



WEIR

Minerals

Delta Industrial™
Product Guide

Innovative design, industry leading performance, customisable features, and outstanding dependability ensure our Delta Industrial™ knife gate valves perform under the most demanding conditions.



For more than 20 years, Delta Industrial™ knife gate valves have been serving the mining and processing industries worldwide, setting the standard for slurry knife gate valve performance.

Our committed team of industry experts and experienced engineers utilise their unsurpassed attention to detail and quality to ensure Weir Minerals lead the industry in product innovation.

Our world class manufacturing facility in the USA is equipped with the latest in manufacturing and testing technology to ensure our customers' requirements and quality standards are met at all times.

Your trusted operating partner

Delta Industrial™ knife gate valves are backed by the vast Weir Minerals Services™ network, which means our experts are there to support you, every step of the way, wherever you may be.

Design features

- Bi-directional, zero-leakage shut-off
- Packingless design. Transverse seal, no gate or stem packing
- Enclosed body prevents leakage to the environment
- Seal retained out of the flow stream and flush with the bottom port
- Full port flow reduces pressure drop and turbulence, thus minimising wear
- Fully guided, bevelled edge machined gate shears through obstructions in flowing media
- Elastomer port seal is mechanically retained by machine groove with pinhole anchoring
- No seat cavities where solids can collect and cause gate interference
- Will operate under vacuum conditions
- Top-works enclosed with tough LEXAN polycarbonate material with heavy duty lockout pin
- Yoke design allows fitting for various designed actuators
- Optional coatings, wear rings and overlays for tough slurry duties available

The zero leakage design of our Delta Industrial™ valves protects both the operator and the environment from process fluids.

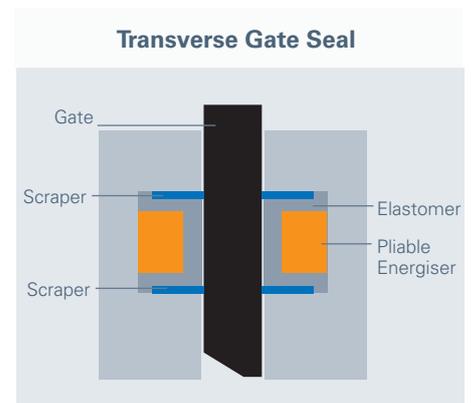
Zero leak guarantee

Many knife gate valves have serious limitations such as leakage to external environments during valve cycling and a non-cutting gate tip that pushes product into the gate seat.

Our Delta Industrial™ knife gate valves are different. Their construction provides zero leakage due to their unique transverse seal and shear gate design. Combined with its highly-engineered seating arrangement, our range of knife gate valves provide exceptional pipeline isolation, proving them to be one of the highest performing valves in heavy duty applications.

Elastomer seal

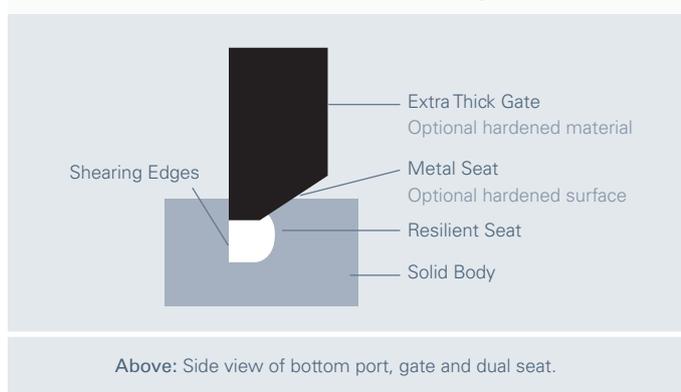
Delta Industrial™ knife gate valves have a primary elastomer seal. This is provided by an interference fit cord stock (ring seal) on the perimeter of the gate that, by design, is protected from the flow. The precision machined metal seat provides a secondary seal and over-closure protection. The angled leading edge on the blade is capable of shearing through objects in the flow media. The primary wear surface is metal as opposed to an elastomer sleeve. This means it can be repaired by replacing the wear rings or re-coating the overlay. The body and wear areas can be manufactured from a wide range of materials to ensure optimum wear and corrosion protection.



Transverse gate seal

To seal from external leakage, the Delta Industrial™ knife gate valve utilises an in-service, repackable, transverse (gate) seal. The transverse seal features an upper and lower scraper, and an elastomer energised by a pliable compound that can be added while the valve is in service. The gate is completely removed from the process flow in the full open position.

The Shear-Seal Advantage



Delta Industrial™ Class 150 Knife Gate Valves

Technical Specifications

Design Features

- Heavy duty construction ensures long service life
- Bi-directional shut-off
- 100% zero leakage
- Pressure fully rated to ANSI B16.34 Class 150
- Full port design reduces pressure drops and minimises turbulence
- Design conforms with MSS-SP135

Applications

- Mining
 - Coal
 - Phosphate
 - Soda ash
 - Alumina
 - Mineral sands
 - Kaolin
- Power utilities
- Pulp and paper
- General industrial
- General chemical
- Cement
- Sand and gravel

Materials

- **Body:** NR Iron as standard. Other materials available
- **Gate:** 316 stainless steel as standard. Other materials available
- **Seals:** Buna N as standard. Other materials available
- Other materials include CF8M, HASTELLOY C-276, SAF 2205 and 2507, Ti

Size Range

- 50 mm (2") through 1524 mm (60")

Maximum Working Pressure

- All sizes 1965 kPa (285 psi)*

Flanges

- ANSI B16.5 Class 150
- Other flange options available

* Dependent on material selections.

Delta Industrial™ 15S and 15L series valves are a fully rated ASME Class 150 (PN20) guided shear gate designed for heavy duty applications.

Designed specifically to handle heavy duty slurry applications, its innovative design, industry-leading performance, customisable features and absolute dependability have made our Delta Industrial™ valves the knife gate valve of choice for multiple industries.

The bevelled edge gate design allows the knife gate to crush, cut, sever and expel solids that may be in the fluid stream.

A precisely machined groove positions the elastomeric seat at the edge of the guided gate allowing the valve to seal equally well from either flow direction.

The Delta Industrial™ knife gate valve provides 100% zero leakage. On discharge isolation, where the valve must seal tightly from either direction under varying pressure differentials, the Delta Industrial™ performs perfectly.



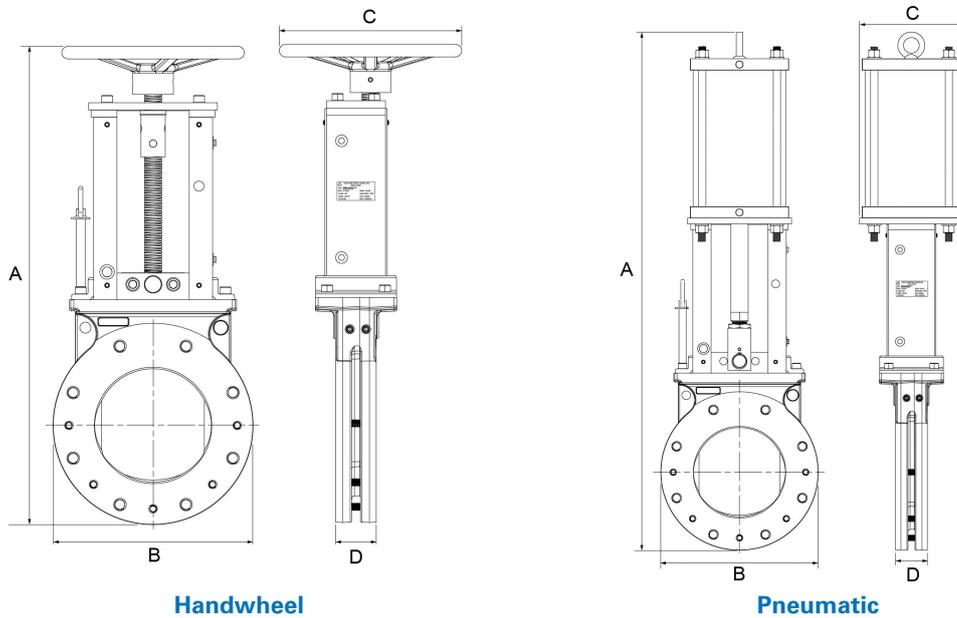


Delta Industrial™ Class 150 Knife Gate Valve Product Features

- 1 Solid stainless steel non-rising stem for excellent corrosion resistance and minimum clearance.
- 2 Highly visible fluorescent coloured stem nut to verify position. Threads of nut coated with XYLAN to eliminate the need for stem lubrication.
- 3 Heavy duty lockout pin for open and close position.
- 4 LEXAN cover protects internal components and eliminates pinch points.
- 5 Unique transverse seal design and scrapers deliver superior sealing even in high cycle applications.
- 6 Bevelled edge gate to cut through tough solids.
- 7 Fully guided gate eliminates gate movement during closing and eliminates gate deformation.
- 8 Flush-out areas ensure product is expelled by the blade closing action.
- 9 Mechanically retained seal prevents shifting during valve operation. Seal location and seat design ensure full bi-directional sealing and zero leakage.

