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Thru Conduit Slab & Expanding Gate Valves

Catalogue No: A12-01

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Introduction

Quality is our commitment, while competitive price and timely delivery is our promise. ***From*** the beginning, the DHV name has become associated with quality in every step of our manufacturing process. For the past decades our customers worldwide have trusted us to provide them with consistent and reliable valve products in their most severe and critical service. ***We*** at DHV are proud of our ability to meet the stringent requirements of Refining, Gas/Oil, Pipeline, Petrochemical and Power Plant.

DHV Gate Valves are designed, manufactured and tested to the latest manufacturing specifications of the American & International Standards Organizations. We welcome your challenges and look forward to serving your critical project needs.

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DHV Figure Numbers

Type C

1 = OS & Y Gate
2 = Globe
3 = Swing Check
4 = NRS GATE
5 = Pressure Seal Bonnet Gate
6 = Pressure Seal Bonnet Globe
7 = Pressure Seal Bonnet Check
8 = Y Pattern
9 = Angle
A = Conduit Gate
B = Plug Valve
C = Strainer
D = Soft Seat Block & Bleed Gate
E = API 6D Swing Check
F = Twin Seal Plug Valve
G = Parallel Slide Gate
H = Piston Check
X = Special

Type WC

1 = Single-Plate Wafer Check
2 = Dual-Plate Wafer Check
3 = Lift Wafer Check
X = Special

Body and Bonnet Material

0 = ASTM A216 WCB
1 = ASTM A216 WCC
2 = ASTM A352 LCB
3 = ASTM A352 LCC
4 = ASTM A351 CF8M
5 = ASTM A351 CF8
6 = ASTM A351 CF3M
7 = ASTM A351 CF3
8 = ASTM A890 4A
X = Special

Pressure Class

1 = Class 150
2 = Class 300
3 = Class 600
4 = Class 900
5 = Class 1500
6 = Class 2500

End Connections

F = Raised Face Flanged End
R = Ring Type Joint Flanged End
P = Plain Flat Face Flanged End
B = Butt-welded End
T = Threaded End
S = Socked-welded End
W = Wafer-Type
L = Lug-Type or Full Flange
D = Double Flange-Type
X = Other Type End Connection

Conduit Gate & Plug Valve Seat Type

None = Other Valves
S = Soft Seal
M = Metal Seal

8" Through Conduit Gate Valve, Class 300 A216 WCB Body & Bonnet, Raised Face, Flanged End, Soft Seated, Gear Operated

Example: 8″-CA20FX-SG-S-GO

Code

C = Cast Steel Valves
F = Forged Steel Valves
I = Cast Iron Valves
B = Ball Valves
WB = Wafer Butterfly
WC = Wafer Check Valve
W = Wellhead Valves

Trim Material

	Seat Seal Face	Disc Seal Face	Stem Material
1 =	13CR	13CR	F6
2 =	HF	HF	F6
3 =	HF	13CR	F6
4 =	Monel	Monel	Monel
5 =	316 SS	316 SS	F316
6 =	HF	316 SS	F316
7 =	304 SS	304 SS	F304
8 =	HF	304 SS	F304
9 =	Inconel	Inconel	Inconel
A =	HF	HF	F316
B = Duplex S.S.			
X =	Special		

Operator

NONE = Lever or Handwheel Operator
CO = Chain Wheel Operator
GO = Gear Operator
BS = Bare Stem
EM = Electric Motor Operator
PA = Pneumatic Actuator
HA = Hydraulic Actuator
PH = Pneumatic-Hydraulic Actuator

