

HIGHEST PERFORMANCE
ZERO LEAKAGE

KNIFE GATE VALVES





PRODUCTS & SERVICES

For more than 20 years, Delta Industrial Valves, Inc. has been manufacturing high quality knife gate valves for worldwide distribution.

Since being awarded its first two US patents in 1993, Delta has pioneered many market firsts, several of which have gone on to set the global standard for knife gate valve performance.

Delta Industrial Valves is a leader in product innovation, performance standards and customer support.



Product innovations include the first fully rated ASME 150 and 300 class knife gate valves, built-in position switch mounts, and the first integrated lockout device as standard product. In 2009 Delta announced its knife gate valve (with optional F67 features) had passed stringent Fire Type testing requirements and qualified for the API 607/ISO rating.

Delta Industrial Valves continues to innovate throughout its product line. An unsurpassed attention to quality and performance is backed by a committed team of industry experts, a technical sales force and experienced engineers. Delta's 140,000 square foot manufacturing facilities in Niles, Michigan allows for continued innovation, customization, testing and assembly.

Delta Industrial Knife Gate Valves are proven in severe service applications around the world.

Delta is an industry leading manufacturer of high quality knife gate valves, specializing in Zero Leakage Severe Service Bi-Directional knife gate valves.

Delta provides a wide range of valves in standard cast alloys such as Ni-Resist, Carbon and Stainless Steel, Superaustenitic, Duplex, Hastelloy, and Titanium, as well as bodies manufactured from wrought plate or forgings. To meet our clients' needs for dependability and maximum uninterrupted operation, all of Delta's high performance knife gate valves are designed to survive in extreme abrasive, erosive and corrosive environments.

Delta Industrial Valves, Inc. is recognized worldwide as a leader in the design and manufacture of severe service knife gate valves.





THE DELTA ADVANTAGE

While many different types of knife gate valves have been created since the 1950s – such as the sleeved knife gate and the ported slide gate – they have had serious limitations, including leakage to atmosphere during valve cycling and a non-cutting gate tip that pushes product into the gate seat.

There are at least five distinct types of knife gate valves. Delta produces only a true “knife” gate valve, capable of cutting, shearing, and closing against solids while still producing a tight shut-off. This unique knife gate valve design, referred to as a guided shear gate, is capable of offering the highest performance in the most severe applications where solids are in solution, suspension or both. These Zero Leakage valves can even operate in clear solutions – an area where traditional knife gates are not appropriate.

Delta valves are designed for isolation service duties that include:

- » **Corrosive slurries with scaling tendencies**
- » **Higher pressure neutral pH slurries with high solids**
- » **Bi-Directional Zero Leakage repeatable isolation requirements**

Innovative design, industry leading performance, customizable features and an unmatched record of dependability in severe service have made the Delta Guided Shear Gate Valve the “Valve of Choice” by plant operators in difficult process applications around the world.

PERFORMANCE STANDARDS

Delta is committed to providing the highest quality products to our customers. Our reputation for quality, dependability and innovation is backed by adherence to the strict design and test standards set out by the American Society of Mechanical Engineers (ASME).

Delta Industrial Valves conform with and have approvals for:

ASTM	ASME B16.34	API 598	CRN
ASME B16.5	MSS-SP-81	API 607	GOST
ASME B16.47	MSS-SP-135	ISO 10497	CE-PED

Delta's guided shear gate design offers proven dependable, long life and cost effective performance in the most demanding service conditions.

APPLICATION DESIGN SPECIFICATIONS:

- » ASME Class 150 (PN20) or 300 (PN50) or 600 (PN100) guided Knife Gate, Bi-Directionally Zero Leakage

- » Two Piece B16.5 or B16.47 or DIN flat face full flange bolted body with tapped or through hole flange drilling

- » Fully Guided Gate

- » Chisel tip gate ground to 8 µm RMS finish

- » Elastomer Port Seal mechanically retained by machined groove with 25 mm pinhole anchoring

- » Seal to be retained out of the flowstream and flush with the bottom port

- » Secondary metal seat with fully machined minimum 60° radius gate tip

- » In-line repackable elastomer transverse seals with dual gate scrapers 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

- » Body and gate to be Xylan Teflon® coated (optional)

- » Lexan enclosed topworks with OSHA (Occupational Safety and Health Administration) compliant lockout

- » Non-rising stem design with rolled threads rigidly connected to gate through Xylan Teflon® coated ASTM 4140 stem nut (manual valves only)

- » Universal topworks to accept all types of actuators and to be field changeable under full pressure

- » Cylinders (hydraulic & pneumatic) to be supplied with oversized 17-4PH cylinder rod

- » Valve tested to API 598 resilient seat to the full ASME rating, Bi-Directionally Zero Leakage from Ø psi to the full valve rating

Delta Industrial Valves is committed to manufacturing excellence across its product line.

APPLICATION BY INDUSTRY

Delta Industrial Knife Gate Valves are the choice of engineers and plant operators for severe service applications around the world.

Delta's customers operate facilities where the discrete control of their process is important and the lowest cost of ownership means maximum performance with the fewest possible interruptions. Delta Valves are designed to perform in some of the world's most extreme abrasive, erosive and corrosive environments.

Chemical

- » Dry Solids Bagging
- » Hopper Dump
- » Mixer Tanks
- » Powdered Chemical Conveyance

General Industrial Process

- » Electrostatic Precipitators
- » Pump Isolation
- » Reactors
- » Scrubbers
- » Sea Water Pipelines
- » Silos
- » Vacuum Retorts

Hydrocarbon Refining

Heavy Oil Upgrading & Hydrocracking

- » Catalyst Storage

Polyethylene

- » Pellet Isolation

Hydroelectric Power

- » Cooling Water to Turbines
- » Penstock Drains
- » Small Hydro Dam Discharge (to 1650mm)

Mining & Mineral Processing

Autoclaves (Pressure Acid Leach & Pressure Oxidation)

- » Charge Pump Feed
- » Flash Tank Discharge
- » Liquor Heating

Grinding, Crushing, Concentrating, Classifying

- » Column Cell Feed
- » Concentrate Silo
- » Concentrate Thickener
- » Cyclone By-Pass
- » Cyclone Feed
- » Cyclone Underflow
- » Filter Press Core Blow & Wash
- » Filter Press Feed
- » Filter Press Manifold Isolation
- » Flotation Cleaner By-Pass
- » Flotation Rougher
- » Gravity Separator By-Pass
- » Lime Plant
- » Magnetite
- » Main Mill Discharge Sump Pump Box
- » Ore Feed Pipeline
- » Pump Suction & Discharge Isolation
- » Slurry Transfer Systems
- » Tailings Thickener



Leaching

- » CCD Under & Overflow
- » Electrolyte
- » Launder Isolation
- » Neutralization
- » Precipitation
- » Sampling

Refining

- » Crystallation
- » Matte Tank
- » Pelletization

Smelting

- » Residue Filter
- » Slag Granulation

SXEW Heap Leaching

- » Cooling Tower
- » Electrolyte
- » Heap Leach Flow Control & Isolation
- » Weak Acid Pipeline Isolation

Tailings & Concentrate Pipeline Transportation Systems

- » Pipeline Choke Stations
- » Pipeline Isolation Stations
- » Pump Discharge Isolation
- » Rupture Disk Isolation
- » Tailings Pipe Spigots

Waste Disposal

- » Mine Backfill
- » Paste Backfill

Oil & Gas Production

- » Lime Softeners Warm & Hot
- » Mud Drilling Isolation

Pulp & Paper

Kraft Pulp

- » Black Liquor (Heavy, Weak & Strong)
- » Bleached Stock
- » Brown Stock
- » Centricleaners
- » Chip Pre-Treatment
- » Chlorinated Stock Injection
- » Digester Chip Feed
- » Effluent
- » Green Liquor (Clarified & Unclarified)
- » High-Density Stock
- » Kamyr Feeders
- » Knotter Washer Lime Mud
- » Pulper
- » Rejects
- » Screens
- » Stock Tower Isolation
- » Wash Liquor
- » White Liquor

Paper Mills (Recycle, Tissue & Newsprint)

- » Broke Chest
- » Repulping
- » Stock Lines

TMP & CTMP

- » Chip Pre-Treatment
- » Cleaner Boxes
- » Trash Extractors

Steel Mills

- » Blast Furnace Gas
- » Blast Furnace Slurry
- » Coke
- » Equalizer
- » Water Treatment

Thermal Power (Fossil Fuel)

- » Ash Handling – Wet & Dry, Fly, Clinker, Bottom
- » Ash Transportation Vacuum Pump Suction
- » Burner Line
- » Coal Crushing
- » Coal Pulverized Feed Isolation
- » Cooling Water
- » Condenser Isolation
- » Flue Gas Desulphurization (FGD)
- » Pyrite

Waste Water Treatment

- » Digester Crossover
- » Digester Isolation
- » Grit
- » Scum
- » Sewage (Primary, Secondary)
- » Sludge



SERIES 15S OR 15L

Delta Series 15S or 15L is a fully rated ASME Class 150 (PN20) guided shear gate available from 2" (50mm) through 96" (2400mm). Standard face to face dimensions conform to MSS-SP-81 and MSS-SP-135. Maximum operating pressures, depending upon body material, are 285-psig (1,965 kPag). In addition, Delta Series 15S or 15L is available with custom face to face dimensions designed for specific application.

SERIES 30S OR 30L

Delta Series 30S or 30L is identical to series 150 but conforms with the higher working pressures of ASME Class 300 (PN50) to 740-psig (5,100 kPag). Delta Series 30S or 30L is available from 2" (50mm) through 54" (1350mm).

SERIES 600

Delta Series 600 is identical to series 150 but conforms with the higher working pressures of ASME Class 600 (PN100) to 1440-psig (9,930 kPag). Delta Series 600 is available from 3" (80mm) through 24" (600mm).



SERIES CBB

Delta Centre Block & Bleed combines two separate gates into one body, each sealed with their own seats and transverse seals and operated by a single stem. The centre section houses the drain, purge or bleed connections and can be customized for each specific application. Sizes from 2" (50mm) through 48" (1200mm).

* DELTA INDUSTRIAL VALVES, INC. ASME CLASS GUIDED KNIFE GATE AS SUPPLIED BY CG INDUSTRIAL SPECIALTIES, WWW.CGIS.CA



SERIES TIV

The Transmitter Isolation Valve is a customized 3" (80mm) series 150 guided isolation valve designed for close coupling to a tank wall operated by a ratchet handle to minimize dead space when using transmitters to measure level, pressure, pH etc. The flange face on the tank side is dual drilled with both B16.5 and tank flange drilling.

SERIES R & S

Delta provides a complete range of rectangular and square flange knife gate valves. Customized flange drilling patterns and dimensions are readily available.

SIZE & PRESSURE CLASS VARIATIONS AVAILABLE

Delta produces valves made to ASME B16.34 in Classes 150 and 300 (PN20 and PN50). In addition Delta produces limited Class 600 (PN100).

Cold Working Pressure Class valves available from 26" (650mm) to 90" (2250mm) with pressure ratings as per customer requirements [sizes 24" (600mm) and below meet B16.34].