Delta Industrial™ Class 150 Knife Gate Valves

Dimensions and Weights



Handwheel

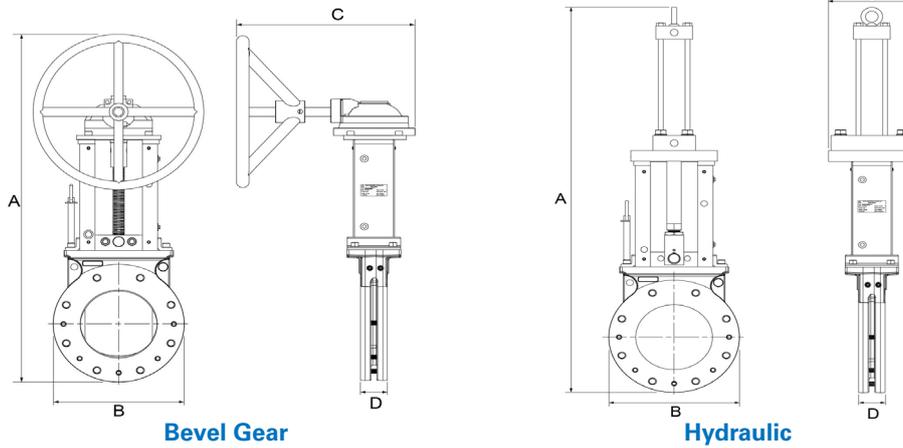
Pneumatic

Handwheel Valve

SIZE		A		B		C		D						MASS					
in	mm	in	mm	in	mm	in	mm	150		15S		15L		150		15S		15L	
								in	mm	in	mm	in	mm	lb	kg	lb	kg	lb	kg
2	50	15.13	384	6.00	152	6.50	165	1.88	47.8	2.00	50.8	2.75	69.9	23	10	24	11	34	15
3	80	19.08	485	7.60	193	8.00	203	1.88	47.8	2.00	50.8	4.00	101.6	33	15	35	16	70	32
4	100	21.82	554	9.00	229	8.00	203	2.00	50.8	2.00	50.8	4.12	104.6	49	22	49	22	101	46
6	150	26.31	668	11.00	279	12.00	305	2.25	57.2	2.25	57.2	2.50	63.5	95	43	95	43	106	48
8	200	32.53	826	13.60	345	12.50	318	2.75	69.9	2.75	69.9	2.88	73.2	150	68	150	68	157	71
10	250	36.31	922	16.00	406	12.50	318	2.75	69.9	2.75	69.9	3.12	79.2	190	86	190	86	216	98
12	300	45.10	1146	19.00	483	12.50	318	3.00	76.2	3.00	76.2	3.25	82.6	310	141	310	141	336	152

Pneumatic Valve

SIZE		A		B		C		D						MASS					
in	mm	in	mm	in	mm	in	mm	150		15S		15L		150		15S		15L	
								in	mm	in	mm	in	mm	lb	kg	lb	kg	lb	kg
2	50	18.65	474	6.00	152	3.75	95	1.88	47.8	2.00	50.8	2.75	69.9	37	17	38	17	48	22
3	80	23.46	596	7.60	193	3.75	95	1.88	47.8	2.00	50.8	4.00	101.6	48	22	50	23	85	39
4	100	26.90	683	9.00	229	4.50	114	2.00	50.8	2.00	50.8	4.12	104.6	85	39	85	39	137	62
6	150	36.22	920	11.00	279	7.00	178	2.25	57.2	2.25	57.2	2.50	63.5	141	64	141	64	152	69
8	200	43.54	1106	13.60	345	9.00	229	2.75	69.9	2.75	69.9	2.88	73.2	214	97	214	97	221	100
10	250	50.24	1276	16.00	406	11.00	279	2.75	69.9	2.75	69.9	3.12	79.2	403	183	403	183	429	194
12	300	60.68	1541	19.00	483	13.00	330	3.00	76.2	3.00	76.2	3.25	82.6	669	303	669	303	695	315
14	350	69.10	1755	21.00	533	14.75	375	3.00	76.2	3.00	76.2	3.62	91.9	958	435	958	435	1041	472
16	400	76.94	1954	23.60	599	14.75	375	3.50	88.9	3.50	88.9	3.75	95.3	1064	483	1064	483	1100	499
18	450	83.59	2123	25.43	646	14.75	375	3.50	88.9	3.50	88.9	4.12	104.6	1345	610	1345	610	1481	672
20	500	90.02	2287	27.50	699	14.75	375	4.50	114.3	4.50	114.3	4.50	114.3	1651	749	1651	749	1651	749



Bevel Gear

Hydraulic

Bevel Gear Valve

SIZE		A		B		C		D						MASS					
in	mm	in	mm	in	mm	in	mm	150		15S		15L		150		15S		15L	
								in	mm	in	mm	in	mm	lb	kg	lb	kg	lb	kg
2	50	-	-	6.00	152	-	-	1.88	47.8	2.00	50.8	2.75	69.9	-	-	-	-	-	-
3	80	24.93	633	7.60	193	16.97	431	2.00	50.8	2.00	50.8	4.00	101.6	60	27	62	28	97	44
4	100	28.13	715	9.00	229	16.97	431	2.00	50.8	2.00	50.8	4.12	104.6	76	34	76	34	128	58
6	150	34.14	893	11.00	279	17.96	456	2.25	57.2	2.25	57.2	2.50	63.5	122	55	122	55	133	60
8	200	40.71	1034	13.60	345	18.05	458	2.75	69.9	2.75	69.9	2.88	73.2	177	80	177	80	184	83
10	250	44.16	1122	16.00	406	19.95	507	2.75	69.9	2.75	69.9	3.12	79.2	217	98	217	98	243	110
12	300	52.47	1333	19.00	483	18.46	469	3.00	76.2	3.00	76.2	3.25	82.6	337	153	337	153	363	165
14	350	58.23	1479	21.00	533	18.46	469	3.00	76.2	3.00	76.2	3.62	91.9	428	194	428	194	511	232
16	400	64.21	1631	23.60	599	22.61	574	3.50	88.9	3.50	88.9	3.75	95.3	583	264	583	264	619	281
18	450	68.27	1734	25.43	646	22.61	574	3.50	88.9	3.50	88.9	4.12	104.6	851	386	851	386	987	448
20	500	73.53	1868	27.50	699	22.61	574	4.50	114.3	4.50	114.3	4.50	114.3	1077	489	1077	489	1077	489
24	600	82.61	2098	32.00	813	22.61	574	4.50	114.3	4.50	114.3	5.00	127.0	1724	782	1724	782	1906	865
26	650	90.13	2289	34.25	870	22.86	581	6.00	152.4	6.75	171.5	7.09	180.1	2335	1059	2617	1187	2744	1245
28	700	93.34	2371	36.50	927	23.84	606	7.00	177.8	7.12	180.8	7.12	180.8	2583	1172	2626	1191	2626	1191
30	750	99.35	2523	38.75	984	27.32	694	7.00	177.8	7.38	187.5	8.25	209.6	3062	1389	3216	1459	3568	1618
32	800	106.21	2698	41.75	1060	29.44	748	7.00	177.8	8.12	206.2	8.62	218.9	2594	1177	2974	1349	3143	1426
36	900	119.46	3034	46.00	1168	29.44	748	7.00	177.8	8.88	225.6	9.84	249.9	3844	1744	4817	2185	5314	2410

