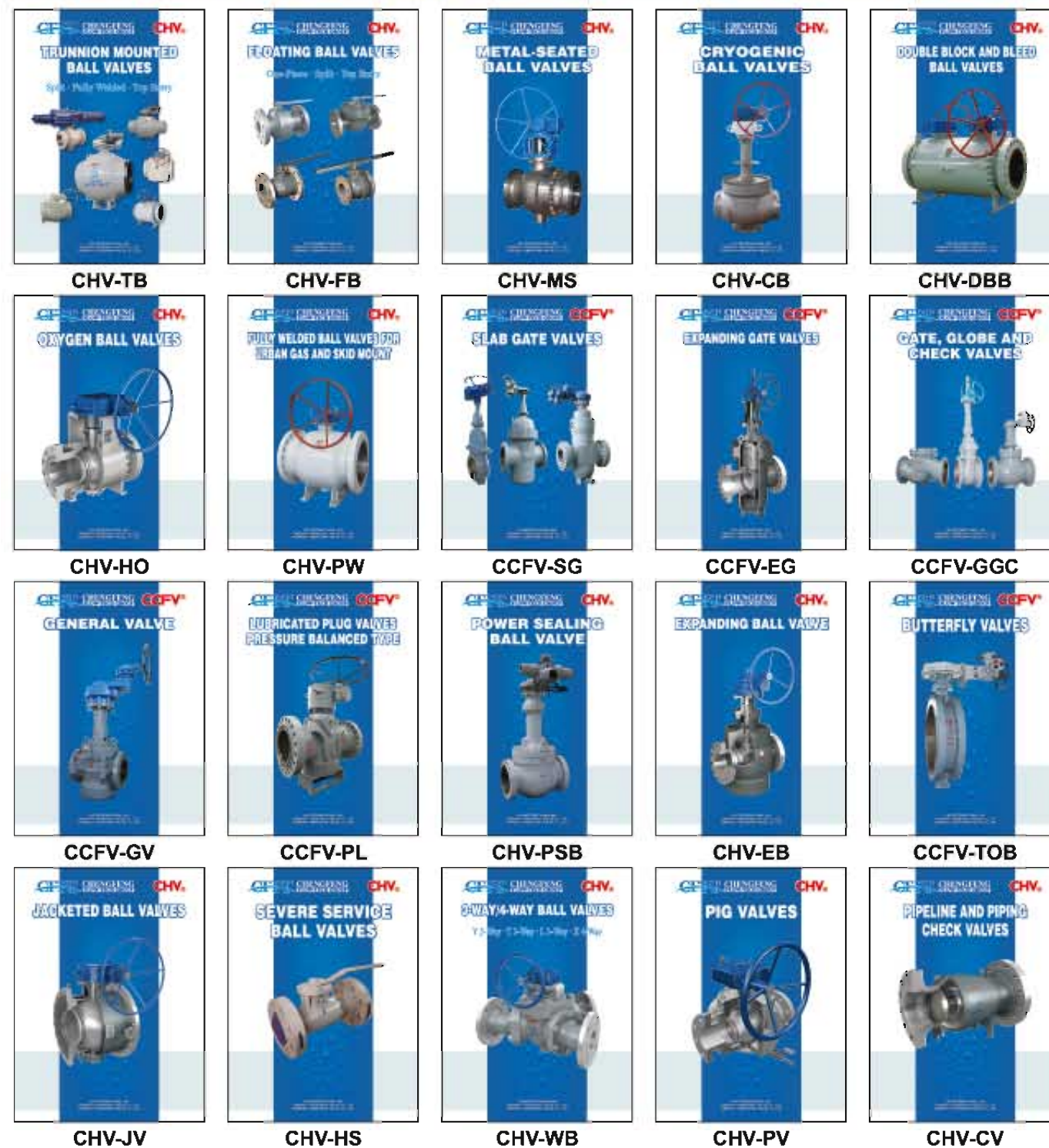


THE MOST COMPREHENSIVE INDUSTRIAL SOLUTION FOR FORGED STEEL AND CAST STEEL
BALL, GATE, GLOBE, CHECK, PLUG, BUTTERFLY AND PIG VALVES

COMPLETE SOLUTIONS

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CHENGFENG FLOW-TECH GROUP

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CCFV-EG-1601



CHENGFENG
FLOW-TECH GROUP

CCFV®

EXPANDING GATE VALVES



CHV INTERNATIONAL, INC.
CHENGDU CHENGGAO VALVE CO., LTD.
CHENGDU CHENGFENG VALVE CO., LTD.

PROFILE

CHENGFENG FLOW-TECH GROUP

Chengfeng Flow-Tech Group, headquartered in Chengdu, China, is the leading flow technology company in China. Being a high-tech group specialized in R&D, manufacturing of industrial valves, and being one of the core suppliers to Petro-China, SINOPEC and CNOOC for decades, it has transformed into a multi-dimensional group that is committed to providing the most complete solutions to the oil&gas markets. With industry-leading facilities, innovative technical teams and highly professional engineers, its top-notch services cover various realms in the energy sector – valve manufacturing and maintenance, fluids equipment solutions, flow control solutions and industrial data analytics, etc.

Chengfeng's products have been widely used in the oil&gas pipelines, petrochemical industries, aerospace industry and power stations, etc. Chengfeng's top two brands, CHV and CCFV, have established the nationwide reputation for their quality and service. Now, Chengfeng Flow-Tech Group has begun its new adventure – serving the world market.

CHENGDU CHENGGAO VALVE CO., LTD. (CHV)

CHV was founded in 1993, and has been specialized in the R&D and manufacturing of mid&high end ball valves ever since. CHV offers complete ball valve product lines. Among all the product lines, the High Pressure Large Diameter Fully Welded Ball Valves have captured more than half the domestic fully welded ball valve market. High Temperature Metal-Seated Oxygen Ball Valve and NACE Ball Valve are also leading the domestic market.

CHENGDU CHENGFENG VALVE CO., LTD. (CCFV)

CCFV was founded in 1966. Its main product lines include slab gate valves, expanding gate valves, tri-eccentric butterfly valves, check valves, globe valves and plug valves, etc. CCFV is leading the domestic slab gate valve market, taking up 70% of the oil transportation and storage sector.

CHV INTERNATIONAL, INC.

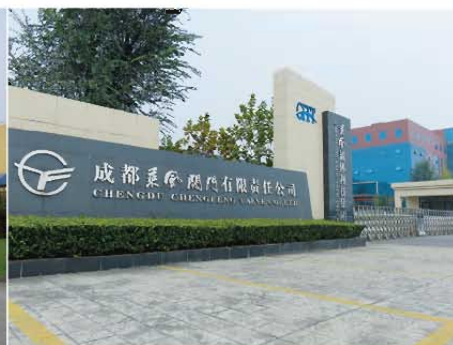
CHV International, Inc. is the newest branch of Chengfeng Flow-Tech Group. Based in Houston, Texas, U.S.A, its mission is to shorten the distance between the Group and the international market by providing faster response and better service to our customers around the globe.

CERTIFICATION

Chengfeng Flow-Tech Group's quality program is fully compliant with the industry's most stringent standards. The group holds all major certifications, including but not limited to API 6D, ISO 9001, ISO 14001, OHS 18001, CE, API 6FA, API 607 fire safety inspection certificate.