- » **ASME Class 150 (PN20) available from 2" (50mm) to 96" (2400mm)**
- » **ASME Class 300 (PN50) available from 2" (50mm) to 54" (1350mm)**
- » **ASME Class 600 (PN100) available from 3" (80mm) to 24" (600mm)**
- » **CWP to customer requirements from 26" (650mm) to 90" (2250mm)**
- » **Series 301 ASME Class 300 (PN50) with Class 150 Face to Face available from 2" (50mm) to 8" (200mm)**

FEATURES OF CLASS 150 (PN20), CLASS 300 (PN50) AND CLASS 600 (PN100) KNIFE GATE VALVES

Class 150 (PN20), 300 (PN50) & 600 (PN100) Knife Gate Valves:

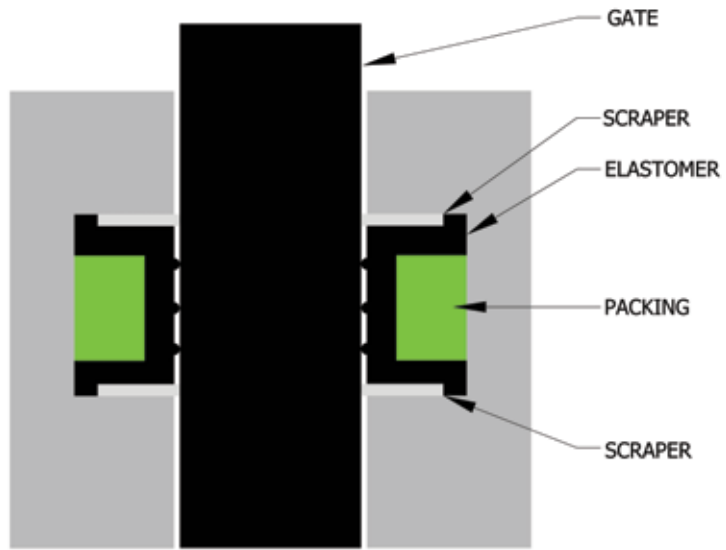
- » Full flanged body design
- » Non-rising stem
- » Solid Stainless Steel stem with rolled thread
- » Lexan bonnet covers
- » Bevelled-edged gate tip
- » Dual resilient and metal seats
- » Bi-Directional Zero Leakage seat
- » Sealing independent of pipeline pressure or direction
- » Long bonnet seal life
- » In-service repackable seal
- » No cavity on bottom port
- » All styles of actuators available
- » Optional Ni-hard wear ring
- » Optional Carbide body lining

Features of Double Block and Bleed:

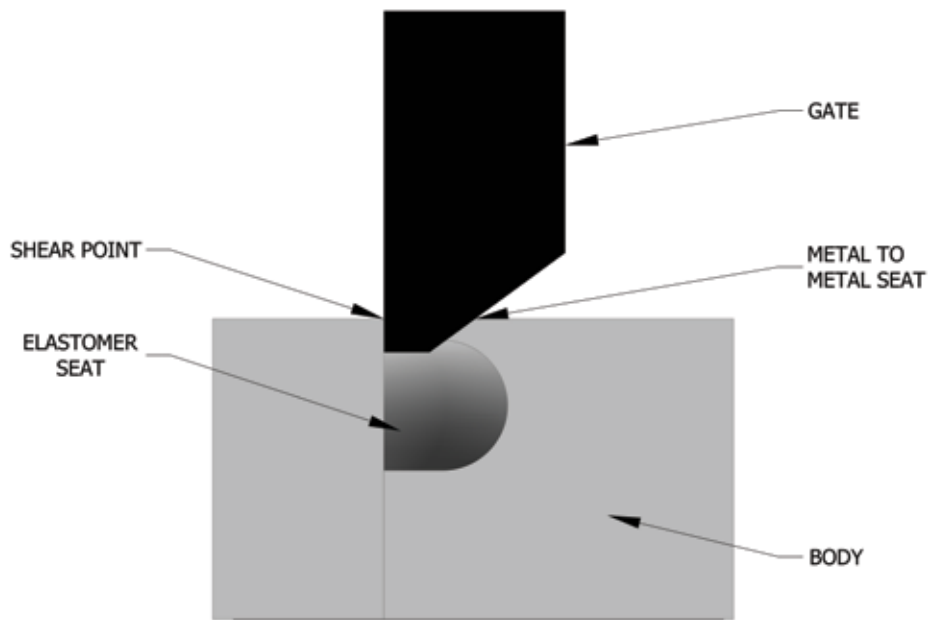
- » Full flanged body design
- » Non-rising single stem
- » Two gates for one body
- » Three purge points
- » Solids Stainless Steel stem with rolled thread
- » Metal and resilient seat
- » Full guided gates
- » No cavity on bottom port
- » Sealing independent of pipeline pressure or direction
- » Bi-Directional Zero Leakage seal
- » Flush out area in bottom port
- » All styles of actuators available
- » Optional Ni-hard wear ring
- » Optional Carbide body lining



DELTA WYE ASSEMBLY



DELTA TRANSVERSE SEAL



SHEAR POINT & BOTTOM SEALING



VALVE C_v

VALVE SIZE	90° V-NOTCH INSERT (Cv/Kv)	HEADLOSS (FT./M)
2"	190	3.7
50MM	164	1.1
3"	420	6.0
80MM	362	1.8
4"	750	8.1
100MM	647	2.5
5"	1,175	10.3
125MM	1,013	3.1
6"	1,680	14.1
150MM	1,448	4.3
8"	3,000	20.0
200MM	2,586	6.1
10"	4,700	24.0
250MM	4,052	7.3
12"	6,800	30.0
300MM	5,862	9.1
14"	9,250	32.0
350MM	7,974	9.8
16"	12,000	35.0
400MM	10,345	10.7
18"	15,200	38.0
450MM	13,103	11.6
20"	18,750	42.0
500MM	16,164	12.8
24"	27,250	54.0
600MM	23,491	16.5
30"	42,500	70.0
750MM	36,638	21.3
36"	61,000	88.0
900MM	52,586	26.8
48"	109,000	120.0
1200MM	93,966	36.6

VALVE SIZE	FULL PORT VALVE (Cv/Kv)	HEADLOSS (FT./M)
2"	220	2.2
50MM	190	0.7
3"	500	3.3
80MM	431	1.0
4"	960	4.3
100MM	828	1.3
5"	1,510	5.4
125MM	1,302	1.6
6"	2,220	6.5
150MM	1,914	2.0
8"	4,120	8.7
200MM	3,552	2.7
10"	6,600	10.8
250MM	5,690	3.3
12"	9,700	13.0
300MM	8,362	4.0
14"	14,200	15.0
350MM	12,241	4.6
16"	18,800	17.0
400MM	16,207	5.2
18"	24,200	19.5
450MM	20,862	5.9
20"	30,200	22.0
500MM	26,034	6.7
24"	43,500	26.0
600MM	37,500	7.9
30"	69,000	33.0
750MM	59,483	10.1
36"	101,000	39.6
900MM	87,069	12.1
48"	185,000	52.0
1200MM	159,483	15.8