Hydraulic Valve

SIZE		A		B		C		D						MASS					
in	mm	in	mm	in	mm	in	mm	150		15S		15L		150		15S		15L	
								in	mm	in	mm	in	mm	lb	kg	lb	kg	lb	kg
2	50	-	-	6.00	152	-	-	1.88	47.8	2.00	50.8	2.75	69.9	-	-	-	-	-	-
3	80	25.58	650	7.60	193	5.13	130	1.88	47.8	2.00	50.8	4.00	101.6	50	23	52	24	87	39
4	100	29.03	737	9.00	229	5.13	130	2.00	50.8	2.00	50.8	4.12	104.6	82	37	82	37	135	61
6	150	36.41	925	11.00	279	8.00	203	2.25	57.2	2.25	57.2	2.50	63.5	146	66	146	66	157	71
8	200	46.17	1173	13.60	345	7.50	191	2.75	69.9	2.75	69.9	2.88	73.2	195	88	195	88	202	92
10	250	52.00	1321	16.00	406	5.00	127	2.75	69.9	2.75	69.9	3.12	79.2	297	135	297	135	329	149
12	300	61.97	1574	19.00	483	7.00	178	3.00	76.2	3.00	76.2	3.25	82.6	516	234	516	234	542	246
14	350	69.18	1757	21.00	533	8.00	203	3.00	76.2	3.00	76.2	3.62	91.9	745	338	745	338	827	375
16	400	77.27	1963	23.60	599	8.00	203	3.50	88.9	3.50	88.9	3.75	95.3	825	375	825	375	861	391
18	450	83.59	2123	25.43	646	10.00	254	3.50	88.9	3.50	88.9	4.12	104.6	1103	500	1103	500	1239	562
20	500	91.22	2317	27.50	699	12.00	305	4.50	114.3	4.50	114.3	4.50	114.3	1494	678	1494	678	1494	678
24	600	103.55	2630	32.00	813	12.00	305	4.50	114.3	4.50	114.3	5.00	127.0	2145	973	2145	973	2327	1056
26	650	113.57	2885	34.25	870	12.00	305	6.00	152.4	6.75	171.5	7.09	180.1	2611	1184	2893	1312	3020	1370
28	700	118.79	3017	36.50	927	12.00	305	7.00	177.8	7.12	180.8	7.12	180.8	2806	1273	2849	1292	2849	1292
30	750	125.00	3175	38.75	984	13.00	330	7.00	177.8	7.38	187.5	8.25	209.6	3137	1423	3291	1493	3643	1652
32	800	135.45	3440	41.75	1060	14.00	356	7.00	177.8	8.12	206.2	8.62	218.9	3094	1403	3154	1431	3323	1507
36	900	149.72	3803	46.00	1168	14.00	356	7.00	177.8	8.88	225.6	9.84	249.9	4142	1879	5115	2320	5612	2546

Delta Industrial™ Class 300 Knife Gate Valves

Technical Specifications

Design Features

- Heavy duty construction designed to ensure long service life
- Provides bi-directional shut-off
- 100% zero leakage
- MSS SP-135 compliant
- Pressure fully rated to ANSI B16.5 Class 300

Applications

- Mining
 - Coal
- Power utilities
 - Phosphate
- Pulp and paper
 - Soda ash
- General industrial
 - Alumina
- General chemical
 - Mineral sands
- Cement
 - Kaolin
- Sand and gravel

Materials

- **Body:** A216WCB carbon steel. Other materials available
- **Gate:** 17-4-PH steel as standard. Other materials available
- **Seals:** Buna N as standard. Other materials available
- **Other materials include:** CF8M; HASTELLOY C-276 alloy; SAF 2205 and SAF 2507™ duplex stainless steel; Titanium Gr2 and Gr7

Size Range

- 50 mm (2") through 900 mm (36")

Maximum Working Pressure

- All sizes 5100 kPa (740 psi)*

Flanges

- ANSI B16.5 Class 300 RF and FF
- Other flange options available

* Dependent on material selections.

The Delta Industrial™ 30S and 30L series valves are a fully rated ASME Class 300 (PN50) guided shear gate designed for severe duty applications.

The Delta Industrial™ Class 300 valve isolates even at full pressure differential, and is designed to provide 100% zero leakage regardless of flow direction.

Designed specifically to handle heavy duty slurry applications, its innovative design, industry-leading performance, customisable features and absolute dependability have made our Delta Industrial™ valves the knife gate valve of choice for multiple industries.

The bevelled edge gate design allows the knife gate to crush, cut and expel solids that may be in the fluid stream.

A precisely machined groove positions the elastomeric seat at the edge of the guided gate allowing the valve to seal equally well even in high cycling duties.



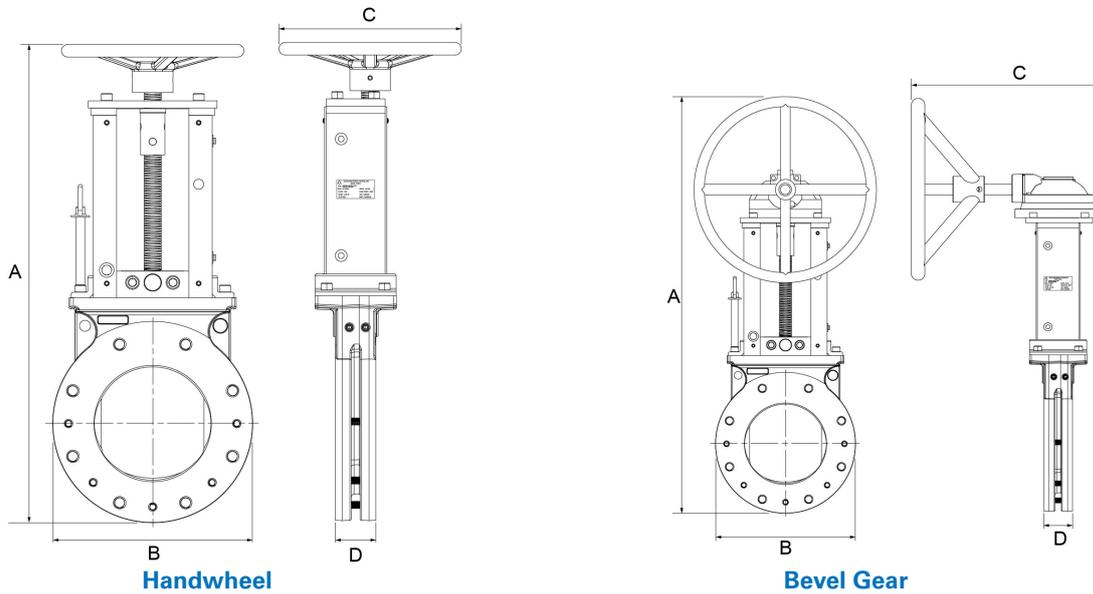


Delta Industrial™ Class 300 Knife Gate Valve Product Features

- 1 Robust hydraulic cylinder
- 2 Extra strong 17-4-PH steel cylinder rod
- 3 Cover made of tough LEXAN polycarbonate material protects internal components and eliminates pinch points
- 4 Highly visible fluorescent clevis to verify position
- 5 Heavy duty lockout pin for open and closed position
- 6 Unique dual transverse seal and scrapers designed to deliver superior sealing even in high cycle applications
- 7 Split body design allows for easy maintenance
- 8 Bevelled edge blade cuts through tough solids
- 9 Fully guided gate eliminates gate movement during closing and prevents gate deformation
- 10 Mechanically retained seal prevents shifting during valve operation. Seal location and seat design provide full bi-directional sealing and zero leakage