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(EXPANDING GATE VALVE)	6~7
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HOW TO ORDER.....	12~13



PRODUCT RANGE

RANGE

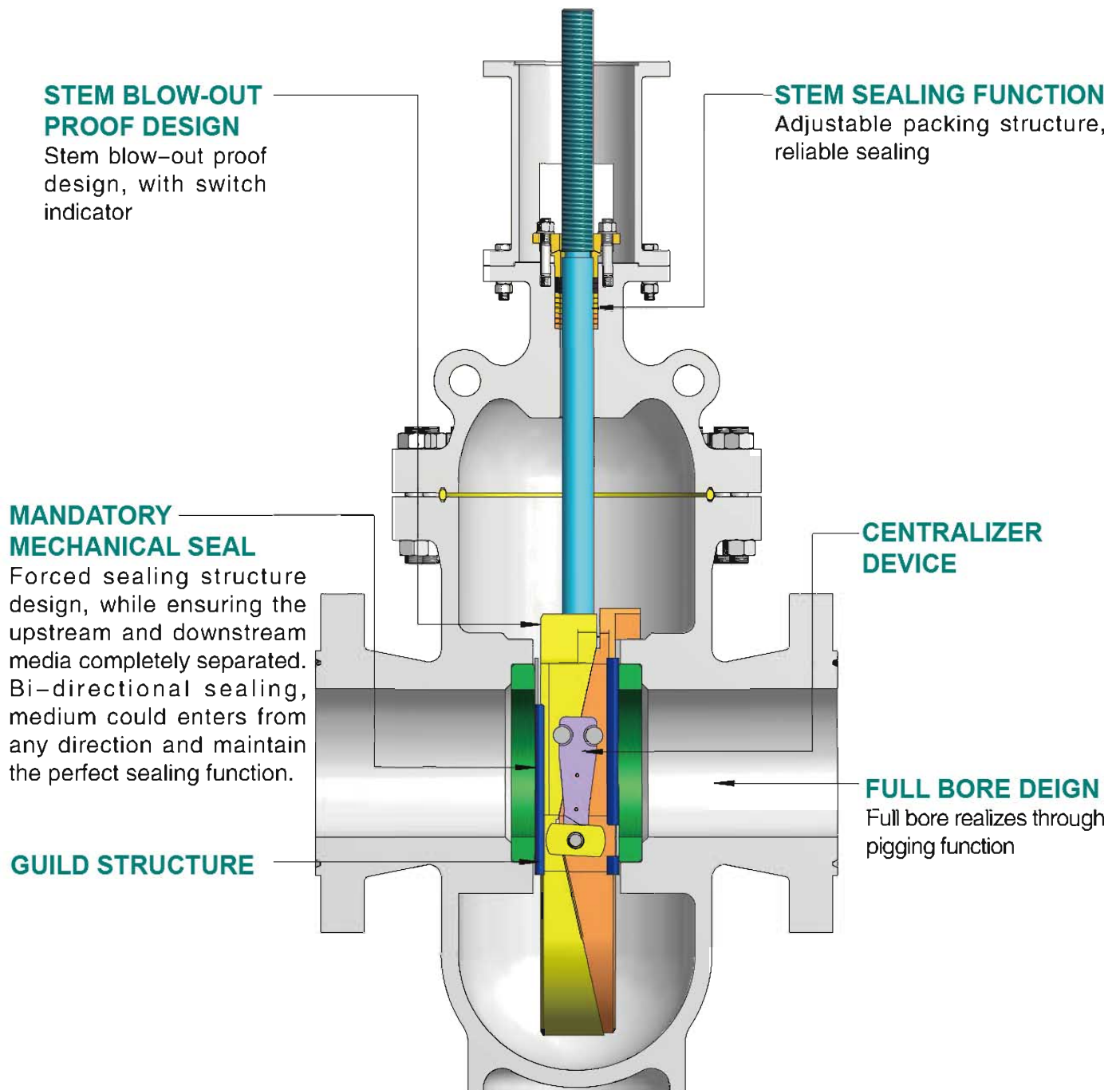
SERVICE	SIZE (NPS/DN) – PRESSURE RANGE				
	ASME CLASS 150–300	ASME CLASS 600	ASME CLASS 900	ASME CLASS 1500	ASME CLASS 2500
Expanding Slab Gate Valve (Z20Series)					
Standard	2–48 50–1200	2–48 50–1200	2–36 50–900	2–28 50–700	2–20 50–500
Low Temperature –46°C / –50°F	2–48 50–1200	2–48 50–1200	2–36 50–900	2–28 50–700	2–20 50–500
Underground – Low Temperature –46°C / –50°F	2–48 50–1200	2–48 50–1200	2–36 50–900	2–28 50–700	2–20 50–500
High Temperature 425°C / 797°F	2–48 50–1200	2–28 50–700	2–28 50–700	2–28 50–700	2–20 50–500

STANDARD & SPECIFICATIONS

Design Standard	API 6D, ASME B16.34
Test Standard	API 6D, API 598
End Connection	ASME B16.5, ASME B16.47, MS SP–44, ASME B31.8, ASME B16.25, etc.
Face-to-Face	API 6D, ASME B16.10
Fire Test	API 6FA
Anti-Corrosion, Acid-Resisting*	NACE MR0103, NACE MR0175, ISO 15156

*Optional, available upon request.

DESIGN FEATURES



TOP-ENTRY STRUCTURE

Top-entry structure, on-line maintenance.

MULTI PURPOSES

Can be applied to the transport pipelines for natural gas, petroleum, refined oil, aviation fuel and other media. Also can be an open/close device, used in venting systems, oil refining, storage devices. Especially suitable in high temperature and high pressure.

DESIGN FEATURES

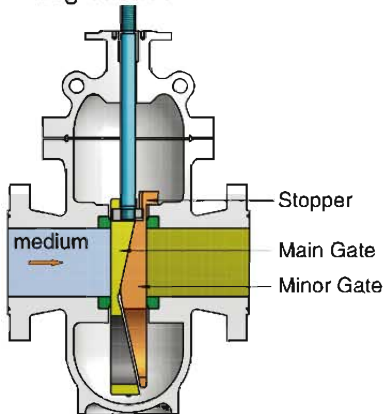
FEATURE	EXPANDING
Independent Stem & Seats	Standard
Independent Floating Seats	N/A
Metal to Metal Seat	Standard
Self Relieving Seats	N/A
API 6D Design and Construction	Standard
Face to Face Dimensions to API 6D and ASME B16.10	Standard
Fire Safe Design to API 6FA	Standard
Full, Reduced or Venturi Port	As Required
Flanged Ends – Welded Ends – Hub Ends	As Required
Transition Pups for Welded Ends Valves	On Request
Antistatic	Standard
Anti-Blowout Stem	Standard
Possibility to Check Seat Integrity In Line with Gate in Open or Closed Position	Standard
Double Body Seals	Standard
Triple Stem Seals	Standard
Drain Plug	Standard
Drain Valve	On Request
Vent Plug (on 6" & larger)	Standard
Vent Valve (on 6" & larger)	On Request
Seat Pocket Overlay	On Request
Seals Area Overlay	On Request
Wetted Parts Overlay	On Request
Body Internal Lining	On Request
Extended Stem for Underground Installation	As Required
Extended Bonnet for Low or High Temperature	As Required
Locking Device	On Request
Lifting Lugs	Standard on 6" and larger
Supporting Feet	Standard
Manual or Motorized Operation	As Required
In-line Maintenance	Yes
On site Maintenance	Yes

Note: Other features are available on request.

DESIGN FEATURES

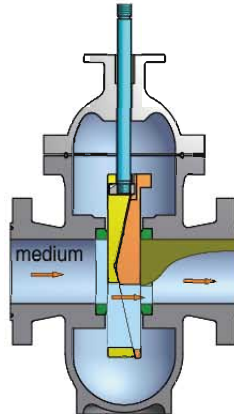
FULL CLOSED

Major and minor gate expanded, touched and pressured on the seat sealing surface



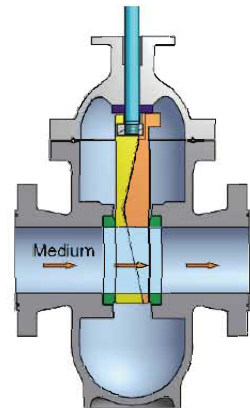
RUNNING PROCESS

By centralizer device, no friction between major/minor gate to sealing surface.