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SERIES 150

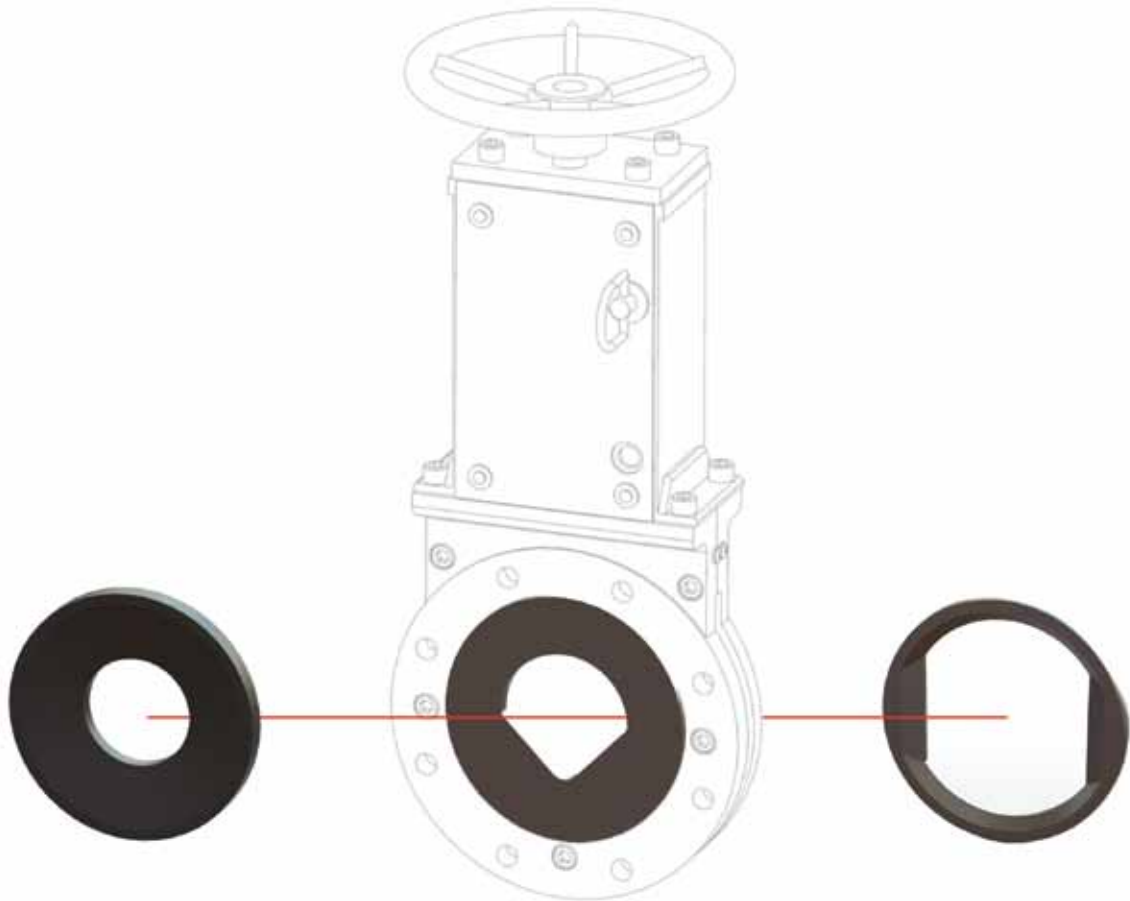
SIZE	PRESSURE IN PIPELINE (DIFFERENTIAL PSI)														
	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
2"	157	187	216	246	276	305	335	365	394	424	454	483	513	543	572
50MM	698	832	961	1,094	1,228	1,357	1,490	1,624	1,753	1,886	2,019	2,148	2,282	2,415	2,544
2.5"	215	256	296	337	378	418	459	499	540	581	621	662	703	743	784
63MM	956	1,139	1,317	1,499	1,681	1,859	2,042	2,220	2,402	2,584	2,762	2,945	3,127	3,305	3,487
3"	215	256	296	337	378	418	459	499	540	581	621	662	703	743	784
80MM	956	1,139	1,317	1,499	1,681	1,859	2,042	2,220	2,402	2,584	2,762	2,945	3,127	3,305	3,487
4"	329	391	453	516	578	640	702	764	827	889	951	1,013	1,075	1,138	1,200
100MM	1,463	1,739	2,015	2,295	2,571	2,847	3,123	3,398	3,679	3,954	4,230	4,506	4,782	5,062	5,338
5"	717	853	988	1,124	1,259	1,395	1,531	1,666	1,802	1,938	2,073	2,209	2,344	2,480	2,616
125MM	3,189	3,794	4,395	5,000	5,600	6,205	6,810	7,411	8,016	8,621	9,221	9,826	10,427	11,032	11,637
6"	717	853	988	1,124	1,259	1,395	1,531	1,666	1,802	1,938	2,073	2,209	2,344	2,480	2,616
150MM	3,189	3,794	4,395	5,000	5,600	6,205	6,810	7,411	8,016	8,621	9,221	9,826	10,427	11,032	11,637
7"	1,172	1,394	1,616	1,837	2,059	2,281	2,503	2,724	2,946	3,168	3,390	3,612	3,833	4,055	4,277
175MM	5,213	6,201	7,188	8,171	9,159	10,146	11,134	12,117	13,104	14,092	15,079	16,067	17,050	18,038	19,025
8"	1,172	1,394	1,616	1,837	2,059	2,281	2,503	2,724	2,946	3,168	3,390	3,612	3,833	4,055	4,277
200MM	5,213	6,201	7,188	8,171	9,159	10,146	11,134	12,117	13,104	14,092	15,079	16,067	17,050	18,038	19,025
10"	1,823	2,168	2,513	2,858	3,203	3,548	3,893	4,238	4,583	4,928	5,273	5,618	5,963	6,308	6,653
250MM	8,109	9,644	11,178	12,713	14,248	15,782	17,317	18,852	20,386	21,921	23,455	24,990	26,525	28,059	29,594
12"	2,670	3,175	3,680	4,185	4,690	5,196	5,701	6,206	6,711	7,216	7,721	8,226	8,731	9,236	9,742
300MM	11,877	14,123	16,369	18,616	20,862	23,113	25,359	27,606	29,852	32,098	34,345	36,591	38,837	41,084	43,335
14"	3,451	4,104	4,757	5,410	6,063	6,716	7,369	8,022	8,675	9,328	9,981	10,634	11,287	11,940	12,593
350MM	15,351	18,256	21,160	24,065	26,970	29,874	32,779	35,684	38,588	41,493	44,398	47,302	50,207	53,112	56,016
16"	4,363	5,188	6,014	6,839	7,665	8,490	9,316	10,141	10,967	11,792	12,617	13,443	14,268	15,094	15,919
400MM	19,408	23,077	26,752	30,421	34,096	37,765	41,440	45,109	48,784	52,453	56,123	59,797	63,467	67,141	70,811
18"	5,079	6,040	7,001	7,962	8,923	9,884	10,845	11,806	12,767	13,728	14,689	15,650	16,611	17,572	18,533
450MM	22,593	26,867	31,142	35,417	39,691	43,966	48,241	52,516	56,790	61,065	65,340	69,615	73,889	78,164	82,439
20"	6,512	7,744	8,976	10,208	11,440	12,672	13,904	15,136	16,368	17,600	18,832	20,064	21,296	22,528	23,760
500MM	28,967	34,447	39,927	45,407	50,888	56,368	61,848	67,328	72,808	78,289	83,769	89,249	94,729	100,210	105,690
22"	7,749	9,215	10,681	12,148	13,614	15,080	16,546	18,012	19,478	20,944	22,410	23,876	25,342	26,808	28,274
550MM	34,469	40,990	47,511	54,037	60,558	67,079	73,600	80,121	86,642	93,164	99,685	106,206	112,727	119,248	125,769
24"	8,987	10,687	12,387	14,087	15,787	17,487	19,188	20,888	22,588	24,288	25,988	27,688	29,388	31,089	32,789
600MM	39,976	47,538	55,100	62,662	70,224	77,786	85,352	92,914	100,476	108,038	115,600	123,162	130,724	138,291	145,853
26"	10,745	12,778	14,810	16,843	18,876	20,909	22,942	24,974	27,007	29,040	31,073	33,106	35,138	37,171	39,204
650MM	47,796	56,839	65,878	74,921	83,965	93,008	102,051	111,090	120,133	129,176	138,220	147,263	156,302	165,345	174,388
28"	11,722	13,939	16,157	18,374	20,592	22,810	25,027	27,245	29,462	31,680	33,898	36,115	38,333	40,550	42,768
700MM	52,142	62,004	71,870	81,612	91,598	101,464	111,326	121,192	131,054	140,920	150,786	160,648	170,514	180,375	190,242
30"	13,480	16,030	18,580	21,131	23,681	26,231	28,781	31,332	33,882	36,432	38,982	41,532	44,083	46,633	49,183
750MM	59,962	71,305	82,648	93,995	105,338	116,681	128,024	139,372	150,715	162,058	173,401	184,744	196,091	207,434	218,777
32"	15,277	18,167	21,058	23,948	26,838	29,729	32,619	35,509	38,399	41,290	44,180	47,070	49,960	52,851	55,741
800MM	67,955	80,811	93,671	106,526	119,381	132,241	145,097	157,952	170,807	183,667	196,522	209,378	222,233	235,093	247,948
36"	18,872	22,442	26,012	29,583	33,153	36,723	40,294	43,864	47,434	51,005	54,575	58,145	61,716	65,286	68,856
900MM	83,947	99,827	115,707	131,592	147,472	163,352	179,237	195,117	210,997	226,882	242,762	258,642	274,526	290,407	306,287
42"	23,401	27,828	32,255	36,682	41,110	45,537	49,964	54,391	58,818	63,246	67,673	72,100	76,527	80,954	85,382
1050MM	104,093	123,785	143,477	163,170	182,866	202,559	222,251	241,943	261,635	281,332	301,025	320,717	340,409	360,101	379,798
48"	29,017	34,507	39,997	54,486	50,976	56,466	61,956	67,445	72,935	78,425	83,915	89,404	94,894	100,384	105,873
1200MM	129,074	153,495	177,916	242,366	226,753	251,173	275,594	300,010	324,431	348,852	373,273	397,689	422,110	446,530	470,947

* THRUST VALUES ARE PROVIDED IN POUND-FORCE (LB-F) IN SHADED ROWS AND NEWTONS (N) IN LIGHT ROWS.

NOTE: ABOVE VALUES ARE BASED ON CLEAR MEDIA USING VITON SEALS

ABOVE NUMBERS ARE SUBJECT TO CHANGE. CONTACT YOUR LOCAL OFFICE FOR DETAILED INFORMATION.

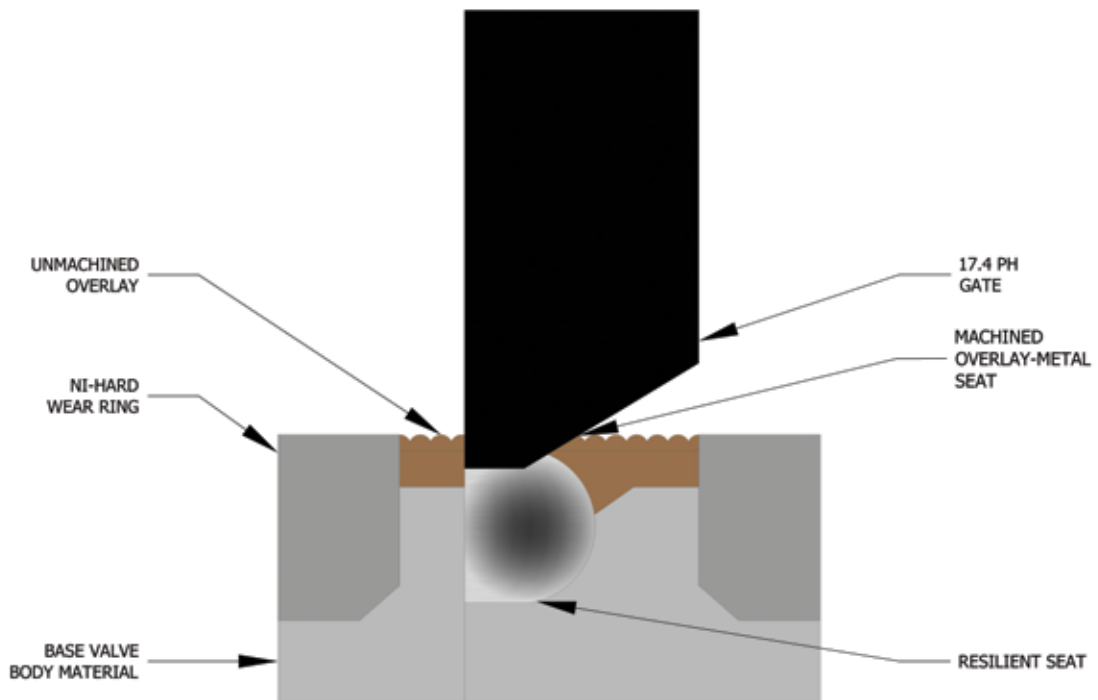
FOR HIGHER DIFFERENTIAL PRESSURES, CLASS 300 (PN50) OR CLASS 600(PN100) VALVES PLEASE CONSULT YOUR LOCAL SALES OFFICE.