Conduit Gate Type

None = Other Valves
EG = Expanding Gate
SG = Slab Gate

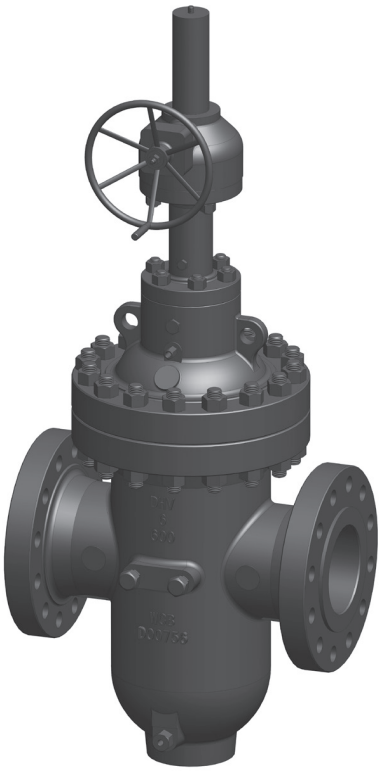
Through Conduit Slab Gate

Applicable Standards

Basic Design:	**API 6D, ASME B16.34**
Face to Face:	**ASME B16.10, API 6D**
Flange End:	**ASME B16.5 (up to 24")**
	ASME B16.47 series A (26" and above)
Butt Welding End:	**ASME B16.25**
Test and Inspection:	**API 6D**
Fire-safe Test:	**API 6FA or API 607**
Fugitive Emission Test:	**ISO 15848-2**
Type Testing for FE:	**ISO 15848-1**

Manufacturing to NACE current edition available upon request.

Compliance to CSA Z245.15 current edition available upon request.



Specifications

Size Range:	**2" ~ 48"**
Pressure Range:	**150LB ~ 2500LB**
End Connection:	**Flanged end / Butt welding end**
Bore:	**Full bore**
Operation:	**Manual operation, Actuated operation**
Material:	**Body: Carbon steel, Stainless steel, Duplex Stainless steel, etc.**
	Trim: Carbon steel+ENP, Alloy steel+ENP, Stainless steel, Duplex stainless steel, etc.
	Seat Insert: R-PTFE/NYLON-M/PEEK or Metal to Metal
Isolation Valve Features:	**DBB: Two SPE (Single Piston Effect) seats**

Note: Additional sizes and pressure classes are available upon request.

Through Conduit Slab Gate

Design Features

Soft & Metal Seat sealing (Figure 1)

Spring loaded double O-ring design seats maintain a seal with the gate in both low and high pressure applications. The soft seat inserts ensure that primary sealing occurs at the gate. In the event of soft seat damage, the seating of metal to metal seat will act as the secondary seal.

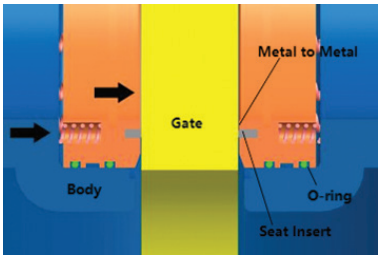


Figure 1

Fire-Safe Design (Figure 2)

During a fire, the soft seats can be destroyed. As the seats begin to be compromised, the upstream pressure forces the gate against the downstream seat forcing it against the back of the seat pocket-forming a metal-to-metal seal. When the soft seats have been completely compromised, the metal face of the seat forms a metal-to-metal seal with the gate. Metal seats are firesafe by design.

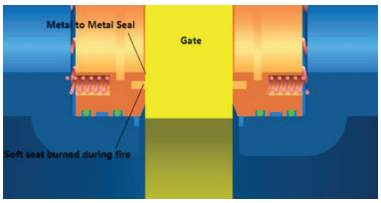


Figure 2

Double Block and Bleed (Figure 3)

When there is no pressure on either side of the seats, the springs apply force to the seats forming a tight seal on the upstream / downstream sides of the gate.When there is pressure in the line,the upstream pressure forces the gate against the downstream seat, while also forcing the upstream seat against the gate, due to the single piston effect design of the seats.With the slab gate now tightly sealed on both sides, the vent / drain plug in the body can be released.

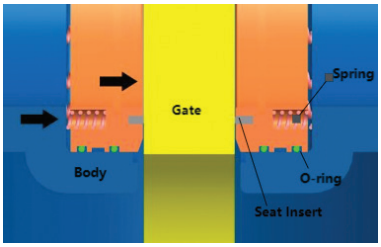


Figure 3

Self Cavity Relief (Figure 4)

The double block and bleed slab gate design, in the closed position, may experience an increase in cavity pressure due to thermal expansion. When the cavity pressure exceeds the line the excess cavity pressure will vent into the line pressure. This allows for a pressure balance between the body cavity and the line.