FULL OPEN

By centralizer device, major and minor gate begin to, and as a whole part, moving together to full open.



SEAT SEALING DESIGN

(a) SOFT SEAT DESIGN

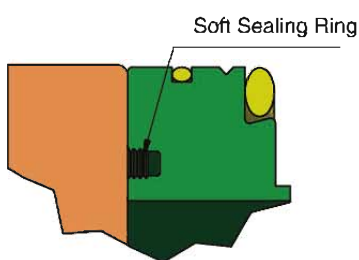
In valves designed for standard service, a resilient material is inserted into the metal seat holder to provide a soft seating action in addition to the metal to metal seating between the and the gate seat rings.

(b) METAL-SEATED DESIGN

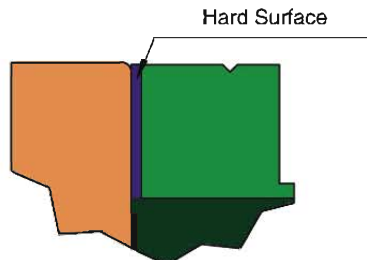
Valves designed for abrasive service or for operation in temperatures that prohibit the use of a resilient material have seating action provided by the metal to metal contact between the gate and the seat rings. According to customer's conditions and requirements, the surface of seat and ball will be surface hardening treatment by surfacing, supersonic spray, flame spray method, etc., to maintain a certain difference between the sealing surface hardness to protect the gate in switching process.

(c) PMSS SEAT DESIGN

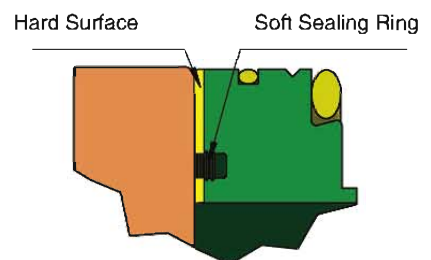
In valves designed for standard service, a resilient material is inserted into the metal seat holder to provide a soft seating action in addition to the metal to metal seating between the gate and the seat rings. meanwhile, According to customer's conditions and requirements, the surface of seat and ball will be surface hardening treatment by surfacing, supersonic spray, flame spray method, etc., to maintain a certain difference between the sealing surface hardness to protect the gate in switching process.



(a) Soft Seat Design



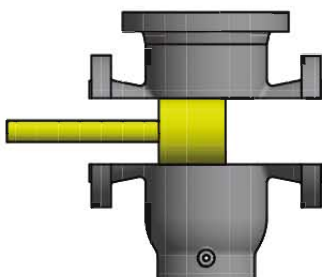
(b) Metal Seat Design



(c) PMSS Seat Design

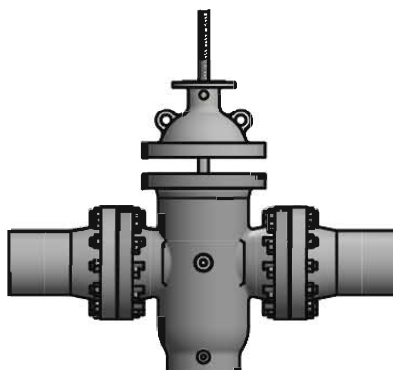
FULL BORE DEIGN

Full bore realizes through pigging function.



ON-LINE MAINTAIN

Top-entry design, online maintenance can be realized

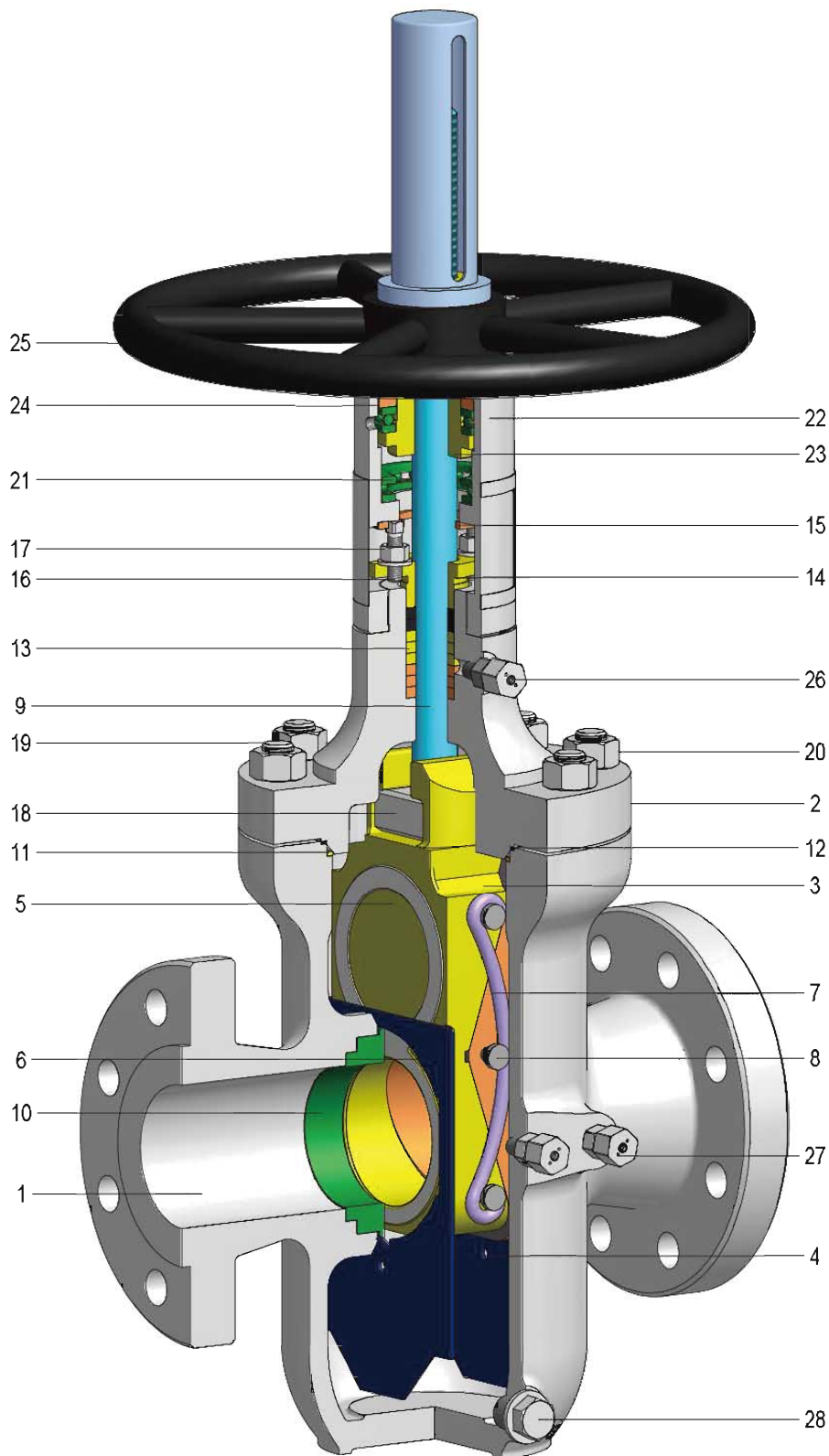


Drain/Vent Device

Allow releasing excessive pressure and injecting sealant. in emergency situation.