F3 – BORE REDUCER

F1 – V-PORT

F4 – NI-HARD WEAR RING



F21 – HARDFACED PORT

F - OPTION LIST

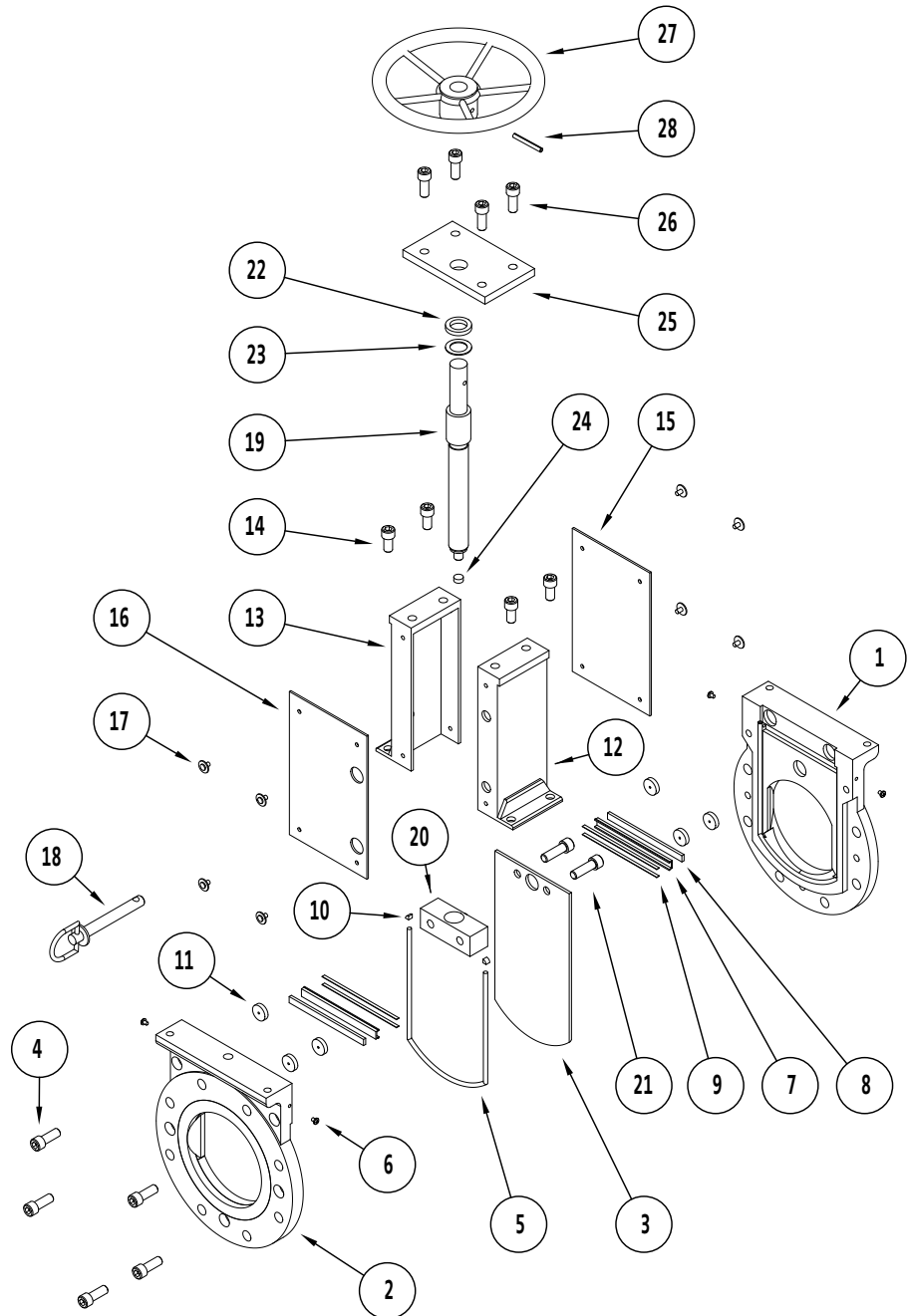
F OPTION	OPTIONS	DESCRIPTION
F1	V-PORT OPTION	THE V-PORT OPTION IS USED IN THROTTLING OR MODULATING SERVICES, USUALLY IN CONJUNCTION WITH AN F7 - POSITIONER. THE V-PORT IS PROTECTED BY A CERAMIC COATING TO ELIMINATE EROSION.
F2	POWDER "CHEST" RELIEF	THE F2 OPTION IS USED IN ANY "POWDER APPLICATION" WHERE 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 AIR PURGE SYSTEM.
F3	BORE REDUCER	THE F3 OPTION IS USED IN PUMP APPLICATIONS WHERE THE PIPE I.D. 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.
F4	NI-HARD WEAR RING	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 BRINELL HARDNESS OF 500.
F5	DRILLED THRU FLANGE HOLES	OUR VALVES HAVE TAPPED FLANGE HOLES STANDARD, BUT CAN BE DRILLED ON REQUEST. THIS IS PRICED ON APPLICATION.
F6	LIMIT SWITCHES (MECH)	THESE ARE TYPICALLY USED WITH AUTOMATED VALVES, BUT CAN ALSO BE USED WITHIN MANUALLY OPERATED VALVES. SWITCHES ARE SET TO SHOW WHEN THE VALVES ARE IN THE FULLY OPENED OR CLOSED POSITION
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 VALVE.
F9	DUAL TRANSVERSE SEAL	THIS OPTION WAS ADDED 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 SPECIFY THE COATING MATERIAL.
F11	SPECIAL PAINT ACTUATOR	SEE F10 OPTION
F12	POSITION INDICATOR	THIS OPTION IS USED WHEN THE OPERATORS CANNOT GET NEAR THE VALVE. THE F12 PROVIDES A HIGHLY VISIBLE EXTERNAL TAB TO SHOW POSITION OF VALVE.
F13	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	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 TIPPED 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 MOD.	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 CYL. 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 BODIES & GATE	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.
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 OF THE PORT.
F21	HARDFACED PORT	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	OVERSIZE 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	OVERSIZE HANDWHEEL	COMMONLY USED TO OFFER MORE LEVERAGE TO MANUALLY OPEN OR CLOSE A VALVE.
F24	HARDCHROME GATE	OPTION TO OVERLAY THE GATE TIP WITH CHROMIUM CARBIDE OR TUNGSTEN TYPE MATERIAL.
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.
F33	ROTARY MANUAL LOCKOUT	HANDWHEEL ROTARY LOCKOUT.
F34	RAISED FACE FLANGES	B16.5 OR B16.47 FLANGE RAISED FACE AS DETERMINED BY SIZE AND CLASS.
F35	MANUAL OVERRIDE	MANUAL OVERRIDE FOR PNEUMATIC CYLINDER.
F36	ROD BOOT	TO PROTECT THE ROD AND SEALS ON PNEUMATIC OR HYDRAULIC CYLINDER.
F67	API 607	MEETS THE CRITERIA FOR API 607.
F99	OTHER MISC. (SPECIFY)	SPECIAL OPTIONS REQUIRED BY THE CUSTOMER AND NOT COVERED BY ABOVE F OPTIONS.

VALVE CONSTRUCTION AND PARTS LIST

DELTA CLASS 150 (PN20) KNIFE GATE VALVE PARTS

CL150 HANDWHEEL

ITEM NO.	DESCRIPTION
1	FRONT BODY HALF
2	BACK BODY HALF
3	GATE
4	BODY BOLT
5	BODY O-RING SEAL (*RK)
6	PACKING SCREW
7	TRANSVERSE SEAL (*RK)
8	PACKING (*RK)
9	SCRAPER BLADE (*RK)
10	QUARTER ROUND SEAL (*RK)
11	GUIDE BUTTON (*RK)
12	LEFT COMMON YOKE
13	RIGHT COMMON YOKE
14	YOKE MOUNTING BOLT
15	FRONT COVER
16	BACK COVER
17	COVER RETAINER
18	LOCK PIN
19*	STEM
20*	STEM NUT
21*	STEM NUT SCREW
22*	THRUST COLLAR
23*	STEM WASHER
24*	STEM THRUST DISC
25*	STEM PLATE
26*	STEM PLATE BOLT
27*	HANDWHEEL
28*	HANDWHEEL PIN
29**	CYLINDER
30**	CYLINDER MOUNTING BOLT
31**	CLEVIS
32**	CLEVIS PIN
33**	SNAP RING
34**	CLEVIS LOCK NUT
35**	CYLINDER PLATE
36**	CYLINDER PLATE BOLT
37***	CENTER BODY
38***	STEM NUT BOLT

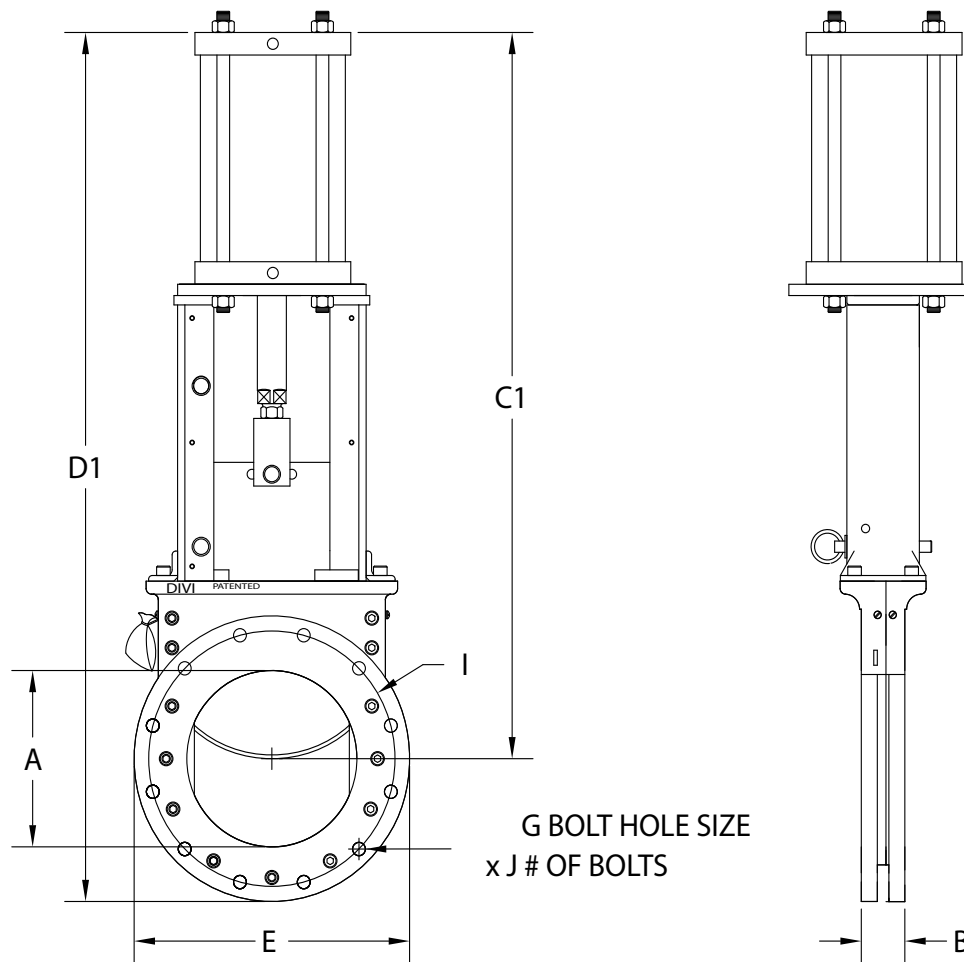
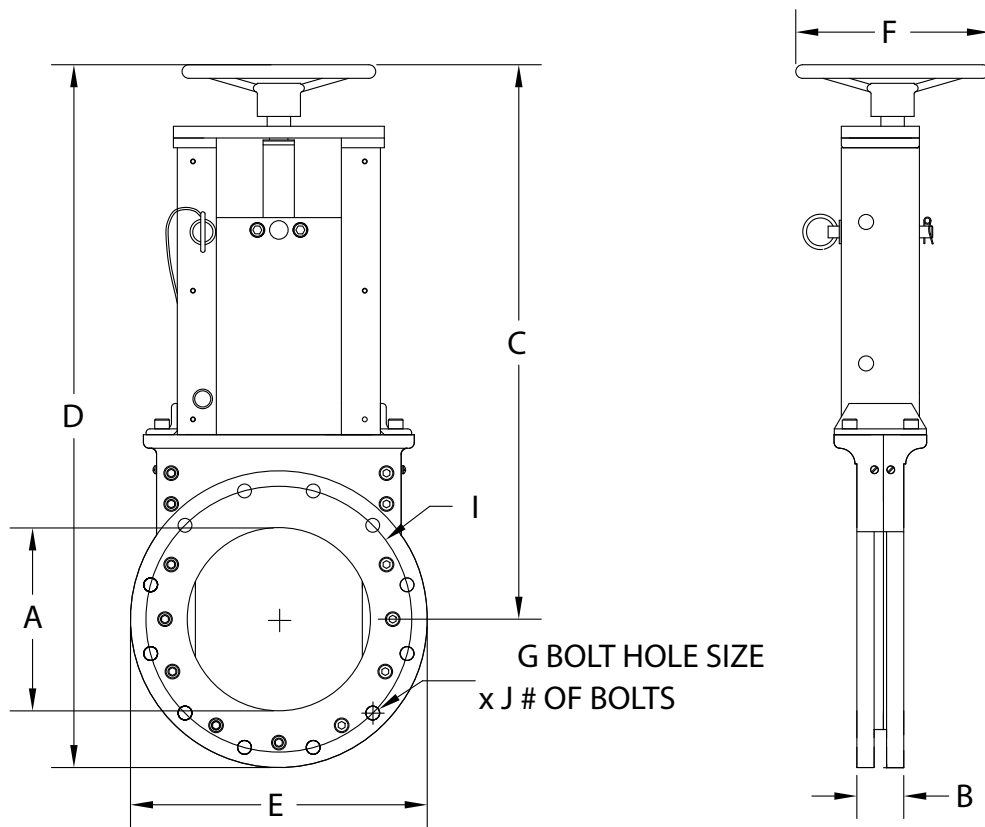


