3	18.9	19.9	F25	816
	300	7.12	7.5	7.2	20.6	21.4	F35	1,388
	600	9.13	5.6	6.0	21.5	21.8	F40	2,100
28	150	6.38	10.3	10.0	21.4	25.1	F25	1,165
30	150	6.50	11.4	10.8	22.8	26.4	F30	1,377
36	150	7.88	13.7	13.1	26.8	30.6	F35	2,895
42	150	9.88	15.7	14.6	31.2	34.7	F40	3,560
48	150	10.88	18.1	17.2	34.7	38.7	F48	4,990
54	150	10.62	21.0	20.5	37.6	42.0	F48	6,496
60	150	11.25	24.0	23.0	40.7	45.3	F48	8,400

(1) For actuator dimensions, please see the relevant actuator technical bulletin.

(2) Weight is only for body sub-assembly.

## VR actuator dimensions



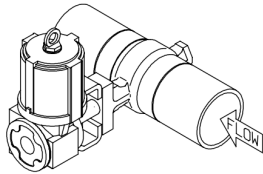
**Table 13: VR actuator dimensions and weights**

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

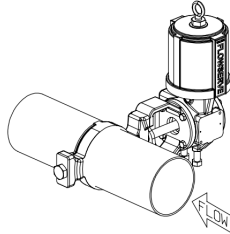
Actuator Size	Hand-wheel	Spring	K		M		N		P		R		T		Weight		
			mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	kg	lbs	
25	None	Standard	71	2.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	12	26
		Extended	71	2.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	14	31
	HW	Standard	N/A	N/A	249	9.8	269	10.6	79	3.1	188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

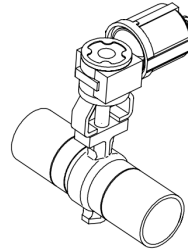
Figure 10: Valve orientations



Left-hand mount (standard)



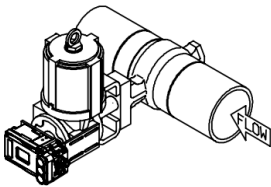
Right-hand mount



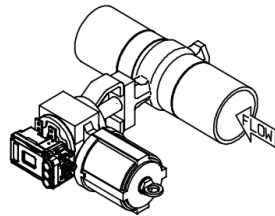
Vertical shaft mount

Note: Valve orientations not applicable for vertical pipe.

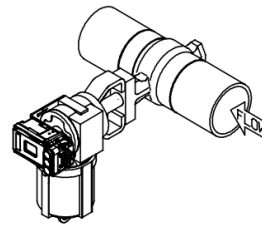
Figure 11: Actuator orientations



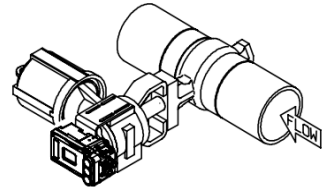
Orientation 1 (standard)



Orientation 2



Orientation 3



Orientation 4

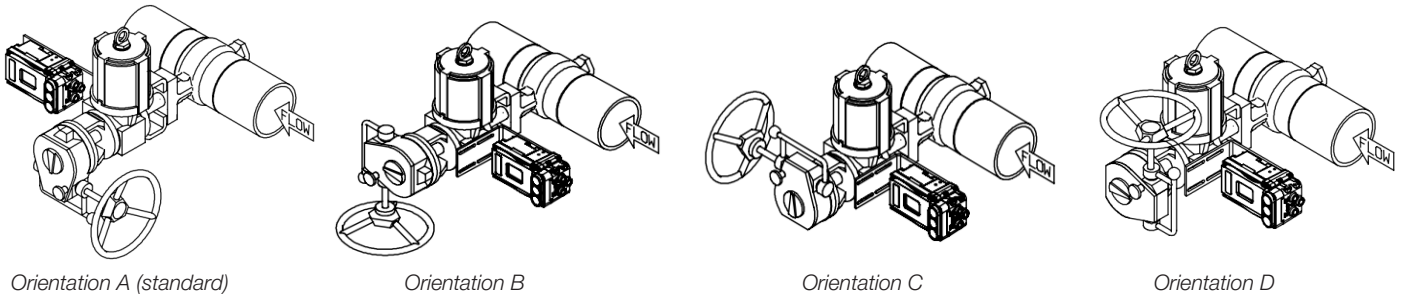
Note: Images shown with the valve mounted in the left-hand orientation as an example only. Actuator orientations may also accommodate the valve mounted in the right-hand or vertical shaft orientations.

- 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 12: 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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- Backlash warning — Monitors the linkage of the actuator to the valve and detects loose connections



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