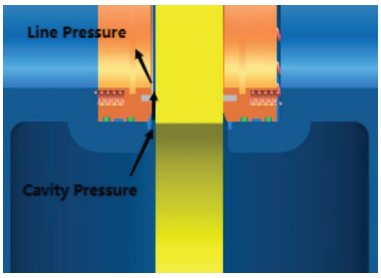


Figure 4

Emergency Sealant Injection System (Figure 5)

Seat and stem injection are provided on 2" and larger slab gate valves. The sealant injection system can be utilized in case of emergencies, seals damage, or seat surface damage or lubrication. A second internal check valve is designed within the seat injection fitting to provide backup.

Stem injection system also includes a removable plug on the opposite side of the injection fitting. This plug can be removed to aid in preventing sealant overpressurization while allowing the operator to ensure the sealant fills the chamber.

Note: Operator must ensure there is no pressure inside the stem chamber prior to removal of the plug.

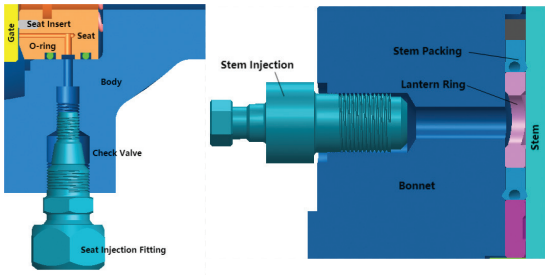
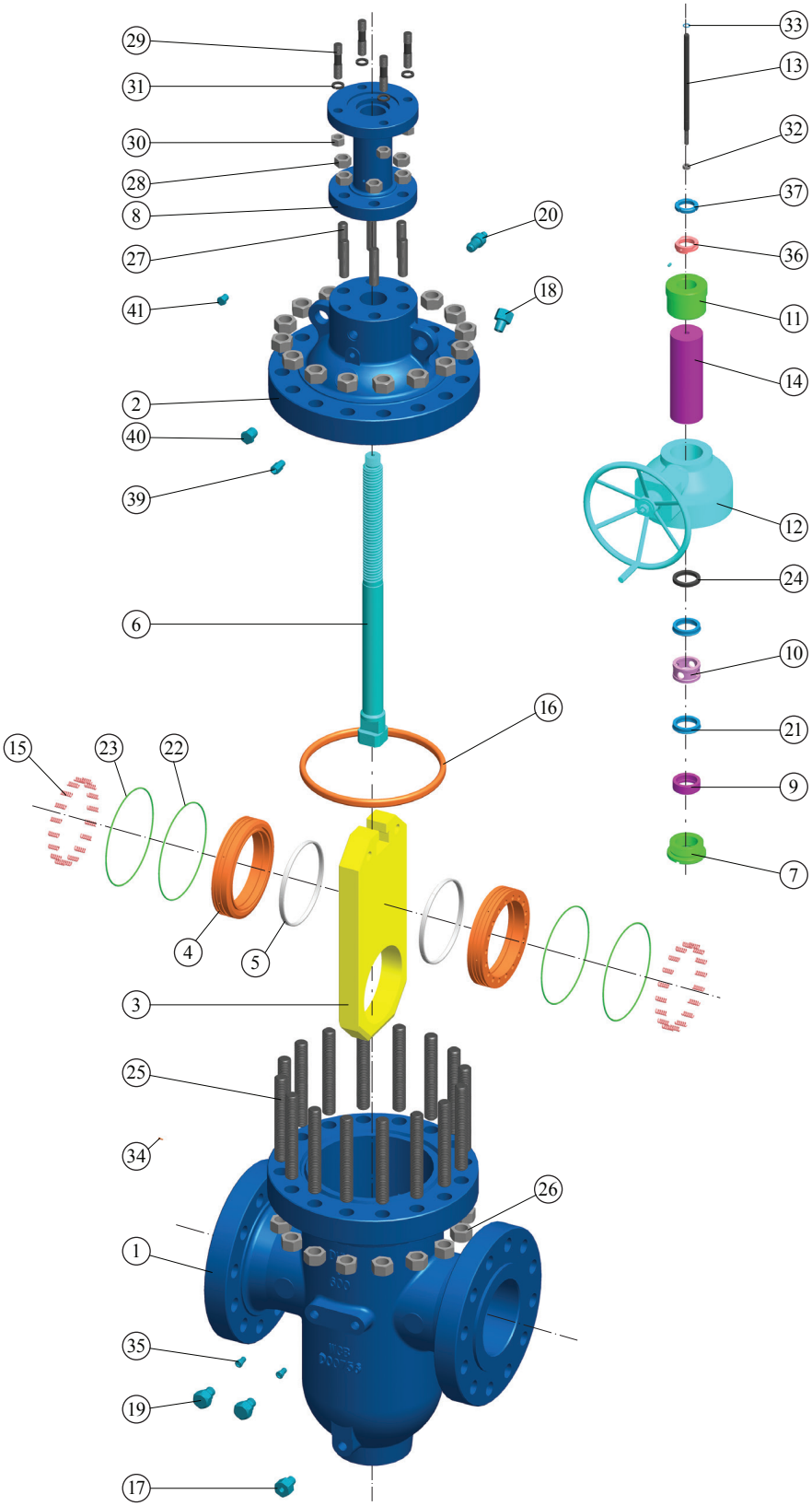