* EXCLUSIVE TO HANDWHEEL

** EXCLUSIVE TO PNEUMATIC

*** EXCLUSIVE TO CBB

*RK REFERS TO PARTS SUPPLIED IN REPAIR KIT



BASIC DIMENSIONS

SERIES 301/300

SIZE	A	B	BS	BL	C	C1	D	D1	E	F	G	H	I	J
NPS	A	B	BS	BL	C	C1	D	D1	E	F	G	H	I	J
2"	1.97	1.88	2.75	2.75	11.63	14.72	14.88	17.97	6.50	6.50	5/8-11	3/4	5.00	8
50MM	50	48	70	70	295	374	378	456	165	165		19	127	8
3"	3.00	2.00	2.75	4.00	16.94	20.75	21.06	24.88	8.25	8.00	3/4-10	7/8	6.62	8
80MM	76	51	70	102	430	527	535	632	210	203		22	168	8
4"	4.00	2.00	2.75	4.12	18.82	22.91	23.82	27.91	10.00	8.00	3/4-10	7/8	7.88	8
100MM	102	51	70	105	478	582	605	709	254	203		22	200	8
5"	6.00	2.25			25.30	32.00	30.80	37.50	11.00	10.00	PER SPEC	PER SPEC	9.25	8
125MM	152	57			643	813	782	953	279	254		PER SPEC	235	8
6"	6.00	2.25	3.15	4.12	25.30	32.00	31.55	38.25	12.50	10.00	3/4-10	7/8	10.63	12
150MM	152	57	80	105	643	813	801	972	318	254		22	270	12
7"	7.00	2.75			26.64	34.31	34.14	41.81	15.00	12.50	PER SPEC	PER SPEC	PER SPEC	12
175MM	178	70			677	872	867	1062	381	318		PER SPEC	PER SPEC	12
8"	7.75	2.75	3.50	4.63	26.64	34.31	34.14	41.81	15.00	12.50	7/8-9	1	13.00	12
200MM	197	70	89	118	677	872	867	1062	381	318		25	330	12
10"	9.80	3.00	4.68	5.38	29.54	40.53	38.29	49.28	17.50	12.50	1-8	1 1/8	15.25	16
250MM	249	76	119	137	750	1029	972	1252	445	318		29	387	16
12"	11.75	5.00	5.00	5.63	37.87	50.50	48.12	60.75	20.50	16.25	1 1/8-8	1 1/4	17.75	16
300MM	298	127	127	143	962	1283	1222	1543	521	413		32	451	16
14"	13.00	5.50	5.50	6.25	43.20	58.05	54.70	69.55	23.00	20.00	1 1/8-8	1 1/4	20.25	20
350MM	330	140	140	159	1097	1474	1389	1767	584	508		32	514	20
16"	15.26	5.50	5.50	6.63	45.85	62.75	58.60	75.50	25.50	20.00	1 1/4-8	1 3/8	22.50	20
400MM	388	140	140	168	1165	1594	1488	1918	648	508		35	572	20
18"	17.00	6.25	6.25	7.00	50.40	68.88	64.40	82.88	28.00	20.00	1 1/4-8	1 3/8	24.75	24
450MM	432	159	159	178	1280	1749	1636	2105	711	508		35	629	24
20"	19.00	7.50	7.44	7.44	53.52	74.51	68.77	89.76	30.50	20.00	1 1/4-8	1 3/8	27.00	24
500MM	483	191	189	189	1359	1893	1747	2280	775	508		35	686	24
24"	23.00	8.67	8.50	8.50	60.48	88.19	78.48	106.19	36.00	20.00	1 1/2-8	1 5/8	32.00	24
600MM	584	220	216	216	1536	2240	1993	2697	914	508		41	813	24
26"	25.00	8.50	8.50	8.50	65.80	94.41	84.93	113.54	38.25	20.00	1 5/8-8	1 3/4	34.50	28
650MM	635	216	216	216	1671	2398	2157	2884	972	508		44	876	28
28"	26.50	10.00	10.00	10.00	67.42	98.27	87.80	118.64	40.75	20.00	1 5/8-8	1 3/4	37.00	28
700MM	673	254	254	254	1712	2496	2230	3014	1035	508		44..4	940	28
30"	28.50	10.50	10.50	10.50	73.57	107.09	95.07	128.59	43.00	20.00	1 3/4-8	1 7/8	39.25	28
750MM	724	267	267	267	1869	2720	2415	3266	1092	508		48	997	28
32"	30.50	10.50	11.50	11.50	88.00	111.00	110.63	133.63	45.25	20.00	1 7/8-8	2	41.50	28
800MM	775	267	292	292	2235	2819	2810	3394	1149	508		51	1054	28
34"	32.50	11.25			94.00	114.00	117.75	137.75	47.50	20.00	1 7/8-8	2	43.50	28
850MM	826	286			2388	2896	2991	3499	1207	508		51	1105	28
36"	35.00	12.00	12.00	12.00	98.67	137.53	123.67	162.53	50.00	20.00	2-8	2 1/8	46.00	32
900MM	889	305	305	305	2506	3493	3141	4128	1270	508		54	1168	32
38"	36.50	12.00			103.00	140.50	126.00	163.50	46.00	20.00	1 1/2-6	1 5/8	43.00	32
950MM	927	305			2616	3569	3200	4153	1168	508		41	1092	32
40"	38.50	12.38			106.00	143.50	130.38	167.88	48.75	20.00	1 5/8-5 1/2	1 3/4	45.50	32
1000MM	978	314			2692	3645	3312	4264	1238	508		44	1156	32
42"	40.50	13.12	12.00	14.75	109.00	146.50	134.38	171.88	50.75	20.00	1 5/8-8	1 3/4	47.50	32
1050MM	1029	333	305	375	2769	3721	3413	4366	1289	508		44	1207	32
44"	42.50	13.88			112.00	149.50	138.63	176.13	53.25	20.00	1 3/4-5	1 7/8	49.75	32
1100MM	1080	352			2845	3797	3521	4474	1353	508		48	1264	32
46"	44.50	14.63			115.00	152.50	142.88	180.38	55.75	20.00	1 7/8-8	2	52.00	28
1150MM	1130	371			2921	3874	3629	4582	1416	508		51	1321	28
48"	46.50	15.00	12.00	16.75	118.00	155.50	146.88	184.38	57.75	20.00	1 7/8-8	2	54.00	32
1200MM	1181	381	305	424	2997	3950	3731	4683	1467	508		51	1372	32

* SHADED ROWS ARE IN INCHES. OTHER ROWS ARE IN MM (NPS)

DIMENSIONS ARE PROVIDED FOR GENERAL LAYOUT PURPOSES. SUBJECT TO CHANGE WITHOUT NOTICE. IF EXACT DIMENSIONS ARE REQUIRED PLEASE REQUEST CERTIFIED DRAWINGS. SERIES 301 IS AVAILABLE UP TO 12". SERIES 300 IS AVAILABLE FROM 2" TO 96". PLEASE CONSULT FACTORY FOR DIMENSIONS ABOVE 48.

BASIC DIMENSIONS

SERIES CBB

SIZE	A	B	C	C1	D	D1	E	F	G	H	I	J
1"	1.00	3.35	11.19	12.84	13.31	14.97	4.25	6.50	1/2-13	N/A	3.13	4
25MM	25	85	284	326	338	380	108	165		N/A	79	4
2"	2.00	3.35	12.13	14.78	15.13	17.78	6.00	6.50	5/8-11	N/A	4.75	4
50MM	51	85	308	375	384	452	152	165		N/A	121	4
3"	3.13	3.22	15.33	18.65	19.08	22.40	7.50	8.00	5/8-11	N/A	6.00	4
80MM	79	82	389	474	485	569	191	203		N/A	152	4
4"	4.00	3.42	17.32	21.90	21.82	26.40	9.00	8.00	5/8-11	3/4	7.50	8
100MM	102	87	440	556	554	671	229	203		19	191	8
5"	5.00	4.04	20.81	27.46	26.31	32.96	11.00	12.00	3/4-10	7/8	8.50	8
125MM	127	103	529	697	668	837	279	305		22	216	8
6"	6.00	4.04	20.81	27.46	26.31	32.96	11.00	12.00	3/4-10	7/8	9.50	8
150MM	152	103	529	697	668	837	279	305		22	241.3	8
7"	7.00	4.53	25.78	34.60	32.53	41.35	13.50	12.50	3/4-10	7/8	PER SPEC.	8
175MM	178	115	655	879	826	1050	343	318		22	PER SPEC.	8
8"	7.88	4.53	25.78	34.60	32.53	41.35	13.50	12.50	3/4-10	7/8	11.75	8
200MM	200	115	655	879	826	1050	343	318		22	298	8
10"	9.88	5.06	28.31	44.50	36.31	52.50	16.00	12.50	7/8-9	1	14.25	12
250MM	251	129	719	1130	922	1334	406	318		25	362	12
12"	11.88	5.17	35.60	50.44	45.10	59.94	19.00	12.50	7/8-9	1	17.00	12
300MM	302	131	904	1281	1146	1522	483	318		25	432	12
14"	13.88	5.86	38.78	56.87	49.28	67.37	21.00	16.00	1-8	1 1/8	18.75	12
350MM	352	149	985	1444	1252	1711	533	406		29	476	12
16"	15.75	6.80	43.68	63.77	55.43	75.52	23.50	20.00	1-8	1 1/8	21.25	16
400MM	400	173	1109	1620	1408	1918	597	508		29	540	16
18"	17.75	6.75	47.08	69.17	59.58	81.67	25.00	20.00	1 1/8-7	1 1/4	22.75	16
450MM	451	171	1196	1757	1513	2074	635	508		32	578	16
20"	19.75	8.01	50.65	74.74	64.40	88.49	27.50	20.00	1 1/8-7	1 1/4	25.00	20
500MM	502	203	1287	1898	1636	2248	699	508		32	635	20
24"	23.75	8.01	58.31	86.40	74.31	102.40	32.00	20.00	1 1/4-7	1 3/8	29.50	20
600MM	603	203	1481	2195	1887	2601	813	508		35	749	20
26"	24.63	10.45	65.01	88.41	82.14	105.54	34.25	20.00	1 1/4-7	1 3/8	31.75	24
650MM	625	265	1651	2246	2086	2681	870	508		35	806	24
28"	27.25	11.55	67.23	98.50	85.48	116.75	36.50	20.00	1 1/4-7	1 3/8	34.00	28
700MM	692	293	1708	2502	2171	2965	927	508		35	864	28
30"	29.25	12.42	70.33	103.59	89.71	122.96	38.75	20.00	1 1/4-7	1 3/8	36.00	28
750MM	743	316	1786	2631	2279	3123	984	508		35	914	28
32"	31.00	9.28	73.32	108.42	94.19	129.30	41.75	20.00	1 1/2-6	1 5/8	38.50	28
800MM	787	236	1862	2754	2392	3284	1060	508		41	978	28
34"	33.00	13.00	76.50	115.25	98.38	137.13	43.75	20.00	1 1/2-6	1 5/8	40.50	32
850MM	838	330	1943	2927	2499	3483	1111	508		41	1029	32
36"	35.00	12.67	82.23	122.06	105.23	145.06	46.00	20.00	1 1/2-6	1 5/8	42.75	32
900MM	889	322	2089	3100	2673	3685	1168	508		41	1086	32
38"	37.00	12.33	85.50	127.00	109.88	151.38	48.75	20.00	1 1/2-6	1 5/8	45.25	32
950MM	940	313	2172	3226	2791	3845	1238	508		41	1149	32
40"	38.50	10.52	87.77	131.56	113.14	156.93	50.75	20.00	1 1/2-6	1 5/8	47.25	36
1000MM	978	267	2229	3341	2874	3986	1289	508		41	1200	36
42"	41.00	17.90	90.31	144.43	116.81	170.93	53.00	20.00	1 1/2-6	1 5/8	49.50	36
1050MM	1041	455	2294	3669	2967	4342	1346	508		41	1257	36
44"	43.00	16.33	93.50	150.40	121.13	178.03	55.25	20.00	1 1/2-6	1 5/8	51.75	40
1100MM	1092	415	2375	3820	3077	4522	1403	508		41	1314	40
46"	45.00	17.00	96.50	156.40	125.13	185.03	57.25	20.00	1 1/2-6	1 5/8	53.75	40
1150MM	1143	432	2451	3973	3178	4700	1454	508		41	1365	40
48"	45.60	15.77	100.93	150.40	130.68	180.15	59.50	20.00	1 1/2-6	1 5/8	56.00	44
1200MM	1158	401	2564	3820	3319	4576	1511	508		41	1422	44