Delta Industrial™ Class 300 Knife Gate Valves

Dimensions and Weights



Handwheel

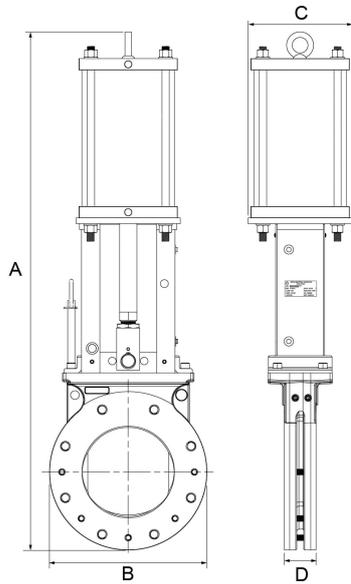
Bevel Gear

Hand Wheel Valve

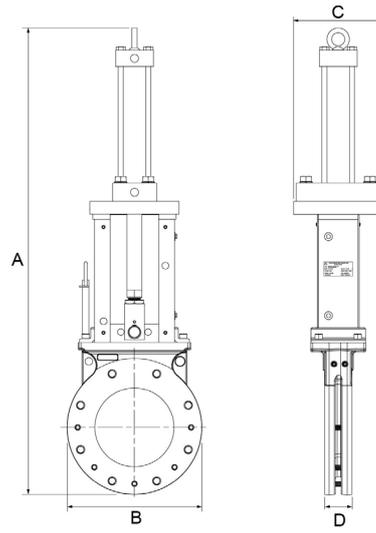
SIZE		A		B		C		D				MASS			
		30S / 30L		30S / 30L		30S / 30L		30S		30L		30S		30L	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg	lb	kg
2	50	15.63	397	6.50	165	2.4	315	2.75	70	2.75	70	43	20	43	20
3	80	21.92	557	8.25	210	12.4	315	2.75	70	4.00	102	68	31	84	38
4	100	25.74	654	10.00	254	12.4	315	2.75	70	4.12	105	90	41	116	52
6	150	-	-	12.50	318	-	-	-	-	-	-	-	-	-	-

Bevel Valve

SIZE		A		B		C		D				MASS			
		30S / 30L		30S / 30L		30S / 30L		30S		30L		30S		30L	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg	lb	kg
2	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	80	30.06	764	8.25	210	19.8	504	2.75	70	4.00	102	94	43	111	50
4	100	32.59	828	10.00	254	19.8	504	2.75	70	4.12	105	108	49	133	60
6	150	43.43	1103	12.50	318	22.0	558	3.15	80	4.12	105	204	93	230	104
8	200	45.11	1146	15.00	381	24.2	615	3.50	89	4.63	118	282	128	323	147
10	250	51.31	1303	17.50	445	26.7	677	4.68	119	5.38	137	319	145	351	159
12	300	62.95	1599	20.50	521	31.1	789	5.00	127	5.63	143	834	378	873	396
14	350	70.15	1782	23.00	584	31.1	789	5.50	140	6.25	159	1016	461	1072	486
16	400	73.65	1871	25.50	648	31.1	789	5.50	140	6.63	168	1063	482	1162	527
18	450	77.81	1976	28.00	711	31.1	789	6.25	159	7.00	178	1481	672	1558	707
20	500	83.86	2130	30.50	775	36.0	913	7.44	189	7.44	189	2376	1078	2376	1078
24	600	-	-	36.00	914	-	-	-	-	-	-	-	-	-	-
26	650	-	-	38.25	972	-	-	-	-	-	-	-	-	-	-
28	700	-	-	40.75	1035	-	-	-	-	-	-	-	-	-	-
30	750	-	-	43.00	1092	-	-	-	-	-	-	-	-	-	-
32	800	-	-	45.25	1149	-	-	-	-	-	-	-	-	-	-
36	900	-	-	50.00	1270	-	-	-	-	-	-	-	-	-	-



Pneumatic



Hydraulic

Pneumatic Valve

SIZE		A		B		C		D				MASS			
		30S / 30L		30S / 30L		30S / 30L		30S		30L		30S		30L	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg	lb	kg
2	50	20.97	533	6.50	165	8.5	216	2.75	70	2.75	70	108	49	108	49
3	80	28.38	721	8.25	210	8.5	216	2.75	70	4.00	102	134	61	151	68
4	100	32.91	836	10.00	254	10.6	270	2.75	70	4.12	105	210	95	236	107
6	150	43.50	1105	12.50	318	14.8	375	3.15	80	4.12	105	467	212	493	224
8	200	47.44	1205	15.00	381	19.0	483	3.50	89	4.63	118	796	361	836	379
10	250	57.00	1448	17.50	445	25.0	635	4.68	119	5.38	137	1672	758	1704	773
12	300	67.79	1722	20.50	521	31.6	803	5.00	127	5.63	143	3043	1380	3082	1398
14	350	79.43	2018	23.00	584	31.6	803	5.50	140	6.25	159	3270	1483	3326	1509
16	400	-	-	25.50	648	-	-	-	-	-	-	-	-	-	-
18	450	-	-	28.00	711	-	-	-	-	-	-	-	-	-	-
20	500	-	-	30.50	775	-	-	-	-	-	-	-	-	-	-

Hydraulic Valve

SIZE		A		B		C		D				MASS			
		30S / 30L		30S / 30L		30S / 30L		30S		30L		30S		30L	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg	lb	kg
2	50	19.47	494	6.50	165	3.00	76	2.75	70	2.75	70	50	23	50	23
3	80	27.01	686	8.25	210	3.50	89	2.75	70	4.00	102	82	37	98	45
4	100	30.54	776	10.00	254	3.50	89	2.75	70	4.12	105	95	43	121	55
6	150	44.63	1134	12.50	318	5.00	127	3.15	80	4.12	105	231	105	257	116
8	200	48.69	1237	15.00	381	6.50	165	3.50	89	4.63	118	315	143	356	161
10	250	57.07	1450	17.50	445	7.50	191	4.68	119	5.38	137	401	182	433	197
12	300	68.98	1752	20.50	521	9.50	241	5.00	127	5.63	143	1075	488	1114	505
14	350	80.81	2053	23.00	584	12.63	321	5.50	140	6.25	159	1742	790	1798	815
16	400	86.50	2197	25.50	648	12.63	321	5.50	140	6.63	168	1814	823	1914	868
18	450	94.53	2401	28.00	711	14.88	378	6.25	159	7.00	178	2788	1264	2865	1299
20	500	101.26	2572	30.50	775	14.88	378	7.44	189	7.44	189	3603	1634	3603	1634
24	600	116.32	2955	36.00	914	17.13	435	8.50	216	8.50	216	5563	2523	5563	2523
26	650	126.17	3205	38.25	972	19.00	483	8.50	216	8.50	216	6359	2884	6359	2884
28	700	131.27	3334	40.75	1035	19.00	483	10.00	254	10.00	254	7000	3175	7000	3175
30	750	144.22	3663	43.00	1092	22.00	559	10.50	267	10.50	267	9437	4281	9437	4281
32	800	144.49	3670	45.25	1149	22.00	559	11.50	292	11.50	292	8697	3945	8697	3945
36	900	162.03	4116	50.00	1270	24.00	610	12.00	305	12.00	305	12560	5697	12560	5697

Delta Industrial™ Class 600 Knife Gate Valves

Technical Specifications

Design Features

- Heavy duty construction designed to provide long service life
- Provides bi-directional shut-off 100% zero leakage
- Full ASME 600 design rating
- Full port design reduces pressure drops and minimises turbulence

Applications

- Mining
- Power utilities
- Coal
- Phosphate
- Soda ash
- Alumina
- Mineral sands

Materials

- **Body:** A216WCB carbon steel as standard.
- **Gate:** Hardened 17-4-PH stainless steel as standard.
- **Seals:** Buna N as standard. Other material options are available.
- Optional materials include Ni-hard wear rings with chromium carbide seat overlay.

Size Range

- 50 mm (2") through 600 mm (24")

Maximum Working Pressure

- All sizes 10,200 kPa (1480 psi)*

Flanges

- ANSI B16.5 Class 600
- Other flange options available

* Dependent on material selections.