Figure 5

Through Conduit Slab Gate

Explored Features

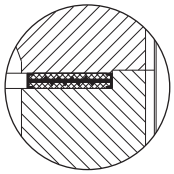


General Note: Structure shown in the illustration is typical, other configurations are available upon request.

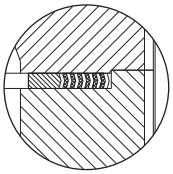
Through Conduit Slab Gate

Material List

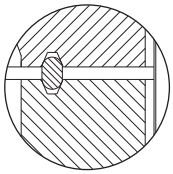
Flange Gasket



Metal Backup Graphite Gasket 150lb



Sprial Wound Gasket 300lb



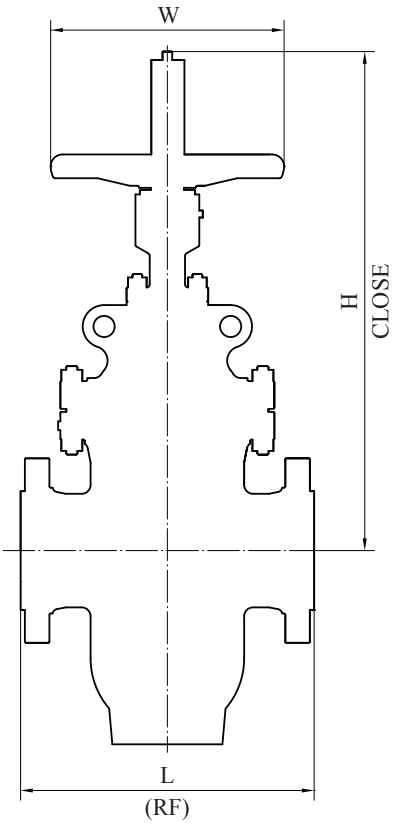
Ring Type Joint ≥ 600lb

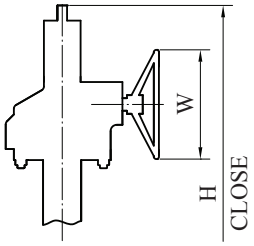
Material Specification

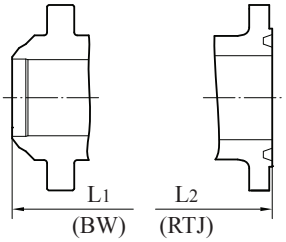
No.	Part Name	Carbon Steel	Low Carbon Steel
1	Body	A216 WCB / WCC	A216 WCB / WCC
2	Bonnet	A216 WCB / WCC	A216 WCB / WCC
3	Slab Gate	A105N / ENP	A350 LF2 / ENP
4	Seat	A105N / ENP	A350 LF2 / ENP
5	Seal Insert	PTFE / RPTFE / NYLON-M / PEEK OR Metal to Metal	
6	Stem	A182 F6a / 17-4PH	
7	Back Seat	A276 410	
8	Yoke	A216 WCB / WCC or A105N	A352 LCC / LCB or A350 LF2
9	Spacer Ring	A276 410	
10	Lantern Ring	A276 410	
11	Stem Nut	A439 D2 / Aluminum Bronze	
12	Gearbox	Carbon Steel	
13	Indicator	Stainless Steel	
14	Dustproof Cover	Carbon Steel	
15	Spring	Inconel X-750	
16	Body/Bonnet Seal	304SS / 316SS+Graphite or Soft Iron / 304SS / 316SS RTJ	
17	Drain Fitting	Assembly	
18	Vent Fitting	Assembly	
19	Seat Injection Fitting	Assembly	
20	Stem Injection Fitting	Assembly	
21	Stem Packing	Viton / Graphite/PTFE	
22	Seat O-Ring	Viton	
23	Seat O-Ring	Viton	
24	Fire-safe Packing	Graphite	
25	Bolt	A193 B7 / B7M	A320 L7 / L7M
26	Nut	A194 2H / 2HM	A194 7 / 7M
27	Bolt	A193 B7 / B7M	A320 L7 / L7M
28	Nut	A194 2H / 2HM	A194 7 / 7M
29	Bolt	A193 B7 / B7M	A320 L7 / L7M
30	Nut	A194 2H / 2HM	A194 7 / 7M
31	Spring Washer	Carbon Steel	
32	Nut	A194 2H / 2HM	A194 7 / 7M
33	Dust proof Seal O-Ring	Viton	
34	Nameplate	Stainless Steel	
35	Injection Check Valve	A193 B7 / B7M	A320 L7 / L7M
36	Stop Block	Carbon Steel	
37	Nut	A193 B7 / B7M	A320 L7 / L7M
38	Screw	A193 B7 / B7M	A320 L7 / L7M
39	Drain Fitting	Assembly	
40	Screw Plug	A216 WCB / WCC or A105N	A352 LCC / LCB or A350 LF2
41	Screw Plug	A216 WCB / WCC or A105N	A352 LCC / LCB or A350 LF2