* SHADED ROWS ARE IN INCHES. OTHER ROWS ARE IN MM (NPS)

DIMENSIONS ARE PROVIDED FOR GENERAL LAYOUT PURPOSES. SUBJECT TO CHANGE WITHOUT NOTICE. IF EXACT DIMENSIONS ARE REQUIRED PLEASE REQUEST CERTIFIED DRAWINGS.

BASIC DIMENSIONS

SERIES 150

SIZE	A	B	BS	BL	C	C1	D	D1	E	F	G	H	I	J
1"	1.00	1.88			11.19	12.84	13.31	14.97	4.25	6.50	1/2-13	N/A	3.13	4
25MM	25	48			284	326	338	380	108	165		N/A	79	4
2"	2.00	1.88	2.00	2.75	12.13	14.78	15.13	17.78	6.00	6.50	5/8-11	N/A	4.75	4
50MM	51	48	51	70	308	375	384	452	152	165		N/A	121	4
3"	3.13	2.00	2.00	4.00	15.33	18.65	19.08	22.40	7.50	8.00	5/8-11	N/A	6.00	4
80MM	79	51	51	102	389	474	485	569	191	203		N/A	152	4
4"	4.00	2.00	2.00	4.12	17.32	21.90	21.82	26.40	9.00	8.00	5/8-11	3/4	7.50	8
100MM	102	51	51	105	440	556	554	671	229	203		19	191	8
5"	5.00	2.25			20.81	27.46	26.31	32.96	11.00	12.00	3/4-10	7/8	8.50	8
125MM	127	57			529	697	668	837	279	305		22	216	8
6"	6.00	2.25	2.25	2.50	20.81	27.46	26.31	32.96	11.00	12.00	3/4-10	7/8	9.50	8
150MM	152	57	57	64	529	697	668	837	279	305		22	241	8
7"	7.00	2.75			25.78	34.60	32.53	41.35	13.50	12.50	3/4-10	7/8	PER SPEC.	8
175MM	178	70			655	879	826	1050	343	318		22	PER SPEC.	8
8"	7.88	2.75	2.75	2.88	25.78	34.60	32.53	41.35	13.50	12.50	3/4-10	7/8	11.75	8
200MM	200	70	70	73	655	879	826	1050	343	318		22	298	8
10"	9.88	2.75	2.75	3.12	28.31	44.50	36.31	52.50	16.00	12.50	7/8-9	1	14.25	12
250MM	251	70	70	79	719	1130	922	1334	406	318		25	362	12
12"	11.88	3.00	3.00	3.25	35.60	50.44	45.10	59.94	19.00	12.50	7/8-9	1	17.00	12
300MM	302	76	76	83	904	1281	1146	1522	483	318		25	432	12
14"	13.88	3.00	3.00	3.62	38.78	56.87	49.28	67.37	21.00	16.00	1-8	1 1/8	18.75	12
350MM	352	76	76	92	985	1444	1252	1711	533	406		29	476	12
16"	15.75	3.50	3.50	3.75	43.68	63.77	55.43	75.52	23.50	20.00	1-8	1 1/8	21.25	16
400MM	400	89	89	95	1109	1620	1408	1918	597	508		29	540	16
18"	17.75	3.50	3.50	4.12	47.08	69.17	59.58	81.67	25.00	20.00	1 1/8-8	1 1/4	22.75	16
450MM	451	89	89	105	1196	1757	1513	2074	635	508		32	578	16
20"	19.75	4.50	4.50	4.50	50.65	74.74	64.40	88.49	27.50	20.00	1 1/8-8	1 1/4	25.00	20
500MM	502	114	114	114	1287	1898	1636	2248	699	508		32	635	20
24"	23.75	4.50	4.50	5.00	58.31	86.40	74.31	102.40	32.00	20.00	1 1/4-8	1 3/8	29.50	20
600MM	603	114	114	127	1481	2195	1887	2601	813	508		35	749	20
26"	24.63	6.00	6.75	7.09	65.01	88.41	82.14	105.54	34.25	20.00	1 1/4-8	1 3/8	31.75	24
650MM	625	152	171	180	1651	2246	2086	2681	870	508		35	806	24
28"	27.25	7.00	7.12	7.12	67.23	98.50	85.48	116.75	36.50	20.00	1 1/4-8	1 3/8	34.00	28
700MM	692	178	181	181	1708	2502	2171	2965	927	508		35	864	28
30"	29.25	7.00	7.38	8.25	70.33	103.59	89.71	122.96	38.75	20.00	1 1/4-8	1 3/8	36.00	28
750MM	743	178	187	210	1786	2631	2279	3123	984	508		35	914	28
32"	31.00	5.00	8.12	8.62	73.32	108.42	94.19	129.30	41.75	20.00	1 1/2-8	1 5/8	38.50	28
800MM	787	127	206	219	1862	2754	2392	3284	1060	508		41	978	28
34"	33.00	7.50			76.50	115.25	98.38	137.13	43.75	20.00	1 1/2-8	1 5/8	40.50	32
850MM	838	191			1943	2927	2499	3483	1111	508		41	1029	32
36"	35.00	7.00	8.88	9.84	82.23	122.06	105.23	145.06	46.00	20.00	1 1/2-8	1 5/8	42.75	32
900MM	889	178	226	250	2089	3100	2673	3685	1168	508		41	1086	32
38"	37.00	8.25			85.50	127.00	109.88	151.38	48.75	20.00	1 1/2-8	1 5/8	45.25	32
950MM	940	210			2172	3226	2791	3845	1238	508		41	1149	32
40"	38.50	6.00			87.77	131.56	113.14	156.93	50.75	20	1 1/2-8	1 5/8	47.25	36
1000MM	978	152			2229	3341	2874	3986	1289	508		41	1200	36
42"	41.00	12.00	9.75	12.00	98.31	144.43	124.81	170.93	53.00	20.00	1 1/2-8	1 5/8	49.50	36
1050MM	1041	305	248	305	2497	3669	3170	4342	1346	508		41	1257	36
44"	43.00	10.00			101.31	150.40	128.94	178.03	55.25	20.00	1 1/2-8	1 5/8	51.75	40
1100MM	1092	254			2573	3820	3275	4522	1403	508		41	1314	40
46"	45.00	10.50			104.31	156.40	132.94	185.03	57.25	20.00	1 1/2-8	1 5/8	53.75	40
1150MM	1143	267			2649	3973	3377	4700	1454	508		41	1365	40
48"	45.60	10.00	11.50	16.50	100.93	150.40	130.68	180.15	59.50	20.00	1 1/2-8	1 5/8	56.00	44
1200MM	1158	254	292	419	2564	3820	3319	4576	1511	508		41	1422	44

B = SP81

BS = SP135 SHORT PATTERN

BL = SP135 LONG PATTERN

D = HEIGHT DIMENSION FOR HANDWHEEL. ADD 5 INCHES WHEN GEAR IS USED

D1 = HEIGHT DIMENSION FOR PNEUMATIC

G = SIZE AND THREAD OF TAPPED FLANGE HOLES

H = CLEARANCE HOLE DIAMETER (A)

I = BOLT CIRCLE DIAMETER

J = NUMBER OF BOLT HOLES

26" AND ABOVE AS PER ASME B16.47 SERIES A. SERIES B AVAILABLE UPON REQUEST.

H - SIZE OF OPTIONAL "THROUGH" FLANGE HOLES.

METRIC FLANGE DRILLING ALSO AVAILABLE

* SHADED ROWS ARE IN INCHES. OTHER ROWS ARE IN MM (NPS)

DIMENSIONS ARE PROVIDED FOR GENERAL LAYOUT PURPOSES. SUBJECT TO CHANGE WITHOUT NOTICE. IF EXACT DIMENSIONS ARE REQUIRED PLEASE REQUEST CERTIFIED DRAWINGS.

DELTA WEIGHT CHARTS

SERIES 150		
SIZE	HANDWHEEL	PNEUMATIC
1"	21	34
25MM	10	15
2"	23	37
50MM	10	17
3"	33	48
80MM	15	22
4"	49	85
100MM	22	39
5"	95	141
125MM	43	64
6"	95	141
150MM	43	64
7"	150	214
175MM	68	97
8"	150	214
200MM	68	97
10"	190	403
250MM	86	183
12"	310	669
300MM	140	303
14"	401	958
350MM	182	434
16"	500	1,064
400MM	227	482
18"	768	1,345
450MM	348	609
20"	994	1,651
500MM	450	748
24"	1,641	2,300
600MM	743	1,042
26"	2,252	2,816
650MM	1,020	1,276
28"	2,500	3,081
700MM	1,133	1,396
30"	2,834	3,415
750MM	1,284	1,547
32"	2,374	2,964
800MM	1,075	1,343
34"	2,999	3,699
850MM	1,359	1,676
36"	3,624	4,324
900MM	1,642	1,959
38"	3,825	4,525
950MM	1,733	2,050
40"	4,026	5,726
1000MM	1,824	2,594
42"	6,330	7,330
1050MM	2,867	3,320
44"	6,631	7,731
1100MM	3,004	3,502
46"	6,900	8,100
1150MM	3,126	3,669
48"	7,200	8,700
1200MM	3,262	3,941

SERIES 301 & 300		
SIZE	HANDWHEEL	PNEUMATIC
1"	21	34
25MM	10	15
2"	33	48
50MM	15	22
3"	55	72
80MM	25	33
4"	64	99
100MM	29	45
5"	145	231
125MM	66	105
6"	152	238
150MM	69	108
7"	195	319
175MM	88	144
8"	195	319
200MM	88	144
10"	234	447
250MM	106	203
12"	720	1,068
300MM	326	484
14"	902	1,448
350MM	409	656
16"	951	1,530
400MM	431	693
18"	1,369	1,923
450MM	6,206	871
20"	2,148	2,656
500MM	973	1,203
24"	3,448	3,974
600MM	1,562	1,800
26"	3,430	4,067
650MM	1,554	1,842
28"	4,020	4,575
700MM	1,821	2,072
30"	4,985	5,624
750MM	2,258	2,548

SERIES CBB		
SIZE	HANDWHEEL	PNEUMATIC
1"	25	39
25MM	11	18
2"	27	41
50MM	12	19
3"	41	56
80MM	18	25
4"	60	96
100MM	27	44
5"	120	166
125MM	54	75
6"	120	166
150MM	54	75
7"	182	246
175MM	82	111
8"	182	246
200MM	82	111
10"	236	449
250MM	107	203
12"	400	759
300MM	181	344
14"	584	1,141
350MM	264	517
16"	748	1,312
400MM	339	594
18"	1,070	1,647
450MM	485	746
20"	1,361	2,018
500MM	617	914
24"	2,146	2,805
600MM	972	1,271

* SHADED ROWS ARE IN INCHES & POUNDS. OTHER ROWS ARE IN MM & KILOS.