The Delta Industrial™ Class 600 valves are a fully rated ASME Class 600 (PN100) guided shear gate designed for higher working pressure.

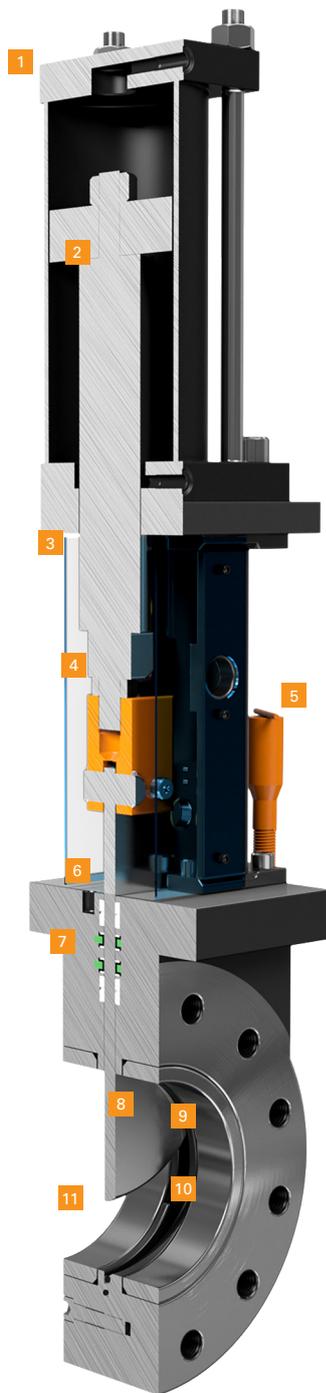
Our Delta Industrial™ Class 600 valves are fully rated ASME Class 600 (PN100) guided shear gate valves, designed for high working pressure.

The Class 600 takes over where most competitors are limited by pressure. The robust design can be upgraded to include Ni-hard wear rings in the inlet and outlet, and a hardened overlay in the seat area. Optional gate coatings assist performance while still providing 100% zero leakage even in high concentration slurries.

The hardened, bevelled edge gate design allows the knife gate to crush, cut and expel solids that may be in the fluid stream.

Designed specifically to handle heavy duty slurry applications, its innovative design, industry-leading performance, customisable features and outstanding dependability ensure they perform under the most demanding service conditions.



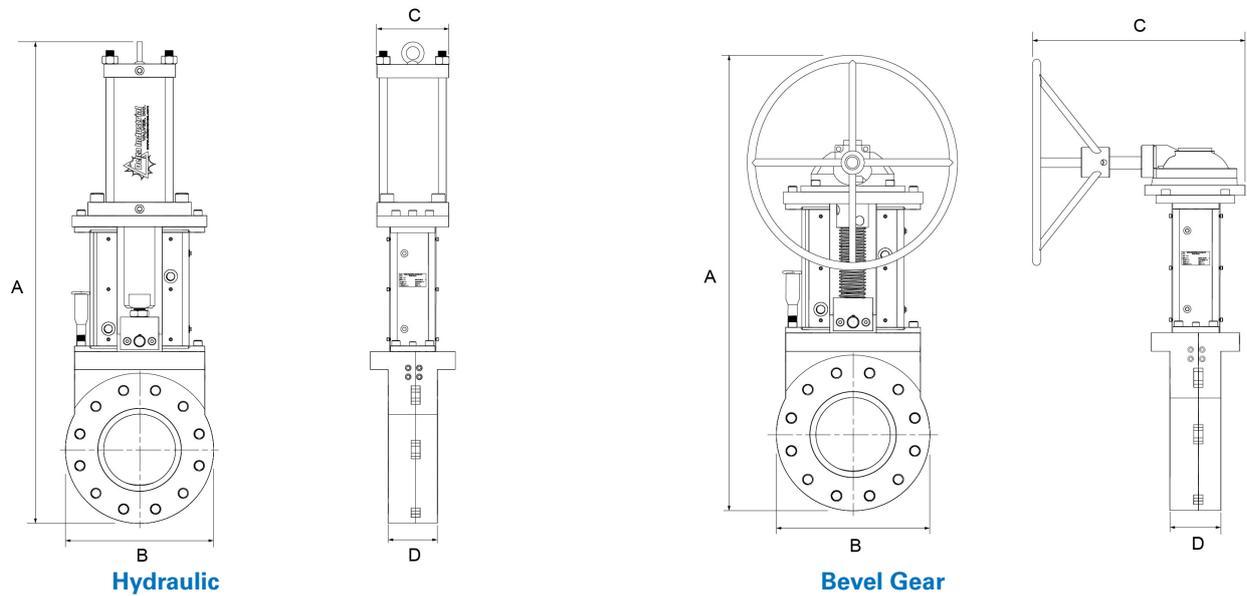


Delta Industrial™ Class 600 Knife Gate Valve Product Features

- 1 Robust hydraulic cylinder
- 2 Extra strong 17-4-PH steel cylinder rod
- 3 Cover made of tough LEXAN polycarbonate material protects internal components and eliminates pinch points
- 4 Highly visible fluorescent clevis to verify position
- 5 Heavy duty lockout pin for open and closed position
- 6 Unique dual transverse seal and scrapers designed to deliver superior sealing even in high cycle applications
- 7 Split body design allows for easy maintenance
- 8 Bevelled edge blade cuts through tough solids
- 9 Fully guided gate eliminates gate movement during closing and prevents gate deformation
- 10 Optional wear rings protect the body from wear in heavy slurry applications
- 11 Mechanically retained seal prevents shifting during valve operation. Seal location and seat design are designed to provide full bi-directional sealing and zero leakage

Delta Industrial™ Class 600 Knife Gate Valves

Dimensions and Weights



Hydraulic Valve Dimensions

SIZE		A		B		C		D		MASS	
in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2	50	19.60	498	6.50	165	3.50	89	3.25	83	71	32
3	80	27.88	708	8.25	210	4.50	114	3.50	89	129	58
4	100	35.54	903	10.75	273	5.00	127	4.00	102	194	88
6	150	47.88	1,216	14.00	356	7.50	191	5.00	127	540	245
8	200	52.56	1,335	16.50	419	9.50	241	6.00	152	810	367
10	250	63.32	1,608	20.00	508	12.63	321	6.75	171	1,202	545
12	300	75.48	1,917	22.00	559	14.88	378	7.50	191	2,504	1,136
14	350	83.93	2,132	23.75	603	14.88	378	8.00	203	2,726	1,236
16	400	91.50	2,324	27.00	686	17.13	435	8.50	216	3,541	1,606
18	450	99.41	2,525	29.25	743	19.00	483	9.25	235	4,823	2,188
20	500	109.39	2,779	32.00	813	22.00	559	10.25	260	7,172	3,253
24	600	125.32	3,183	37.00	940	24.00	610	12.00	305	10,520	4,772

Bevel Gear Valve Dimensions

SIZE		A		B		C		D		MASS	
in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
3	80	25.06	637	8.25	210	18.88	480	3.50	89	121	55
4	100	32.34	821	10.75	273	22.00	559	4.00	102	168	76
6	150	50.93	1,294	14.00	356	25.63	651	5.00	127	420	191
8	200	53.93	1,370	16.50	419	30.27	769	6.00	152	571	259
10	250	62.41	1,585	20.00	508	38.54	979	6.75	171	701	318
12	300	70.26	1,785	22.00	559	38.35	974	7.50	191	1314	596
14	350	78.03	1,982	23.75	603	44.56	1,132	8.00	203	1615	732



Delta Industrial™ Series CBB Knife Gate Valves

Technical Specifications

Design Features

- Dual isolation with drain port in single body with one operator
- Provides bi-directional shut-off
- 100% zero leakage
- Drain port provides isolation to allow safe working downstream of valve

Applications

- Mining
- Coal
- Power utilities
- Phosphate
- Pulp and paper
- Soda ash
- General industrial
- Alumina
- General chemical
- Mineral sands
- Steel mills
- Sand and gravel

Materials

- **Body:** WCB carbon steel as standard. Other materials available
- **Gate:** 316 stainless steel as standard. Other materials available
- **Seals:** Buna N as standard. Other elastomers available

Size Range

- 50 mm (2") through 900 mm (36").