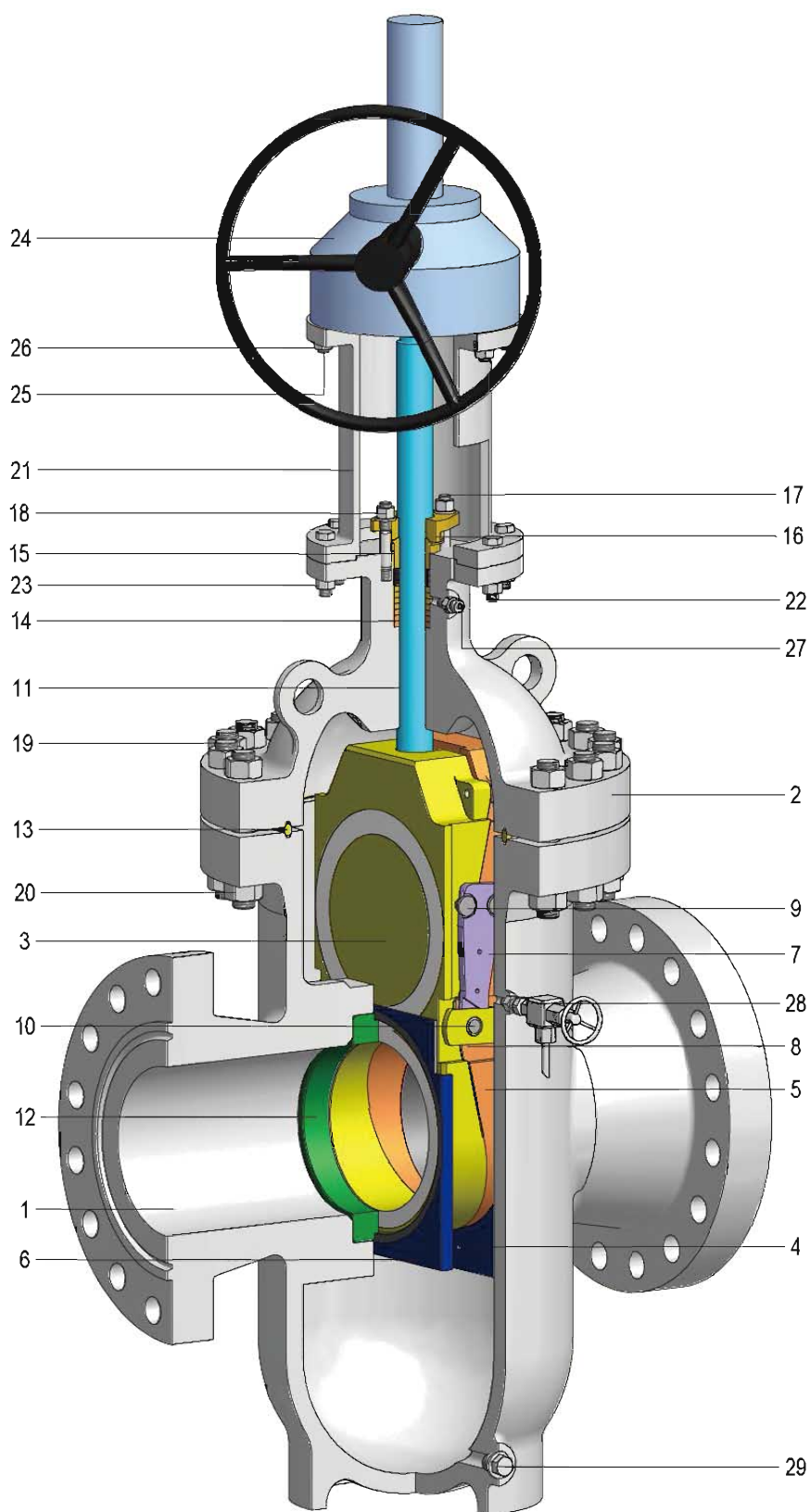
Z20 SERIES PARTS LIST



PART LIST (UNDER 6")	
1	Body
2	Bonnet
3	Main Gate
4	Main Gate Guide
5	Minor Gate
6	Minor Gate Guide
7	Bow Spring
8	Pin
9	Stem
10	Seat
11*	O-Ring
12*	Spiral Wound Gasket
13*	Packing
14	Gland Flange
15	Apron
16	Stud
17	Nut
18	Support Block
19	Stud
20	Nut
21	Thrust bearing
22	Yoke
23	Stem Nut
24	Felt ring
25	Hand wheel
26	Grease injection valve
27	Grease injection valve
28	Drain Plug

*Recommended spare parts.

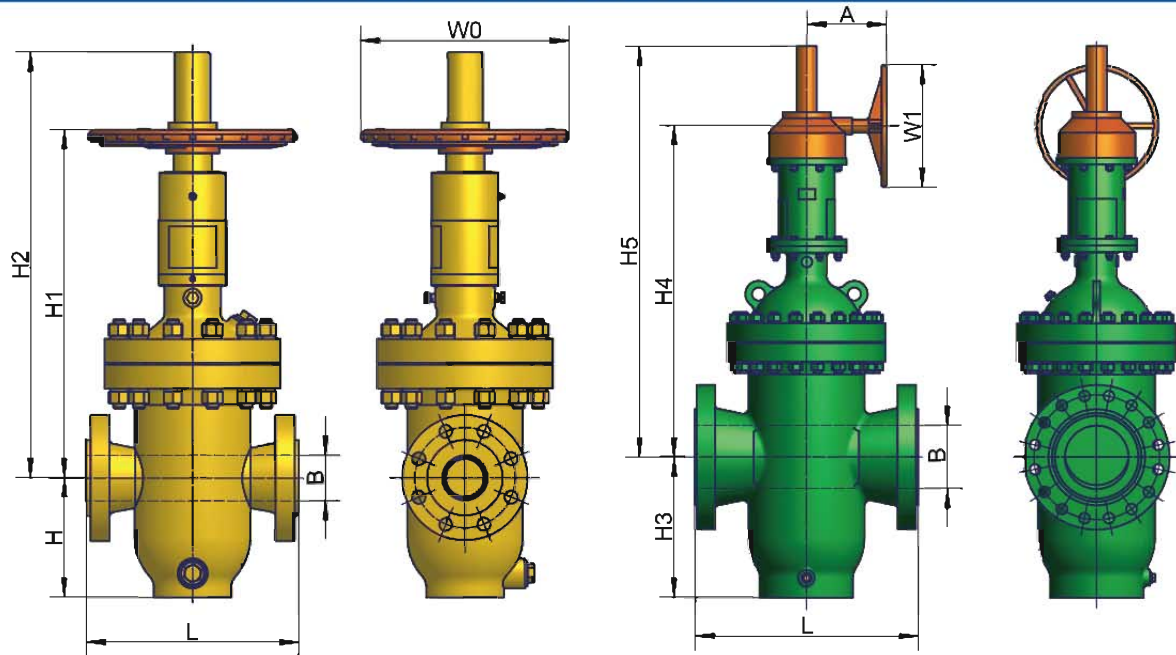
Z20 SERIES PARTS LIST



PART LIST (6" AND ABOVE)	
1	Body
2	Bonnet
3	Main Gate
4	Main Gate Guide
5	Minor Gate
6	Minor Gate Guide
7	Link
8	Swing Block
9	Pin
10	Block Pin
11	Stem
12	Seat
13*	Oval Gasket
14*	Packing
15	Packing Gland
16	Gland Flange
17	Stud
18	Nut
19	Stud
20	Nut
21	Yoke
22	Bolt
23	Nut
24	Gear
25	Stud
26	Nut
27	Grease Injection Valve
28	Vent Device
29	Drain Device