SERIES 150 AVAILABLE FROM 2" TO 96". PLEASE CONSULT FACTORY FOR DIMENSIONS ABOVE 48".

WEIGHTS GIVEN ARE FOR STANDARD MATERIALS AND ACTUATION. SUBJECT TO CHANGE. IF EXACT WEIGHTS ARE REQUIRED, PLEASE CONTACT YOUR LOCAL SALES OFFICE.



**The world's best
isolation valve
for high scaling
applications.**

DESIGN & CONSTRUCTION BENEFITS

Delta's guided shear gates are designed to repeatedly close and provide Bi-Directional Zero Leakage isolation no matter what the pipe contains.

The gate's chisel shaped tip is fully guided in its travel and brings its shearing action to a machined interface in the valve body. Guiding concentrates the tip's force at a precise point allowing the Delta knife gate to crush, cut, sever and expel solids that may be in the fluid stream.

This makes Delta the world's best isolation valve for scaling applications where traditional valves become inoperable due to cementation or precipitation of the solids that were in solution or suspension.

The elastomeric or polymeric seat is retained by a precisely machined groove to position the seat at the edge of the guided gate and chisel tip which allows the valve to seal equally well from either flow direction and without regard to pressure differential, whether in vacuum service or full ASME rating pressure. This feature makes the Delta valve ideal for pump isolation. On suction duty, where there is little differential pressure, the Delta knife gate seals tightly. On discharge isolation, where the valve often must seal tightly from either direction under varying pressure differentials, the truly bi-directional axial sealing Delta performs perfectly.

Delta's full port design also helps protect the sealing surfaces from erosive and abrasive flows while allowing maximum volumes at minimum pressure losses.

The 2-piece body construction allows Delta to finely machine the valve with tight tolerances and tailor the basic design to many specialized and engineered solutions. If you have a special requirement, we will be pleased to offer our proposal. Simply fill out the Isolation Valve Specification Form on page 24.

Custom sizes and shapes available



MATERIALS

Standard production of Delta Industrial knife gate valves use castings for the body and wrought or forged materials for the gates, stems and bonnet. Special service requirements can use body materials in wrought plate or forged shapes. Materials follow ASTM or DIN standards.

MATERIAL NAME	CODE	MATERIAL NAME	CODE
17-4PH CB7CU1-C900	17	CHROME CARBIDE*	CC
22%CR DUPLEX (2205)	22	DUCTILE IRON	DI
25%CR DUPLEX (2507)	25	DUCTILE NI-RESIST	DN
254-SMO	6M	HASTELLOY C-276	HC
316 STAINLESS	5S	INCONEL 625	IN
317 STAINLESS	37	MONEL	MO
904L	94	NICKEL	NI
AL-6XN	6X	NI-HARD**	NH
ALLOY 20	A2	NI-RESIST	NR
ALLOY 31	31	TITANIUM GR 2	T2
CAST IRON (GRAY)	CI	TITANIUM GR 5	T5
CARBON STEEL	CS	TITANIUM GR 8A	T8
CD-4MCU	CD	TITANIUM GR 12	TT
OTHER	XX	TUNGSTEN CARBIDE*	TC

* OVERLAY ** BODY INSERT

*Delta's guided shear gates provide
Bi-Directional Zero Leakage isolation.*

Delta valves offer innovative design, customizable features and an unmatched record of dependability.

OPERATOR & ACTUATOR OPTIONS

- » Electro-Hydraulic
- » Electric Multi-Turn
- » Gear Operator (Bevel and Spur)
- » Handwheel
- » Hydraulic Cylinder (3000-psig rated)
- » Pneumatic Cylinder Double Acting (150-psig rated)
- » Pneumatic Cylinder Spring Return
- » Ratchet

AUTOMATION & ACCESSORIES:

The Delta bonnet is designed for automation and provides a stable and clean environment for all accessories. All Delta valves are provided with two 12mm tapped mounting holes for proximity switches. 18mm holes are available as an option.

Optional accessories mounted and calibrated:

- » Fieldbus Communication Modules
- » Inductive Proximity Switches with LEDs
- » Junction Boxes
- » Pilot Solenoids
- » Positioners
- » Position Transmitters



HOW TO SPECIFY DELTA INDUSTRIAL KNIFE GATE VALVES



SERIES	
150	(150 CWP VALVES)
300	(10-96 INCH, 300-740 CWP)
301	(3-8 INCH CLASS 300)
600	(CLASS 600)
CBB	(CENTER BLOCK & BLEED SERIES)
15S	(SERIES 150-SP-135 SHORT)
15L	(SERIES 150-SP-135 LONG)
30S	(SERIES 300-SP-135 SHORT)
30L	(SERIES 300-SP-135 LONG)
TIV	
R	(RECTANGULAR)
S	(SQUARE)

SIZE (INCHES - MILLIMETERS)	
1 IN - 25MM	01
2 IN - 50MM	02
3 IN - 80MM	03
4 IN - 100MM	04
5 IN - 125MM	05
6 IN - 150MM	06
7 IN - 175MM	07
8 IN - 200MM	08
10 IN - 250MM	10
12 IN - 300MM	12
14 IN - 350MM	14
16 IN - 400MM	16
18 IN - 450MM	18
20 IN - 500MM	20
22 IN - 550MM	22
24 IN - 600MM	24
26 IN - 650MM	26
28 IN - 700MM	28
30 IN - 750MM	30
32 IN - 800MM	32
36 IN - 900MM	36
42 IN - 1,050MM	42
48 IN - 1,200MM	48
60 IN - 1,500MM	60
70 IN - 1,750MM	70
72 IN - 1,800MM	72
90 IN - 2,250MM	90
96 IN - 2,400MM	96

BODY MATERIAL	
NI-RESIST	NR
316 SS (CF8M)	SS
CAST IRON	CI
CARBON STEEL	CS
17.4 PH SS (CB7CU1)	CB
ALLOY 20 (CN-7M)	A2
ALLOY 31	31
2205 (CD3MN)	22
2507 (CE3MN)	25
AL6XN (CN3MN) (254SMO EQUIV)	6X
HASTELLOY C (CW12MW)	HC
TITANIUM GRADE 2	T2
TITANIUM GRADE 5	T5
TITANIUM GRADE 8	T8
TITANIUM GRADE 12	TT
OTHER (SPECIFY)	XX

GATE MATERIAL	
316 SS	SS
17.4 PH SS	17
2205	22
2507	25
AL6XN (254SMO EQUIV)	6X
HASTELLOY C	HC
TITANIUM GRADE 2	T2
TITANIUM GRADE 5	T5
TITANIUM GRADE 8	T8
TITANIUM GRADE 12	TT
D55 (GATOR GATE)	D5
OTHER (SPECIFY)	XX

SEALS	
BUNA N	E1
VITON	E2
TEFLON	E3
EPDM	E4
AFLAS	E5
GRAPHITE O-RING WITH AFLAS TRANSSEAL	E6
POLYURETHANE O-RING WITH AFLAS TRANSSEAL	E7
CHEMRAZ	E8
GFLT VITON	E9
SPECIAL (SPECIFY)	EX