Maximum Working Pressure

- ASME Class 150 1965 kPa (285 psi)
- ASME Class 300 5100 kPa (740 psi)*
- ASME Class 600 10,200 kPa (1480 psi)*

Flanges

- ANSI B16.5 Class 150 RF and FF
- Other flange and pressure class options available

* Dependent on material selections.

The Delta Industrial™ Center, Block and Bleed combines two separate gates into one body, each sealed with their own seats and transverse seals and operated by a single actuator.

The Delta Industrial™ series Centre, Block and Bleed (CBB) valve combines two separate gates into one body, each sealed with their own seat and transverse seals, and operated by a single actuator.

Designed specifically to handle heavy duty slurry application, its innovative design allows for double bi-directional isolation. The centre port drain confirms secure isolation, allowing safe working on equipment downstream of the valve installation.

The bevelled edge gate design allows the knife gate to crush, cut and expel solids that may be in the fluid stream.

On isolation, where the valve must seal tightly from either direction under varying pressure differentials, our Delta Industrial™ valve performs reliably.



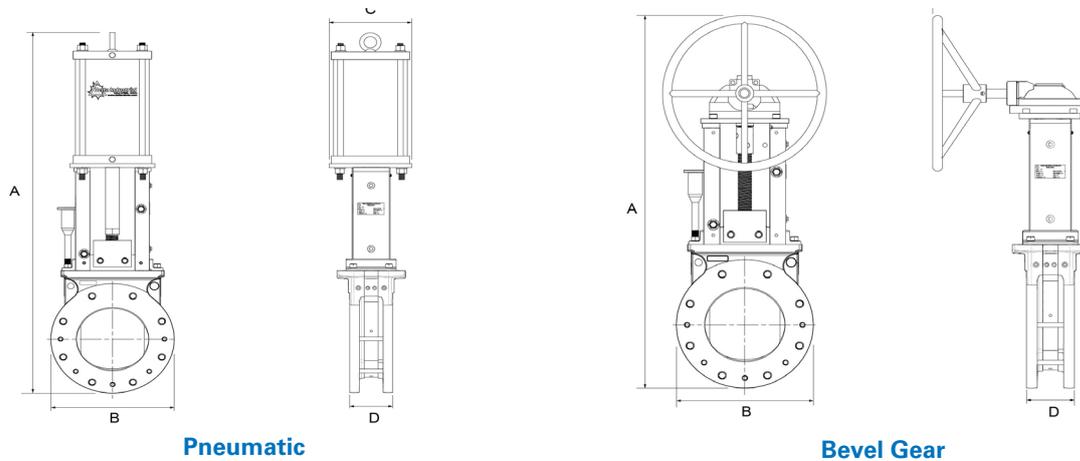


Delta Industrial™ Series CBB Knife Gate Valve Product Features

- 1 Solid stainless steel non-rising stem for excellent corrosion resistance and minimum clearance
- 2 Cover made of tough LEXAN polycarbonate material protects internal components and eliminates pinch points
- 3 Heavy duty lockout pin for open and close position
- 4 Highly visible fluorescent clevis to verify position
- 5 Unique transverse seal design and scrapers on each blade deliver superior sealing even in high cycle applications
- 6 Split body design allows for easy maintenance
- 7 Fully guided gate eliminates gate movement during closing and prevents gate deformation
- 8 Bevelled edge blade cuts through tough solids
- 9 Centre body with drain ports to verify isolation
- 10 Optional wear rings protect the body from wear in heavy slurry applications

Delta Industrial™ Series CBB Knife Gate Valves

Dimensions and Weights

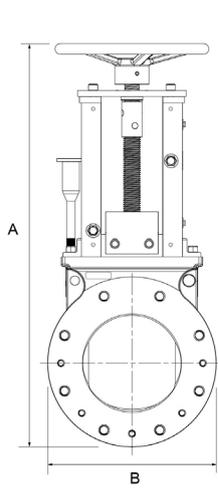


Pneumatic Valve

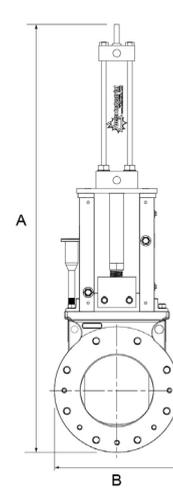
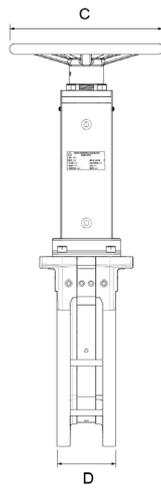
SIZE		A		B		C		D		MASS	
in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2	50	18.65	474	6.0	152	4.5	114	3.00	85.0	41	19
3	80	24.46	621	7.6	193	6.5	165	3.22	81.8	85	39
4	100	27.15	690	9.0	229	6.5	165	3.42	86.9	108	49
6	150	36.34	923	11.0	279	8.5	216	4.04	102.6	214	97
8	200	44.54	1,131	13.6	345	10.6	270	4.53	115.1	332	151
10	250	52.49	1,333	16.0	406	14.8	375	5.06	128.5	544	247
12	300	63.90	1,623	19.0	483	17.0	432	5.17	131.3	848	385
14	350	72.53	1,842	21.0	533	19.0	483	5.86	148.8	1,201	545
16	400	79.45	2,018	23.6	599	21.0	533	6.80	172.7	1,528	693
18	450	86.15	2,188	25.4	646	23.0	584	6.75	171.5	2,173	985
20	500	90.00	2,286	27.5	699	25.3	641	8.01	203.5	2,941	1,334
24	600	104.52	2,655	32.0	813	32.0	813	8.01	203.5	4,981	2,259
26	650	118.01	2,997	34.3	870	32.0	813	10.45	265.4	5,273	2,392

Bevel Gear Valve

SIZE		A		B		C		D		MASS	
in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
3	80	21.14	537	7.6	193	15.58	396	3.22	81.8	67	30
4	100	22.46	570	9.0	229	15.58	396	3.42	86.9	86	39
6	150	31.02	788	11.0	279	16.20	411	4.04	102.6	144	65
8	200	39.22	996	13.6	345	18.83	478	4.53	115.1	207	94
10	250	46.17	1,173	16.0	406	19.83	504	5.06	128.5	263	119
12	300	61.58	1,564	19.0	483	23.58	599	5.17	131.3	427	194
14	350	71.21	1,809	21.0	533	23.20	589	5.86	148.8	613	278
16	400	71.00	1,803	23.6	599	24.23	615	6.80	172.7	800	363
18	450	80.02	2,032	25.4	646	28.28	718	6.75	171.5	1,148	521
20	500	84.56	2,148	27.5	699	27.9	709	8.01	203.5	1,441	653
24	600	92.74	2,356	32.0	813	32.70	831	8.01	203.5	2,256	1,023
26	650	109.23	2,774	34.3	870	32.32	821	10.45	265.4	2,545	1,154
28	700	113.38	2,880	36.5	927	32.32	821	11.55	293.4	2,933	1,331
30	750	119.86	3,044	38.8	984	32.38	822	12.42	315.5	3,353	1,521
32	800	123.79	3,144	41.8	1,060	32.70	831	9.28	235.7	3,800	1,724
36	900	141.87	3,603	46.0	1,168	37.59	955	12.67	321.8	4,902	2,223



Handwheel



Hydraulic



Handwheel Valve

SIZE		A		B		C		D		MASS	
in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2	50	15.13	384	6.0	152	7.87	200	3.00	85.0	27	12
3	80	19.08	485	7.6	193	7.87	200	3.22	81.8	41	19
4	100	21.88	556	9.0	229	12.40	315	3.42	86.9	60	27
6	150	27.50	699	11.0	279	16.25	413	4.04	102.6	120	54
8	200	33.14	842	13.6	345	20.00	508	4.53	115.1	182	83
10	250	36.73	933	16.0	406	20.00	508	5.06	128.5	236	107
12	300	45.03	1,144	19.0	483	20.00	508	5.17	131.3	400	181