*Recommended spare parts

DIMENSIONS & WEIGHTS

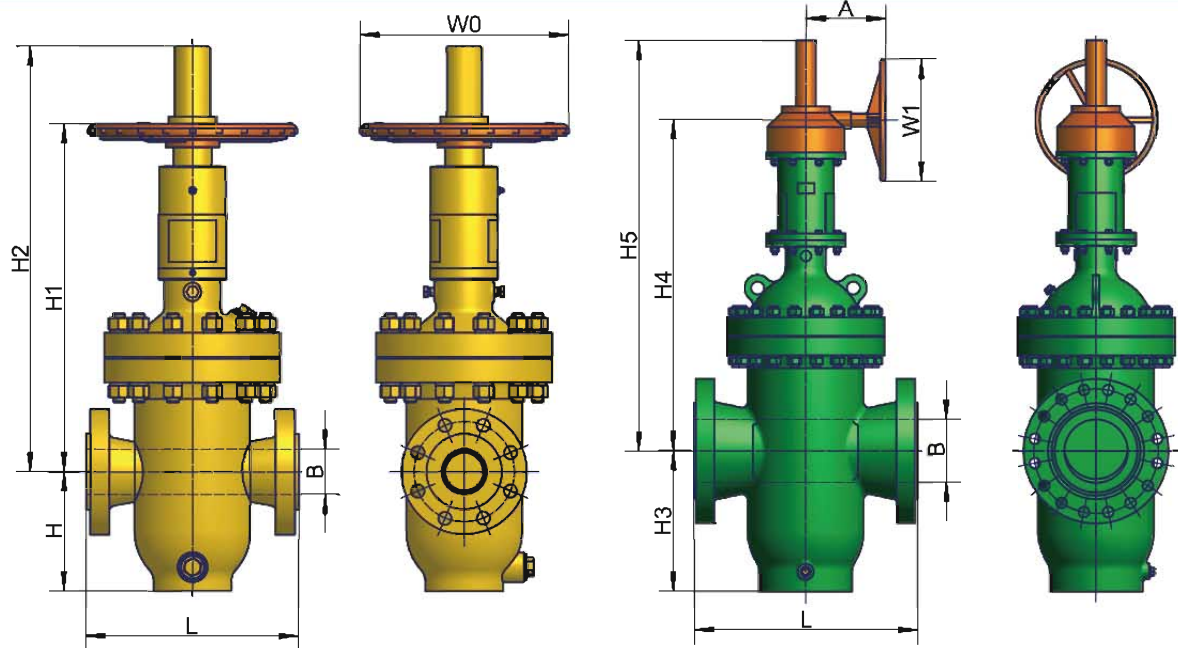


ALL TYPES			ASME CLASS 150 FULL BORE											ASME CLASS 300 FULL BORE										
NPS	DN	L★ (RF)	B	H	H1	H2	H3	H4	H5	A	W0	W1	Weight (kg)	B	H	H1	H2	H3	H4	H5	A	W0	W1	Weight (kg)
2	50	216	49	140	530	658	-	-	-	-	250	-	46	49	140	530	585	-	-	-	-	250	-	54
2-1/2	65	241	62	165	530	690	-	-	-	-	250	-	71	62	165	530	610	-	-	-	-	250	-	83
3	80	282	74	190	575	872	-	-	-	-	250	-	93	74	190	575	670	-	-	-	-	250	-	108
4	100	305	100	230	730	900	-	-	-	-	250	-	177	100	230	730	845	-	-	-	-	250	-	206
6	150	403	150	320	925	1121	-	-	-	-	350	-	270	150	320	925	1095	-	-	-	-	350	-	318
8	200	419	201	390	1125	1411	-	-	-	-	450	-	488	201	390	1125	1350	-	-	-	-	450	-	573
10	250	457	252	480	1340	1668	-	-	-	-	450	-	796	252	480	1340	1630	-	-	-	-	450	-	937
12	300	502	303	560	1160	1574	-	-	-	-	480	-	1053	303	560	1160	1523	-	-	-	-	320	-	1238
14	350	762	334	-	-	-	605	1250	1700	264	-	500	1116	334	-	-	-	605	1250	1625	264	-	500	1314
16	400	838	385	-	-	-	690	1430	1830	264	-	500	1463	385	-	-	-	690	1430	1860	264	-	500	1721
18	450	914	436	-	-	-	780	1605	2201	313	-	600	1972	436	-	-	-	780	1605	2072	313	-	600	2320
20	500	991	487	-	-	-	855	1850	2462	313	-	600	2650	487	-	-	-	855	1850	2393	313	-	600	3118
24	600	1143	589	-	-	-	1035	2100	2840	326	-	700	4529	589	-	-	-	1035	2100	2756	326	-	700	5328
26	650	1245	633	-	-	-	1110	2960	3880	326	-	700	5344	633	-	-	-	1160	3025	3718	326	-	700	6287
28	700	1346	684	-	-	-	1190	3180	4178	384	-	700	5942	684	-	-	-	1210	3220	3984	384	-	700	7035
30	750	1397	735	-	-	-	1240	3300	4310	384	-	800	6786	735	-	-	-	1310	3450	4273	384	-	800	7983
32	800	1524	779	-	-	-	1340	3400	4440	409	-	800	8007	779	-	-	-	1415	3625	4481	409	-	800	9819
34	850	1626	830	-	-	-	1430	4010	5410	409	-	800	9449	830	-	-	-	1480	3950	4866	517	-	900	12077
36	900	1727	874	-	-	-	1520	4210	5700	517	-	900	11150	874	-	-	-	1530	4210	5182	517	-	900	14969
38	950	<u>1829</u>	925	-	-	-	1560	4440	5990	517	-	900	12723	925	-	-	-	1650	4492	6025	412	-	950	18412
40	1000	<u>2083</u>	976	-	-	-	1630	4650	6250	412	-	900	14242	976	-	-	-	1685	4702	6304	499	-	1000	22647
42	1050	<u>2133</u>	1020	-	-	-	1720	4930	6580	499	-	900	15682	1020	-	-	-	1780	4998	6644	545	-	1000	25424
48	1200	<u>2286</u>	1166	-	-	-	1940	5640	6890	545	-	1000	18832	1166	-	-	-	2035	5722	7024	583	-	1050	28972

1 "★" L(CL150) Meet With CL300 ASME B16.10;