SCRAPERS	
PHENOLIC SCRAPERS	1
BRASS SCRAPERS	2
SS SCRAPERS	3
SPECIAL (SPECIFY)	X

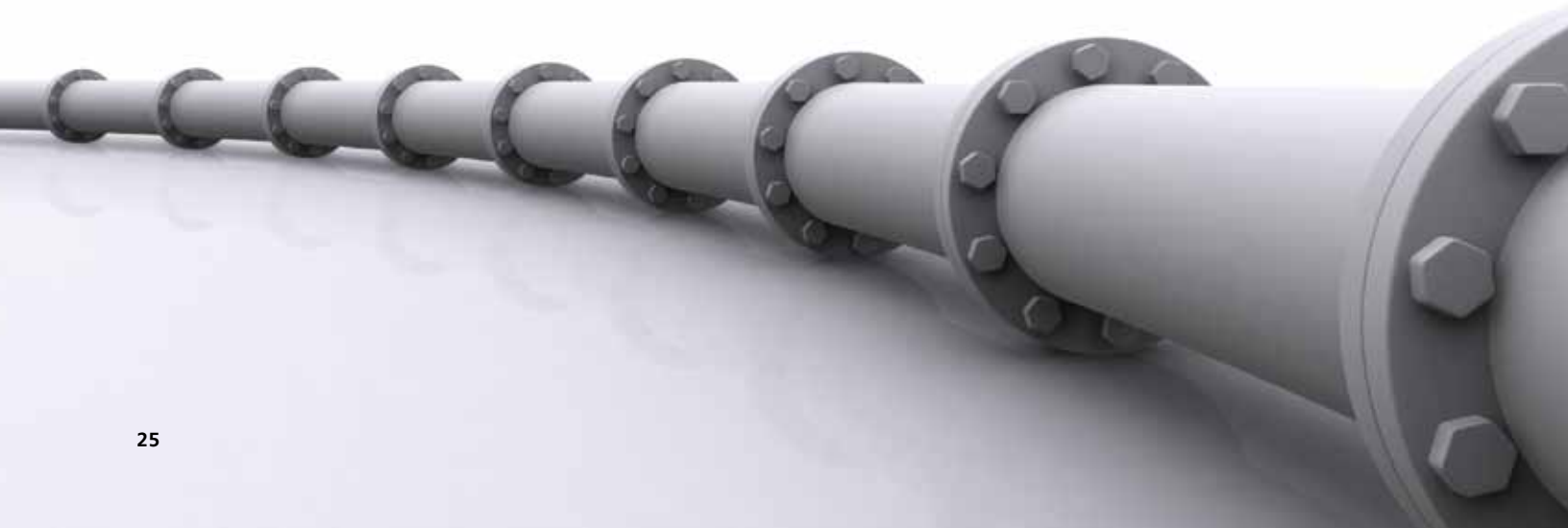
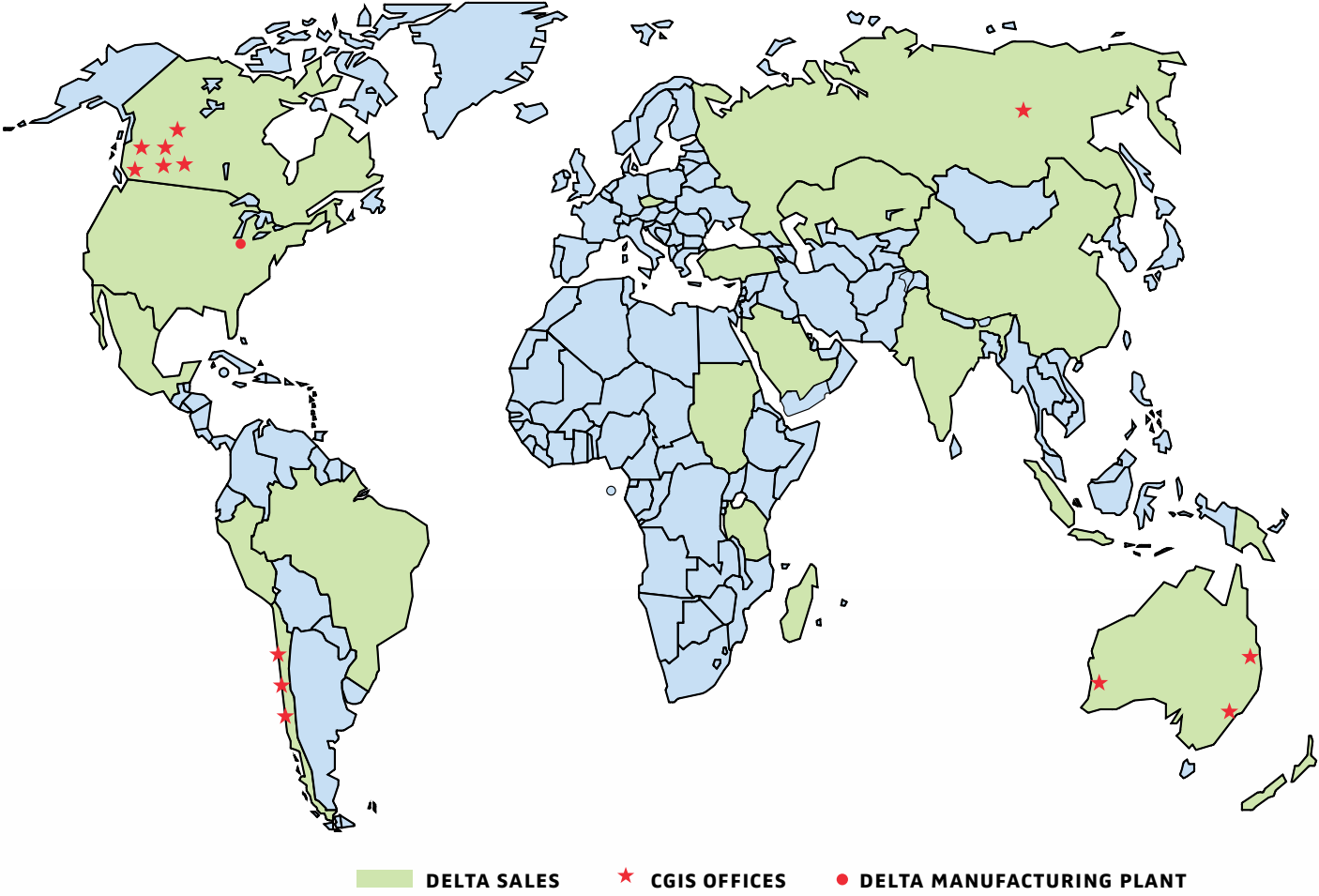
ACTUATION	
HANDWHEEL	HW
CHAINWHEEL	CW
PNEUMATIC CYLINDER	PC
SPRING RETURN CYLINDER	SPC
HYDRAULIC CYLINDER	HC
BEVEL GEAR	BG
GEAR OPERATOR	GO
ELECTRIC OPERATOR	EA
RATCHET HANDLE	RH
HAND LEVER	HL
LOW PROFILE	LP
BODY & BLADE (GATE)	BB

OPTIONS	
V-PORT	F1
POWDER "CHEST" RELIEF	F2
BORE REDUCER	F3
NI-HARD WEAR RING	F4
DUAL NI-HARD WEAR RINGS	D4
DRILLED THRU FLANGE HOLES	F5
LIMIT SWITCHES (MECH)	F6
PROX SWITCHES	F6P
POSITIONER (4-20MA)	F7E
POSITIONER (3-15 PSI AIR)	F7P
CONTROL SOLENOID	F8
DUAL TRANSVERSE SEAL	F9
SPECIAL PAINT	F10
SPECIAL PAINT ACTUATOR	F11
POSITION INDICATOR	F12
SS TOPWORKS	F13
SS BODY BOLTS	F14
STELLITE TIPPED GATE	F15
GATE GUIDE MODIFIED	F16
OPTIONAL CYL. SIZE	F17
XYLAN BODIES & GATE	F18
XYLAN GATE	F18G
PURGE PORTS (CHEST)	F19
PURGE PORTS (SEAT)	F20
HARDFACED PORT	F21
OVERSIZE PACKWELLS	F22
OVERSIZE HANDWELL	F23
HARDCHROME GATE	F24
EXTRA ID TAGS	F25
JOB SPECIFIC DRAWINGS	F26
FLUSH OUT EXTENSION	F27
ROTARY LOCKOUT (MANUAL VALVES)	F33T
RAISED FACE FLANGES	F34
MANUAL OVERRIDE FOR PNEUMATIC CYLINDER	F35
ROD BOOT	F36
API 607 RATING	F67
OTHER MISC. (SPECIFY)	F99

NOTE: STANDARD BODY IS CAST MATERIAL. WROUGHT MATERIAL AVAILABLE UPON REQUEST.

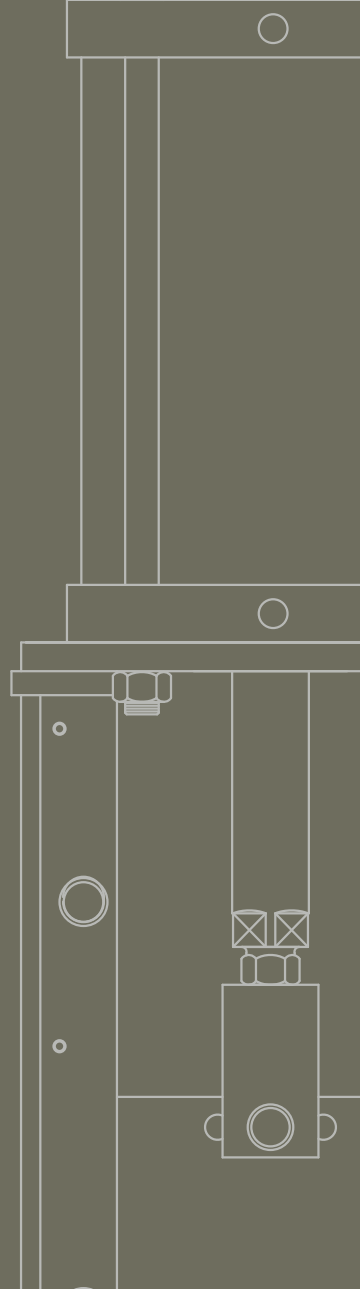
VALVE SPECIFICATION FORM

1	FLUID					
	SERVICE CONDITIONS	UNITS	MAX	NORM	MIN	
2	FLOW RATE					
3	INLET PRESSURE					
4	PRESSURE AT SHUT-OFF					
5	INLET TEMPERATURE					
6	SPEC WT/SPEC GRAV/MOL WT					
7	VISCOSITY/SPEC HEATS RATIO					
8	VAPOUR PRESSURE PV					
9	SLURRY % SOLIDS					
10	SOLIDS SIZE					
10	PH RANGE					
12	SCALE POTENTIAL	HIGH / LOW / ZERO				
13	POSSIBLE ALIEN OBJECTS					
	LINE			ACTUATOR		
14	PIPE LINE SIZE & IN _____		48	TYPE		
15	SCHEDULE _____ OUT _____		49	MFR & MODEL		
16	PIPE MATERIAL		50	GAS SUPPLY PSIG _____ AIR N2 FUEL GAS OR		
17	VALVE ORIENTATION		51	HYDRAULIC SUPPLY PSIG OR		
	VALVE BODY/BONNET		52	VOLTAGE _____ AREA CLASSIFICATION _____		
18	TYPE		53	LOSS OF SIGNAL POSITION: LAST OPEN CLOSE		
19	SIZE CLASS/RATING		54	LOSS OF POWER POSITION: LAST OPEN CLOSE		
20	MAX PRES/TEMP		55	PNEUMATIC ALLOW PRESSURE: MAX _____ MIN _____		
21	MFR & MODEL		56	MAX SYSTEM PRESSURE FOR ACTUATOR SIZING:		
22	BODY/BONNET MATL		57	AMBIENT TEMP RATING		
23	END IN _____		58	ACTUATOR ORIENTATION		
24	CONNECTION OUT _____		59	OVERRIDE YES NO		
25	FLG FACE FINISH		60	COATINGS YES NO FIREPROOFING YES NO		
	ISOLATION DIRECTION 1 WAY 2 WAY			PILOT SOLENOID		
27	TYPE OF BONNET		61	TYPE QUANTITY		
28	PACKING MATERIAL		62	MFR & MODEL		
29	PACKING TYPE		63	AREA CLASSIFICATION/CV _____ / _____		
30	EMISSIONS ALLOWABLE		64	VOLTAGE DETENTED YES NO		
	TRIM		65	SPEED CONTROLS NO ONE TWO		
31	TYPE			SWITCHES		
32	SIZE RATED TRAVEL		66	TYPE QUANTITY		
33	CHARACTERISTIC		67	MFR & MODEL		
34	RATED CV		68	CONTACTS/RATING _____ / _____		
35	PLUG/BALL/DISK/GATE MATERIAL		69	AREA CLASSIFICATION		
36	SEAT MATERIAL		70	FIELD BUS		
37	STEM MATERIAL			AIR SET		
	ISOLATION PERFORMANCE REQUIREMENT		71	MFR & MODEL		
38	ZERO LEAKAGE YES NO BI-DIRECTION		72	SET PRESSURE		
39	ALLOWABLE LEAKAGE: CLASS V VI		73	FILTER GAUGE		
40	ISOLATION DIRECTION: 1 WAY 2 WAY		74	TUBING/FITTINGS /		
41	EQUAL Δ P: YES NO			TESTS		
42	Δ P WHEN ISOLATING: _____		75	HYDRO PRESSURE CLASS/RATING		
		CYCLES	TIME	76	API 598 RESILIENT ZERO LEAKAGE YES NO	
43	DURATION OF ISOLATION QUALITY			77	ASME / FCI / ISO LEAKAGE CLASS	
44	NORMAL OPERATING POSITION: OPEN CLOSED				SPECIALS	
		UNITS	MAX	MIN	78	PIPE CLEANING METHOD/FREQUENCY
45	CYCLES PER				79	PIPE LINE INSULATION
46	NORMAL TIME BETWEEN CYCLES				80	PREVIOUS VALVE MODEL / TYPE _____ / _____
47	REQUIRED CYCLE TIME					





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