Hydraulic Valve

SIZE		A		B		C		D		MASS	
in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2	50	19.35	491	6.0	152	5.72	145	3.00	85.0	35	16
3	80	24.15	613	7.6	193	5.59	142	3.22	81.8	49	22
4	100	27.60	701	9.0	229	5.67	144	3.42	86.9	69	31
6	150	37.34	948	11.0	279	7.04	179	4.04	102.6	137	62
8	200	45.54	1,157	13.6	345	7.53	191	4.53	115.1	226	102
10	250	52.00	1,321	16.0	406	7.31	186	5.06	128.5	289	131
12	300	61.97	1,574	19.0	483	9.17	233	5.17	131.3	474	215
14	350	69.68	1,770	21.0	533	10.86	276	5.86	148.8	705	320
16	400	77.27	1,963	23.6	599	11.30	287	6.80	172.7	869	394
18	450	84.15	2,137	25.4	646	13.25	337	6.75	171.5	1,319	598
20	500	87.69	2,227	27.5	699	15.51	394	8.01	203.5	1,792	813
24	600	100.27	2,547	32.0	813	16.26	413	8.01	203.5	2,743	1,244
26	650	115.70	2,939	34.3	870	18.45	469	10.45	265.4	3,056	1,386
28	700	120.91	3,071	36.5	927	18.55	471	11.55	293.4	3,911	1,774
30	750	129.76	3,296	38.8	984	18.92	481	12.42	315.5	4,313	1,957
32	800	137.15	3,484	41.8	1,060	15.03	382	9.28	235.7	4,790	2,173
36	900	159.27	4,045	46.0	1,168	19.67	500	12.67	321.8	6,366	2,888

Delta Industrial™ valves can be customised to fit the needs of your operation.

Valve Options List		
CODE	F-OPTION	DESCRIPTION
F1	V Port Option	The Vport option is used in throttling or modulating services, usually in conjunction with option F7, Positioner. The V-port is protected by a ceramic coating to prevent erosion.
F2	Powder "Chest" Relief	The F2 option is used in any "powder application" where material can pack up in the chest area (e.g., powdered lime and fly ash). The relief is machined out in both sides of the chest area and is commonly used with an F99 purge system.
F3	Bore Reducer	The F3 option is used in pump applications where the pipe inside dimension needs to be reduced to increase velocity of flow. It is also frequently used in abrasive gravity feed applications (e.g., hopper bottoms) to give added port protection.
D3	Dual Bore Reducer	Bore reducers on inlet and outlet sides of the valve.
F4	Ni-Hard Wear Rings	Ni-hard wear rings provide excellent protection to the valve in any abrasive application while maintaining the original port size. These are often used in mining, power, paper and steel applications. They have a Brinnell hardness of 500.
D4	Front and Back body Ni-Hard Wear ring	Wear Rings installed on inlet and outlet side of the valve; this option is generally used in severely abrasive applications to increase protection of the port.
F5	Drilled Thru Flange Holes	Our valves have tapped flange holes standard, but can be drilled on request. This is priced on application.
F6L	Limit Switches (MECH)	These are typically used with automated valves, but can also be used with manually operated valves. Switches are set to show when the valve is fully open or closed position.
P6	Prep for Prox Switch and Install Target	Drilled to 18mm as standard; other tapped hole sizes available upon request
F6P	Prox Switches	Open/closed proximity switches.
F7E	Positioner (4-20mA)	Electro-pneumatic positioner that runs on 4-20 mA. Can be used in conjunction with V port to throttle flow.
F7P	Positioner (3-15 psi air)	Positioners that run on 3-15 psi.
F8	Control Solenoid	Used with our standard pneumatic double-acting cylinder. It controls the supply air to fully open and close the valve.
F9	Dual Transverse Seals	This option is available for severe service applications. It is an additional transverse seal which is added to the chest area of the valve. These are standard to Class 150 (pn20) single pair to 16" (400mm), double pair 18" (450mm) and above. Class 300 (pn50) and Class 600 (pn100) double pair on all sizes.
F10	Special Paint	This option is used as needed. Customer must spec the coating material.
F11	Special Paint Actuator	See F10 option.
F12	Position Indicator	This option is used when the operators cannot get near the valves. The F12 provides a highly visible external tab to show position of valve.
F13	Stainless Steel (SS) Topworks	Typically our standard topworks with dry powder coating is suitable for most applications. However when it is needed due to an extremely corrosive environment, it is essential.
F14	Stainless Steel (SS) Bolt Kit	Certain applications with corrosive environments need SS body bolts. These can be used with our standard topworks or with SS topworks.
F15	Stellite Tip Gate	For high velocity abrasive applications a stellite tip is welded to the leading edge of the gate. It virtually eliminates wear on the gate tip. It is also commonly used in abrasive throttling applications with a V-port.
F16	Gate Guide Modification	Used in powder applications. The gate guides on the sides of the valve are "notched" to allow powder to escape the guide area and to eliminate buildup.
F17	Optional Cylinder Size	Optional cylinder sizes are specified per application. Our valves usually have "squared" cylinders (i.e., 12" bore on a 12" valve). A larger diameter cylinder provides more force output while a smaller cylinder typically actuates more quickly.
F18	Xylan Coating on Bodies and Gates	This option has become standard on most applications. It can be compared to a non-stick coating on a frying pan, eliminating buildup of material on "wetted" parts inside the valve. It is used in applications where the flow media adheres to the gate and internals of the valve causing binding of the gate. This fluoropolymer (XYLAN) helps prevent the flow media from adhering to the gate and valve internals. The lubricity of this material also lessens the required actuation force by as much as 40 percent.
F18G	Xylan Gate	Please see F18 (above) Gate only coating is used when the flow media is less adherent and less abrasive than media requiring all the "wetted" parts to be coated, but still has the ability to bind to and inhibit optimal gate travel.
F19	Purge Ports (Chest)	Commonly used with the F2 option above to purge the material that accumulates in the chest.
F20	Purge Ports (Seat)	Option to purge the bottom (seat area) of the port.

Valve Options List (continued)

CODE	F-OPTION	DESCRIPTION
F21	Hardfaced Port Area	Option to overlay the bottom of the port, usually with chromium carbide or tungsten type material. Overlay is between the internal flush ports and includes the metal seat.
F22	Oversized Packwells	Additional packing chamber that feeds both packing screw holes with a fractional turn of one packwell bolt, allowing for quick and easy adjustment of the transverse seal while the valve is fully operational.
F23	Oversized Handwheel	Commonly used to offer more leverage to manually open or close a valve.
F24	Hardchrome Gate	The gate goes through the process of having a layer of chromium electroplated onto it. The resulting plating is very hard and reduces friction, improves abrasion tolerance and wear resistance, minimises galling, and improves corrosion resistance
F27	Flush out Extension	The last one-third of the gate guide is removed allowing solids to drop-out and get flushed from the sealing surfaces.
F28	4 Post Top Structure	Replaces the standard carbon steel yokes with stainless steel posts
F33	Rotary Manual Lockout	Handwheel rotary lockout
F34	Raised Face Flanges	B16.5 or B15.47 flange raised face as determined by size and class
F35	Manual Override	Manual override for cylinder
F36	Stem/Rod Boot	To protect the rod and seals on pneumatic or hydraulic cylinder.
F37	Low Temp Hydraulic/Pneumatic Cylinder Seals	Option to change standard seal material in cylinders with elastomer seals rated to -50°C (-122°F)
F38	Body Material Compatible Drain/Purge Port Plugs	Option to specify the plugs for purge ports are made of the same material as the body of the valve.
F40	Jergens Lift Rings (2) Per Valve	Lifting rings installed (one on each side of the valve) to assist in valve movement and placement.
F99	Other Miscellaneous (Specify)	Special options required by the customers and not covered by above F options.