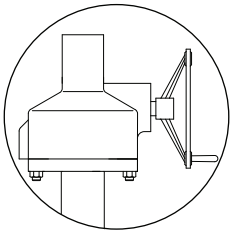
Through Conduit Slab Gate

Dimensions









Bevel Gear

150LB	*≥ 12″*
300LB	*≥ 10″*
600LB	*≥ 8″*
900LB	*≥ 6″*
1500LB	*≥ 6″*
2500LB	*≥ 4″*

150LB

Description			Valve Size															
			2	3	4	6	8	10	12	14	16	18	20	24	28	30	32	36
Flanged End L		in	7.00	8.00	9.00	10.50	11.50	13.00	14.00	15.00	16.00	17.00	18.00	20.00	24.00	26.00	28.00	32.00
		mm	178	203	229	267	292	330	356	381	406	432	457	508	610	660	711	813
Weld End L_1		in	8.50	11.13	12.00	15.88	16.50	18.00	19.75	22.50	24.00	26.00	28.00	32.00	36.00	36.00	38.00	40.00
		mm	216	283	305	403	419	457	502	572	610	660	711	813	914	914	965	1016
Height H		in	20.00	24.33	28.54	38.07	45.28	55.00	62.87	69.88	77.52	84.92	94.09	109.80	120.59	134.37	135.51	154.76
		mm	508	618	725	967	1150	1397	1597	1775	1969	2157	2390	2789	3063	3413	3442	3931
Handwheel Dia W		in	7.87	7.87	7.87	9.84	9.84	12.20	12.20	12.20	12.20	12.20	18.11	18.11	18.11	24.02	24.02	27.56
		mm	200	200	200	250	250	310	310	310	310	310	460	460	460	610	610	700
Weight	RF	Kg	35	58	78	90	246	341	430	570	712	845	1080	1740	2520	2820	3400	5105
	BW	Kg	31	49	70	80	227	293	387	535	708	822	1044	1706	2458	2640	2932	5035

300LB

Description			Valve Size															
			2	3	4	6	8	10	12	14	16	18	20	24	28	30	32	36
Flanged End L		in	8.50	11.13	12.00	15.88	16.50	18.00	19.75	30.00	33.00	36.00	39.00	45.00	53.00	55.00	60.00	68.00
		mm	216	283	305	403	419	457	502	762	838	914	991	1143	1346	1397	1524	1727
Weld End L_1		in	8.50	11.13	12.00	15.88	16.50	18.00	19.75	30.00	33.00	36.00	39.00	45.00	53.00	55.00	60.00	68.00
		mm	216	283	305	403	419	457	502	762	838	914	991	1143	1346	1397	1524	1727
Height H		in	20.00	24.57	28.66	38.23	45.12	55.71	63.74	70.67	78.50	83.70	93.66	103.74	122.05	132.87	136.85	150.39
		mm	508	624	728	971	1146	1415	1619	1795	1994	2126	2379	2635	3100	3375	3476	3820
Handwheel Dia W		in	7.87	11.81	11.81	13.78	12.20	12.20	18.11	18.11	18.11	18.11	18.11	24.02	24.02	24.02	24.02	27.56
		mm	200	300	300	350	310	310	460	460	460	460	460	610	610	610	610	700
Weight	RF	Kg	56	90	104	260	375	525	720	990	1350	2110	2520	4050	5246	6110	6666	8345
	BW	Kg	47	90	103	226	304	519	628	872	1205	2023	2298	3695	4659	5570	5938	6485

For sizes out of above range, please consult DHV for details.