2 Underline data according to manufacturer's standards.

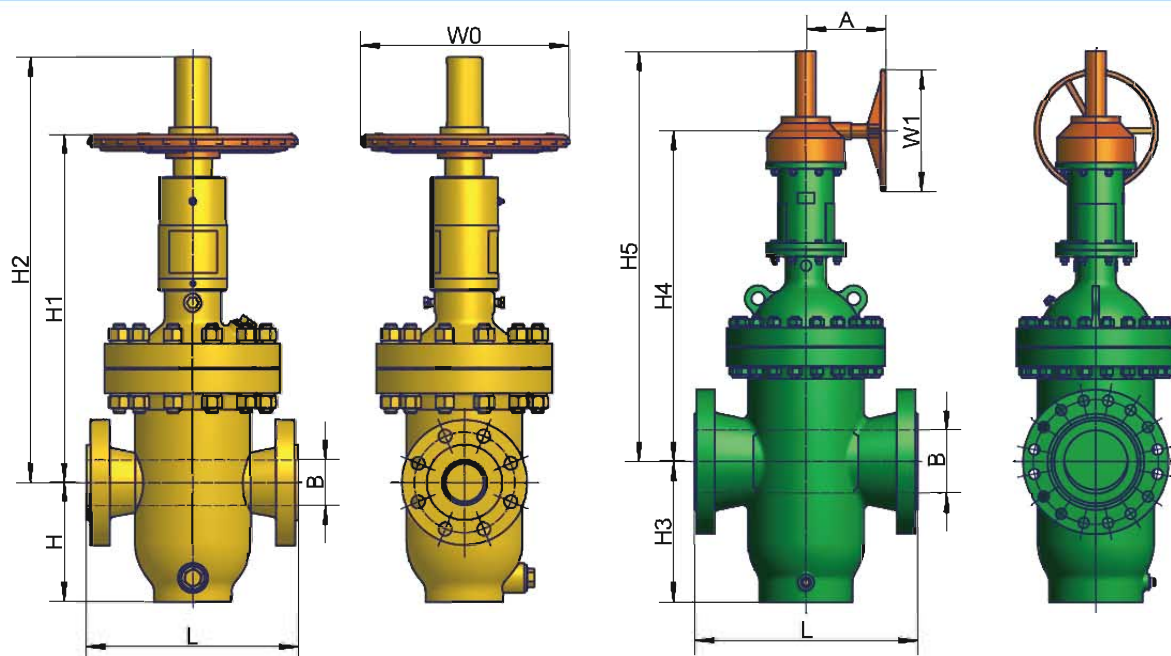
DIMENSIONS & WEIGHTS



ALL TYPES		ASME CLASS 600 FULL BORE												ASME CLASS 900 FULL BORE											
NPS	DN	L (RF)	B	H	H1	H2	H3	H4	H5	A	W0	W1	Weight (kg)	L (RJ)	B	H	H1	H2	H3	H4	H5	A	W0	W1	Weight (kg)
2	50	292	49	145	530	680	-	-	-	-	250	-	64	371	49	150	630	675	-	-	-	-	350	-	106
2-1/2	65	330	62	165	530	732	-	-	-	-	250	-	98	422	62	180	630	692	-	-	-	-	350	-	144
3	80	356	74	195	575	763	-	-	-	-	250	-	127	384	74	220	780	864	-	-	-	-	350	-	186
4	100	432	100	230	730	973	-	-	-	-	350	-	243	460	100	285	900	996	-	-	-	-	450	-	363
6	150	559	150	335	1150	1440	-	-	-	-	550	-	378	613	150	420	1150	1264	-	-	-	-	550	-	472
8	200	660	201	410	1243	1586	-	-	-	-	320	-	653	740	201	-	-	1115	500	935	1115	215	-	320	808
10	250	787	252	510	1320	1652	-	-	-	-	500	-	1102	841	252	-	-	1360	580	1150	1360	264	-	500	1429
12	300	838	303	-	-	-	585	1410	1684	264	-	500	1925	968	303	-	-	1712	650	1440	1712	264	-	500	2155
14	350	889	334	-	-	-	650	1496	1742	313	-	600	1517	1039	322	-	-	1814	690	1500	1814	313	-	600	2595
16	400	991	385	-	-	-	715	1555	1860	313	-	600	2206	1140	373	-	-	2033	770	1695	2033	313	-	600	3666
18	450	1092	436	-	-	-	805	1690	1984	326	-	700	2847	1232	423	-	-	2230	820	1850	2230	326	-	700	5500
20	500	1194	487	-	-	-	915	1900	2215	326	-	700	3790	1334	471	-	-	2530	915	2100	2530	326	-	700	8248
24	600	1397	589	-	-	-	1075	2230	2420	384	-	800	6484	1568	570	-	-	3105	1130	2550	3105	384	-	750	13373
26	650	1448	633	-	-	-	1220	3010	3325	384	-	800	7776	<u>1702</u>	617	-	-	4793	1250	4230	4793	384	-	700	20060
28	700	1549	684	-	-	-	1305	3365	3642	409	-	900	10154	<u>1864</u>	665	-	-	5031	1340	4475	5031	445	-	750	30090
30	750	1651	735	-	-	-	1410	3600	3892	409	-	900	12474	<u>1934</u>	712	-	-	5310	1420	4645	5310	516	-	800	36140
32	800	1778	779	-	-	-	1500	3860	4024	517	-	950	-	<u>1988</u>	760	-	-	4893	1325	4105	4893	516	-	850	41750
34	850	1930	830	-	-	-	1560	4160	4536	517	-	950	-	-	-	-	-	-	-	-	-	-	-	-	-
36	900	2083	874	-	-	-	1675	4395	4795	412	-	1000	-	<u>2021</u>	855	-	-	5931	1705	5240	5931	598	-	850	53400
38	950	<u>2235</u>	925	-	-	-	1770	4650	5260	412	-	1000	-	-	-	-	-	-	-	-	-	-	-	-	-
40	1000	<u>2387</u>	976	-	-	-	1835	4880	5646	499	-	1050	-	-	-	-	-	-	-	-	-	-	-	-	-
42	1050	<u>2489</u>	1020	-	-	-	1910	5155	6084	545	-	1100	-	-	-	-	-	-	-	-	-	-	-	-	-
48	1200	<u>2692</u>	1166	-	-	-	2110	5850	6843	595	-	1100	-	-	-	-	-	-	-	-	-	-	-	-	-

1 Underline data according to manufacturer's standards.

DIMENSIONS & WEIGHTS



ALL TYPES		ASME CLASS 1500 FULL BORE												ASME CLASS 2500 FULL BORE											
NPS	DN	L (RJ)	B	H	H1	H2	H3	H4	H5	A	W0	W1	Weight kg	L (RJ)	B	H	H1	H2	H3	H4	H5	A	W0	W1	Weight kg
2	50	371	49	150	630	672	-	-	-	-	350	-	106	454	42	200	680	723	-	-	-	-	450	-	155
2 1/2	65	422	62	180	630	694	-	-	-	-	350	-	161	514	52	220	680	740	-	-	-	-	450	-	234
3	80	473	74	220	680	744	-	-	-	-	320	-	208	584	62	-	-	-	240	700	771	215	-	320	317
4	100	549	100	285	900	992	-	-	-	-	320	-	373	683	87	-	-	-	285	900	992	264	-	500	507
6	150	711	144	-	-	-	420	950	1076	264	-	500	541	927	131	-	-	-	420	1200	1328	264	-	500	811
8	200	841	192	-	-	-	500	1100	1281	264	-	500	785	1038	179	-	-	-	500	1600	1760	313	-	600	1298
10	250	1001	239	-	-	-	580	1250	1471	313	-	600	1138	1292	223	-	-	-	630	2000	2205	326	-	700	2077
12	300	1146	287	-	-	-	650	1500	1796	313	-	600	1649	1444	265	-	-	-	730	2150	2394	326	-	700	3323
14	350	1276	315	-	-	-	690	1750	2036	326	-	700	2391	●	292	-	-	-	630	1550	1803	384	-	750	-
16	400	1406	360	-	-	-	770	2000	2386	326	-	700	3467	●	333	-	-	-	715	1645	1960	384	-	750	-
18	450	1559	406	-	-	-	850	2250	2732	384	-	800	5027	●	374	-	-	-	811	1746	2088	445	-	800	-
20	500	1686	454	-	-	-	950	2500	2951	384	-	800	7540	●	419	-	-	-	921	1852	2294	516	-	850	-
24	600	1971	546	-	-	-	1150	3000	3430	384	-	800	11310	-	-	-	-	-	-	-	-	-	-	-	-
26	650	●	594	-	-	-	1380	4230	4820	445	-	750	-	-	-	-	-	-	-	-	-	-	-	-	-
28	700	●	641	-	-	-	1490	4470	5093	516	-	850	-	-	-	-	-	-	-	-	-	-	-	-	-

1 "●" According to customer's requirements.