Selecting your Delta Industrial™ knife gate valve

Personal safety and the environment are critically important in all situations. For optimal performance of our Delta Industrial™ knife gate valves, it is vital to have the correct process information.

Below are some of the major considerations and options when selecting your valve:

Pressure determines the model

- For slurry up to 20 bar (up to 285 psi) use Delta Industrial™ Class 150 valve
- For slurry 20 to 51 bar (285 - 740psi) use Delta Industrial™ Class 300 valve
- For slurry 51 to 102 bar (740 - 1480 psi) use Delta Industrial™ Class 600 valve

Chemical make-up of slurry determines the materials

For slurries where corrosion is of concern, optional materials for the body and gates include:

Ni Resist, 316ss, 17-4-PH ss, Alloy 20, Alloy 31, HASTELLOY C alloy, titanium, and duplex stainless steel

Particle size, consistency, and percentage of solids determines the wear options

Wear options include:

Single or dual wear rings, CCO or TCO overlays, body and blade coatings, hardened blades, and overlays on blade tip

Operating mechanism determines the actuation

Optional actuations include:

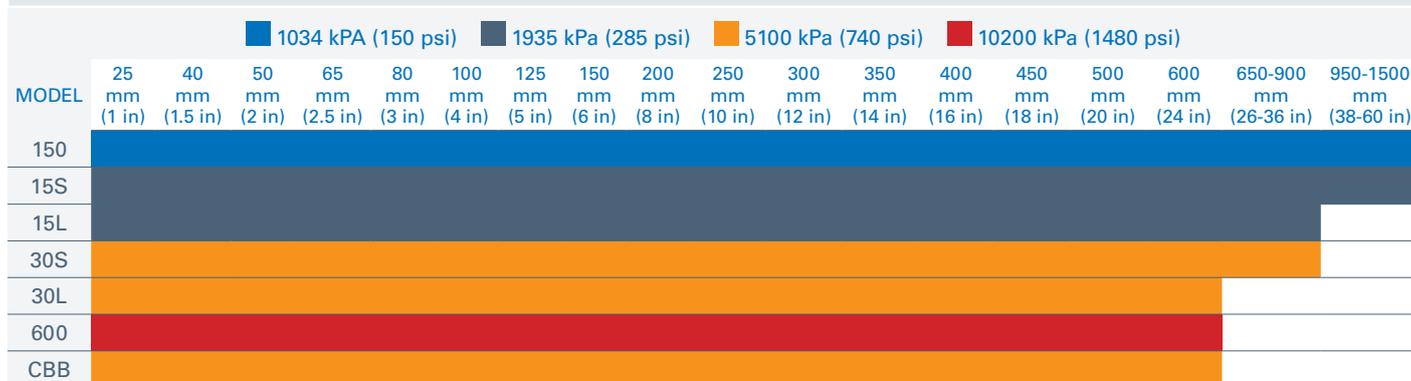
Handwheel, bevel gear, fast acting lever, double acting pneumatic, failsafe pneumatic, hydraulic, and electro hydraulic

Control and monitoring options determine the accessories

Optional accessories include:

Limit switches, proximity switches, position transmitters, positioners, solenoids, regulators, air filters, speed controllers and junction boxes

Maximum Operating Pressure Chart



Note: Maximum operating pressure may depend on materials selected. This table gives general selection guidelines for Delta Industrial™ valves. If your application does not fit these guidelines contact your Weir Minerals representative for detailed selection advice.

Concentration: 60% max
Particle Size: 10% of bore
Velocity: <5m/s (16ft/s)

Actuator Selection - Valve Maximum Diameter

MODEL	HAND-WHEEL		GEARBOX		PNEUMATIC		HYDRAULIC		ELECTRIC	
	mm	in	mm	in	mm	in	mm	in	mm	in
150	400	16	750	30	750	30	1500	60	1500	60
15S	300	12	600	24	450	18	1500	60	1500	60
15L	350	14	450	18	350	14	900	36	900	36
30S	100	4	300	12	300	12	900	36	900	36
30L	100	40	300	12	300	12	600	24	600	24
600	N/A	N/A	350	14	200	8	600	24	600	24
CBB	150	6	300	12	350	14	600	24	600	24

Note: Actuator recommendations are based on valve maximum pressures. Special actuation requests may be considered.

Elastomer Temperature Chart

ELASTOMER	MIN TEMP.		MAX TEMP.	
	°C	°F	°C	°F
Buna N (Nitrile)	-30	-22	80	180
VITON	-40	-40	204	400
TEFLON	-62	-80	204	400
EPDM	-49	-56	110	220
AFLAS	-10	14	230	450
Garlock (Graphoil)	-62	-80	650	1200
Polyurethane	-40	-40	80	180
CHEMRAZ	-18	0	340	650
GFLT Viton	-40	-40	204	400
KALREZ	-25	-13	275	527
HNBR	-32	-25	150	300

Ordering Information

Valve Class		Size		Body Material		Gate Material		Seals		Scrapers		Actuation		Options			
Model				Body Material				Seals				Options					
Class 150 CWP		150		Ni-Resist		NR		BUNA N		E1			V Port option		F1		
Class 150 15S (Series 150-SP-135 short)		15S		316 SS (CF8M)		SS		VITON		E2			Powder "chest" relief		F2		
Class 150 15L (Series 150-SP-135 long)		15L		Cast Iron		CI		TEFLON		E3			Bore reducer		F3		
Class 300 30S (Series 300-SP-135 short)		30S		Carbon Steel		CS		EPDM		E4			Dual bore reducer		D3		
Class 300 30L (Series 300-SP-135 long)		30L		17.4 PH SS (CB7CU1)		CB		AFLAS		E5			Ni-Hard wear rings		F4		
Class 600		600		Alloy 20 (CN-7M)		A2		GARLOCK (Gra-phoil)		E6			Front and back body Ni-Hard wear ring		D4		
CBB (Center, Block and Bleed series)		CBB		Alloy 31		31		Polyurethane		E7			Drilled thru fange holes		F5		
				2205 (CD3MN)		22		CHEMRAZ		E8			Limit switches (MECH)		F6L		
				2507 (CE3MN)		25		GFLT VITON		E9			Prep for prox switch and install target		P6		
				AL6XN (CN3MN) (2542M Equiv)		6X		KALREZ		E10			Prox switches		F6P		
				HASTELLOY C (CW12MW)		HC		HNBR		E11			Positioner (4-20mA)		F7E		
				Titanium Grade 2		T2		Scrapers					Positioner (3-15 psi air)		F7P		
				Titanium Grade 5		T5		Phenolic Scrapers		1			Control solenoid		F8		
				Titanium Grade 8		T8		Brass Scrapers		2			Dual transverse seals		F9		
				Titanium Grade 12		TT		SS Scrapers		3			Special paint		F10		
				Other (Specify)		XX		Special (Specify)		X			Special paint actuator		F11		
								Actuation					Position indicator		F12		
								Handwheel		HW			Stainless steel (SS) topworks		F13		
								Chainwheel		CW			Stainless steel (SS) bolt kit		F14		
								Pneumatic Cylinder		PC			Stellite tip gate		F15		
								Spring Return Cylinder		SPC			Gate guide modification		F16		
								Hydraulic Cylinder		HC			Optional cylinder size		F17		
								Bevel Gear		BG			XYLAN coating on bodies and gates		F18		
								Gear Operator		GO			XYLAN gate		F18G		
								Electric Operator		EA			Purge ports (chest)		F19		
								Ratchet Handle		RH			Purge ports (seat)		F20		
								Hand level		HL			Hardfaced port area		F21		
								Low Profile		LP			Oversized packwells		F22		
								Body & Blade (Gate)		BB			Oversized handwheel		F23		
													Hardchrome gate		F24		
													Flush out extension		F27		
													4 Post top structure		F28		
													Rotary manual lockout		F33		
													Raised face flanges		F34		
													Manual override		F35		
													Stem/rod boot		F36		
													Low temp hydraulic/pneumatic cylinder seals		F37		
													Body material compatible drain/purge port plugs		F38		
													Jergens lift rings (2) per valve		F40		
													Other miscellaneous (specify)		F99		



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