Through Conduit Slab Gate

Dimensions

600LB

Description			Valve Size															
			2	3	4	6	8	10	12	14	16	18	20	24	28	30	32	36
Flanged End L		in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00	61.00	65.00	70.00	82.00
		mm	292	356	432	559	660	787	838	889	991	1092	1194	1397	1549	1651	1778	2083
Weld End L_1		in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00	61.00	65.00	70.00	82.00
		mm	292	356	432	559	660	787	838	889	991	1092	1194	1397	1549	1651	1778	2083
RTJ L_2		in	11.63	14.13	17.13	22.13	26.13	31.13	33.13	35.13	39.13	43.13	47.25	55.38	61.50	65.50	70.63	82.63
		mm	295	359	435	562	664	791	841	892	994	1095	1200	1407	1562	1664	1794	2099
Height H		in	20.43	25.24	30.31	39.09	46.85	57.40	66.85	73.98	80.24	88.82	97.17	113.58	128.15	139.57	143.70	158.07
		mm	519	641	770	993	1190	1458	1698	1879	2038	2256	2468	2885	3255	3545	3650	4015
Handwheel Dia W		in	7.87	11.81	13.78	12.20	12.20	12.20	18.11	18.11	24.02	24.02	24.02	27.56	27.56	27.56	27.56	27.56
		mm	200	300	350	310	310	310	460	460	610	610	610	700	700	700	700	700
Weight	RF	Kg	72	127	152	315	652	875	1080	1605	2150	2557	4000	4736	5965	7825	9265	14620
	BW	Kg	61	114	116	246	587	813	990	1334	1965	2257	3680	4133	5040	6590	8195	12840

900LB

Description			Valve Size											
			2	3	4	6	8	10	12	14	16	18	20	24
Flanged End L		in	14.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	61.00
		mm	368	381	457	610	737	838	965	1029	1130	1219	1321	1549
Weld End L_1		in	14.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	61.00
		mm	368	381	457	610	737	838	965	1029	1130	1219	1321	1549
RTJ L_2		in	14.63	15.13	18.13	24.13	29.13	33.13	38.13	40.88	44.88	48.50	52.50	61.75
		mm	371	384	460	613	740	841	968	1038	1140	1232	1334	1568
Height H		in	21.26	30.31	31.77	42.40	50.20	61.22	69.53	77.17	83.66	91.54	96.89	115.43
		mm	540	770	807	1077	1275	1555	1766	1960	2125	2325	2461	2932
Handwheel Dia W		in	9.84	13.78	13.78	19.69	12.20	24.02	24.02	24.02	27.56	27.56	24.02	24.02
		mm	250	350	350	500	310	610	610	610	700	700	610	610
Weight	RF	Kg	80	170	286	540	960	1210	1870	2500	2900	3420	4500	7500
	BW	Kg	65	139	224	463	818	920	1738	2260	2615	2850	3690	7400

1500LB

Description			Valve Size											
			2	3	4	6	8	10	12	14	16	18	20	24
Flanged End L		in	14.50	18.50	21.50	27.75	32.75	39.00	44.50	49.50	54.50	60.50	65.50	76.50
		mm	368	470	546	705	832	991	1130	1257	1384	1537	1664	1943
Weld End L_1		in	14.50	18.50	21.50	27.75	32.75	39.00	44.50	49.50	54.50	60.50	65.50	76.50
		mm	368	470	546	705	832	991	1130	1257	1384	1537	1664	1943
RTJ L_2		in	14.63	18.63	21.63	28.00	33.13	39.38	45.13	50.25	55.38	61.38	66.38	77.63
		mm	371	473	549	711	841	1000	1146	1276	1407	1559	1686	1972
Height H		in	22.05	31.50	32.99	44.09	51.57	63.66	72.32	80.24	87.01	95.20	105.20	124.88
		mm	560	800	838	1120	1310	1617	1837	2038	2210	2418	2672	3172
Handwheel Dia W		in	15.75	19.69	23.62	31.50	24.02	27.56	27.56	27.56	27.56	39.37	39.37	39.37
		mm	400	500	600	800	610	700	700	700	700	1000	1000	1000
Weight	RF	Kg	100	265	380	880	1310	2100	3325	4380	5500	6550	8500	13800
	BW	Kg	80	229	329	728	1031	1830	3255	3480	4600	5550	7470	13400