ENGINEERING DATA

BODY & TRIM MATERIAL

CARBON	AUSTENITIC STAINLESS STEEL	NICKEL ALLOYS
A105 A216 WCB A216 WCC	A182 F304 A182 F316	Incoloy 825 (UNS N08825)
LOW TEMPERATURE STEEL	A182 F304L A182 F316L	Incoloy 925 (UNS N09925)
A350 LF2 A352 LCB A352 LCC	A182 F347 A182 FXM-19(Nitronic 50)	Inconel 625 (UNS N06625)
LOW ALLOY STEEL	A351 CF8M A351 CF3 A351 CF3M	Inconel 718 (UNS N07718)
AISI 4140 A694 F65 A694 F52	PRECIPITATION HARDENING STAINLESS STEEL	Inconel 750 (UNS N07750)
A694 F60 A350 LF3	A564 Gr.630 (UNS S17400)	Monel 400
MARTENSITIC STAINLESS STEEL	DUPLEX STAINLESS	Monel K500
A182 F6A A182 F6NM	A182 F51(UNS S31803) A182 F53 (UNS S31750)	
A217 CA15 A487 CA6NM	A182 F55(UNS S31760) A995 4A (UNS J92205)	
	A995 5A(UNS J93404)	

VALVE TESTING

All valves manufactured by CCFV are tested in compliance of API 6D requirements prior to shipping.

LEAKAGE RATES

Standard	Soft Seated	Metal-Seated	Cryogenic
API 6D	ISO 5208 Rate A	ISO 5208 Rate D	(1)

(1) Please consult the factory.

STANDARD PERFORMANCE TESTS

- Visual & dimensional check.
- High pressure hydrostatic shell test.
- High pressure hydrostatic seats test.
- Low pressure air seats test.
- Stem torque check.

RATING & TEST PRESSURES AT AMBIENT TEMPERATURE (ASME B16.34 GROUP 1.1 MATERIALS)

ASME CLASS	RATING(1)			BODY TEST			H.P. SEAT TEST			AIR SEAT TEST		
	psi	bar	kgf/cm ²	psi	bar	kgf/cm ²	psi	bar	kgf/cm ²	psi	bar	kgf/cm ²
150	285	19.6	20	428	29.4	30	314	21.6	22	100	6.9	7
300	740	51.1	52	1110	76.7	78	814	56.2	57	100	6.9	7
600	1480	102.1	104	2220	153.2	156	1628	112.3	115	100	6.9	7
900	2220	153.2	156	3330	229.8	234	2442	168.5	172	100	6.9	7
1500	3705	255.3	261	5558	383.0	391	4076	280.8	287	100	6.9	7
2500	6170	425.5	434	9255	638.3	651	6787	468.1	477	100	6.9	7

(1) Typical only – Rating pressure may change for different materials.

Conversion Factors 1 bar = 14.50 psi 1 kgf/cm² = 0.981 bar 1 bar = 100 kpa 1 kgf/cm² = 14.22 psi

1 °F = (1.8 × °C) + 32 1 °C = (°F - 32) / 1.8

SEAT SEAL & O-RING TEMPERATURE-PRESSURE RATINGS

Seat Seal

- S-1: PEEK
- S-2: Carbon Fiber+PTFE
- S-3: (1)Glass Fiber+PTFE
(2)Glass Fiber+PTFE+MoS₂
- S-4: Virgin PTFE
- S-5: Nylon+MoS₂
- S-6: PPL

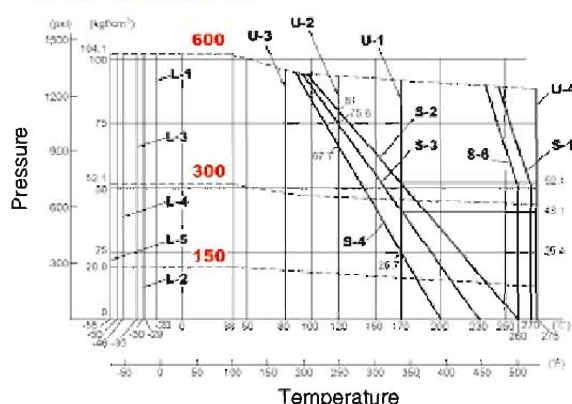
O-Ring Upper Temperature Limit

- U-1: (1)FPM
(2)FPM-LT
- U-2: (1)EPDM (2)ECO
- U-3: (1)NBR (2)NBR-LT
- U-4: Kalrez-6375

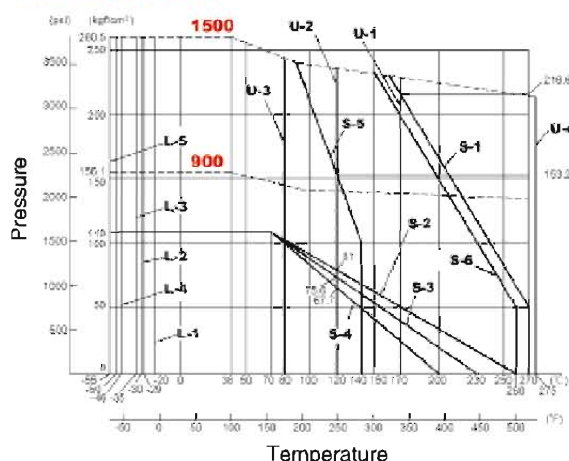
O-Ring Lower Temperature Limit

- L-1: FPM
- L-2: (1)EPDM (2)NBR
- L-3: FPM-LT
- L-4: ECO
- L-5: NBR-LT

Class 150 / 300 / 600



Class 900 / 1500



HOW TO ORDER

PLEASE PROVIDE FOLLOWING INFORMATION:

1. Max./Min. Operating Pressure, Max. /Min. Service Temp, Special Flow/Service Environment Requirements.
2. Design Standard (API 6D, ASME B16.34 or Other).
3. Test Requirements (Standard Package, UT, PT, MT, RT, High Pressure (N2/Air), Low Emission, Low Temp. or other).
4. Other Requirements (Mating Flange, PUP, Third-party Inspection or other).

A	B	C	D	E	F	G	H	I	J	K
MODEL	SIZE	PRESSURE RATING	CONNECTION	ACTUATION	BODY MATERIAL	SEALS	TRIM MATERIAL	TRIM COATING	BOLTS&NUTS	SPECIAL REQUIREMENTS
Z20	20	300	RF	G	C1	FV	93B	1	B2	BZ

EXAMPLE:Z20-20-300RF-G-C1FV93B1B2-BZ

Cast steel expanding gate valve, 20" full bore, ASME 300, Flanged RF, Gear actuator, A216 WCB body, RPTFE/VITON-B seals, A216 WCB/A105/420 trim, ENP trim coating, B7/2H bolts & nuts with zinc coating.

A	MODEL			
CODE	TYPE		CODE	TYPE
Z20	Expanding Gate Valve			

B	SIZE										
CODE	NPS(DN)	CODE	NPS(DN)	CODE	NPS(DN)	CODE	NPS(DN)	CODE	NPS(DN)	CODE	NPS(DN)
1	1(25)	3	3(80)	12	12(300)	22	22(550)	32	32(800)	42	42(1050)
1-1/4	1-1/4(32)	4	4(100)	14	14(350)	24	24(600)	34	34(850)	48	48(1200)
1-1/2	1-1/2(40)	6	6(150)	16	16(400)	26	26(650)	36	36(900)	54	54(1350)
2	2(50)	8	8(200)	18	18(450)	28	28(700)	38	38(950)	56	56(1400)
2-1/2	2-1/2(65)	10	10(250)	20	20(500)	30	30(750)	40	40(1000)	60	60(1500)