2500LB

Description			Valve Size						
			2	3	4	6	8	10	12
Flanged End L		in	17.75	22.75	26.50	36.00	40.25	50.00	56.00
		mm	451	578	673	914	1022	1270	1422
Weld End L_1		in	17.75	22.75	26.50	36.00	40.25	50.00	56.00
		mm	451	578	673	914	1022	1270	1422
RTJ L_2		in	17.88	23.00	26.88	36.50	40.88	50.88	56.88
		mm	454	584	683	927	1038	1292	1445
Height H		in	22.68	32.44	33.86	45.28	53.15	65.55	74.49
		mm	576	824	860	1150	1350	1665	1892
Handwheel Dia W		in	15.75	19.69	24.02	24.02	24.02	24.02	27.56
		mm	400	500	610	610	610	610	700
Weight	RF	Kg	146	370	545	1215	2145	3900	5660
	BW	Kg	111	300	430	925	1705	3130	4760

Note: Data listed above is for reference only. For detailed product data, please refer to the order confirmation drawing.

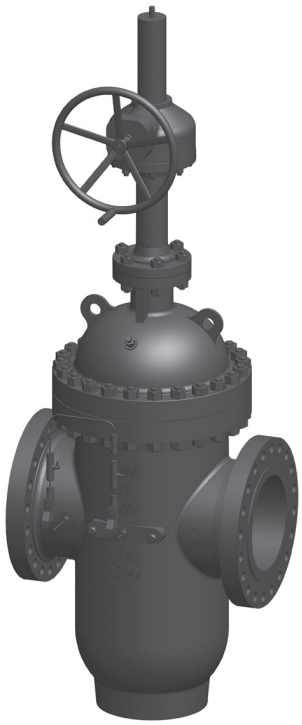
Through Conduit Expanding Gate

Applicable Standards

Basic Design:	**API 6D, ASME B16.34**
Face to Face:	**ASME B16.10, API 6D**
Flange End:	**ASME B16.5 (up to 24")**
	ASME B16.47 series A (26" and above)
Butt Welding End:	**ASME B16.25**
Test and Inspection:	**API 6D**
Fire-safe Test:	**API 6FA or API 607**
Fugitive Emission Test:	**ISO 15848-2**
Type Testing for FE:	**ISO 15848-1**

Manufacturing to NACE current edition available upon request.

Compliance to CSA Z245.15 current edition available upon request.



Specifications

Size Range:	**2" ~ 48"**
Pressure Range:	**150LB ~ 2500LB**
End Connection:	**Flanged end / Butt welding end**
Bore:	**Full bore**
Operation:	**Manual operation, Actuated operation**
Material:	**Body: Carbon steel, Stainless steel, Duplex Stainless steel, etc.**
	Trim: Carbon steel+ENP, Alloy steel+ENP, Stainless steel, Duplex stainless steel, etc.
	Seat Insert: R-PTFE/NYLON-M/PEEK or Metal to Metal
Isolation Valve Features:	**DBB: DIB**

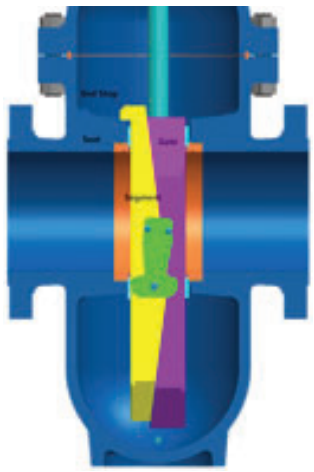
Note: Additional sizes and pressure classes are available upon request.