C	PRESSURE RATING				D	CONNECTION			
CODE	TYPE	CODE	TYPE		CODE	TYPE	CODE	TYPE	
150	ASME 150	1.6P	PN 16		RF	Flanged RF-B16.5(NPS 1/2~NPS 24)	RFB	Flanged RF-B16.47(NPS 26~NPS 60) Series B	
300	ASME 300	3.2P	PN 32			Flanged RF-MSS SP 44(NPS 22)	RJB	Flanged RJ-B16.47(NPS 26~NPS 60) Series B	
400	ASME 400	6.4P	PN 64			Flanged RF-B16.47(NPS 26~NPS 60) Series A	SW	Socket Weld-ASME B16.11	
600	ASME 600	8.0P	PN 80		RJ	Flanged RTJ-B16.5(NPS 1/2~NPS 24)	ET	External Thread-ASME B1.20.1	
900	ASME 900	10.0P	PN 100			Flanged RTJ-MSS SP 44(NPS 22)	BW	Butt Weld-ASME B31.8*	
1500	ASME 1500	16.0P	PN 160			Flanged RTJ-B16.47(NPS 26~NPS 60) Series A	XX	Others	
2500	ASME 2500	25.0P	PN 250		*For weld end valves, specify ID or OD, wall thickness and grade of pipe.				
		32.0P	PN 320						

E	ACTUATION			
CODE	TYPE	CODE	TYPE	Type operator desired (electric, hydraulic, pneumatic), provide following information: 1. Speed of opening and closing, probable frequency of operation. 2. Accessories and controls (limit switches, valving, instrumentation, tanks, pumps, etc). 3. Information on operating medium. (If electric: voltage, frequency, single-or three-phase, open-or explosion-proof motor, If hydraulic or pneumatic: operating medium and pressure. etc.)
B	Bare Stem	S	Pneumatic-Spring Return	
W	Hand Wheel	D	Pneumatic-Double Acting	
G	Gear	M	Gas- Hydraulic	
E	Electric	N	Electro-Hydraulic	
H	Hydraulic	X	Others	

F	BODY MATERIAL							
CODE	BODY	END CONNECTION	CODE	BODY	END CONNECTION	CODE	BODY	END CONNECTION
C1	A216 WCB	A216 WCB	S0	A351 CF8	A351 CF8	D0	A995 4A(UNS J92205)	A995 4A(UNS J92205)
C2	A216 WCC	A216 WCC	S1	A351 CF3	A351 CF3	D1	A995 5A(UNS J93404)	A995 5A(UNS J93404)
C5	A105	A105	S2	A351 CF8M	A351 CF8M	I7	CW6MC(UNSN26625)	(UNSN26625)
L1	A352 LCB	A352 LCB	S3	A351 CF3M	A351 CF3M	XX	Others	Others
L2	A352 LCC	A352 LCC	S5	A182 F304	A182 F304			

G SEALS(1)								
CODE	SEAT INSERT	O-Ring	CODE	SEAT INSERT	O-Ring	CODE	SEAT INSERT	O-Ring
FV	RPTFE	VITON-B	KH	PEEK	HNBR	YG	N/A(1)	VITON-GF
FH	RPTFE	HNBR	KG	PEEK	VITON-GF	YT	N/A(1)	VITON-GLT
FG	RPTFE	VITON-GF	KT	PEEK	VITON-GLT	YQ	N/A(1)	PTFE-Elgiloy Spring
FT	RPTFE	VITON-GLT	KQ	PEEK	PTFE-Elgiloy Spring	YS	N/A(1)	Graphite
FQ	RPTFE	PTFE-Elgiloy Spring	YV	N/A(1)	VITON-B	XX	Others	Others
KV	PEEK	VITON-B	YH	N/A(1)	HNBR	(1) Metal-to-Metal.		

H TRIM MATERIAL							
CODE	GATE	SEAT	STEM	CODE	GATE	SEAT	STEM
11B	A572 Gr.50	A572 Gr.50	A276 420	666	A182 F316	A182 F316	A276 316
113	A572 Gr.50	A572 Gr.50	A276 410	665	A182 F316	A182 F316	A276 304(UNS S30400)
228	AISI 1045	AISI 1020	A564 GR.630 (UNS S17400)	663	A182 F316	A182 F316	A276 410
22A	AISI 1045	AISI 1020	AISI 4140	66A	A182 F316	A182 F316	AISI 4140
22B	AISI 1045	AISI 1020	A276 420	66B	A182 F316	A182 F316	A276 420
93B	A216 WCB	A105	A276 420	668	A182 F316	A182 F316	A564 GR.630 (UNS S17400)
333	A105	A105	A276 410	888	A350 LF2	A350 LF2	A564 GR.630 (UNS S17400)
338	A105	A105	A564 GR.630 (UNS S17400)	88A	A350 LF2	A350 LF2	AISI 4140
33B	A105	A105	A276 420	AAA	INCONEL 718 (UNS N07718)	INCONEL 718 (UNS N07718)	INCONEL 718 (UNS N07718)
443	A182 F6A	A182 F6A	A276 410	BBB	INCOLOY 825 (UNS N08825)	INCOLOY 825 (UNS N08825)	INCOLOY 825 (UNS N08825)
44A	A182 F6A	A182 F6A	AISI 4140	BBA	INCOLOY 825 (UNS N08825)	INCOLOY 825 (UNS N08825)	INCONEL 718 (UNS N07718)
44B	A182 F6A	A182 F6A	A276 420	CC6	A182 F304L	A182 F304L	A276 316
448	A182 F6A	A182 F6A	A564 GR.630 (UNS S17400)	CC3	A182 F304L	A182 F304L	A276 410
445	A182 F6A	A182 F6A	A276 304 (UNS S30400)	CC5	A182 F304L	A182 F304L	A276 304(UNS S30400)
446	A182 F6A	A182 F6A	A276 316	CCB	A182 F304L	A182 F304L	A276 420
555	A182 F304	A182 F304	A276 304 (UNS S30400)	DDB	A182 F316L	A182 F316L	A276 420
556	A182 F304	A182 F304	A276 316	DD6	A182 F316L	A182 F316L	A276 316
553	A182 F304	A182 F304	A276 410	DD3	A182 F316L	A182 F316L	A276 410
55B	A182 F304	A182 F304	A276 420	XXX	Others	Others	Others

I TRIM COATING			
CODE	GATE	SEAT RINGS	STEM/TRUNNION
0	N/A	N/A	N/A
1	ENP	ENP	N/A
2	GDN	ENP	N/A
3	GDN	GDN	N/A
4	ENP	GDN	N/A
5	ENP	ENP	ENP
6	GDN	ENP	ENP
7	GDN	GDN	ENP
X	Others	Others	Others

J BOLTS & NUTS				
CODE	BOLT	NUT	CODE	NUT
B1	A193 B7M	A194 2HM	N5	A320 B8M CL.2
B2	A193 B7	A194 2H	N6	A320 B8M CL.1
B3	A320 L7M	A194 7M	XX	Others
B4	A320 L7	A194 Gr.7		
B5	A193 B8M	A194 Gr.8M		
B6	A193 B8	A194 Gr.8		
B7	A193 B16	A194 Gr.7		
B8	A320 L7	A194 Gr.4		

K SPECIAL REQUIREMENTS, Misc (Multiple Choice)	
CODE	SPECIAL NOTES
E-	Specify distance from valve centerline to top of power operator mounting flange for direct-buried ball valve. Example, E2500 means the specify distance is 2500mm.
K	Anti-corrosion, acid-resisting reqs are in compliance with NACE MR0103, NACE MR0175, ISO15156. Please provide detailed medium composition.
B-	Bolts & nuts coating, BE: ENP, BZ: Zinc Plating, BT: PTFE, BC: Cadmium+PTFE.
X	Others special requirements.

Notes: If you are uncertain about some categories, we will make suggestions based on your working conditions or your special requirement.
The item marked with default will be used if no item is selected in that category unless it doesn't meet the working requirements.