Through Conduit Expanding Gate

Operation

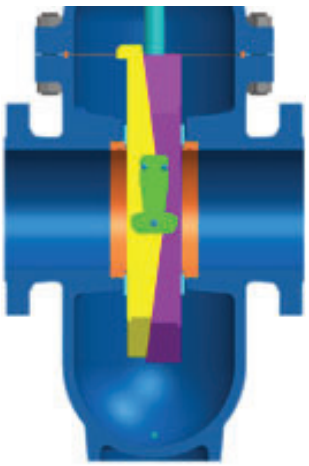
The DHV Expanding Gate valve design provides a mechanical seal between the seats and the gate in both high and low pressure applications. The expanding gate valve does not require line pressure to seal and is recommended when a tight mechanical seal is required.

The positive, mechanical seating force holds with zero leakage, through various conditions such as vibration, and pressure temperature changes. Soft seals on both faces of the valve assure tight sealing, even at low differential pressure and metal-metal contact between the seals and gate mechanism provides firesafe shut-off. All-metal seals are also available for high temperature service.



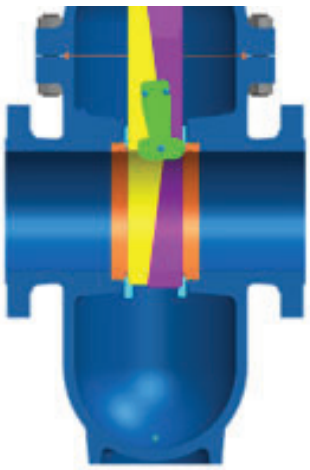
Full Expanded Closed

In the fully closed position the Segment has engaged with an end top and the Gate is wedged downward, expanding the Segment and Gate so that they form a tight mechanical closure against the upstream and downstream ports. Venting the body cavity will provide for a zero leakage shut off.



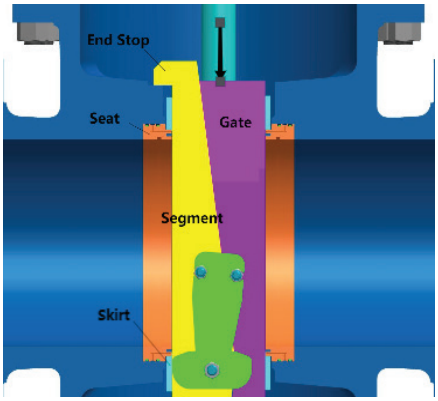
Mid-Travel

During travel towards the open position, the Gate slides across the wedge angle of the Segment, collapsing the assembly and allowing it to travel freely between the seal faces. The patented Leverlock gate centralizer holds the mechanism in the collapsed position until seal expansion is required.



Full Expanded Open

In the full expanded open position, the segment stop is engaged with the upper body stop and the gate is positioned upward. This expands the segment and the gate into the seats, isolating the flow from the cavity.



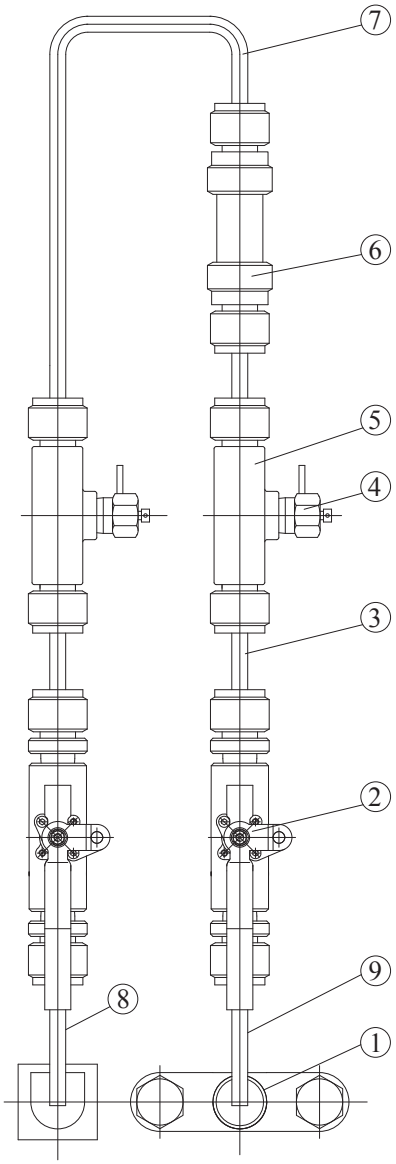
Leverlock Mechanism

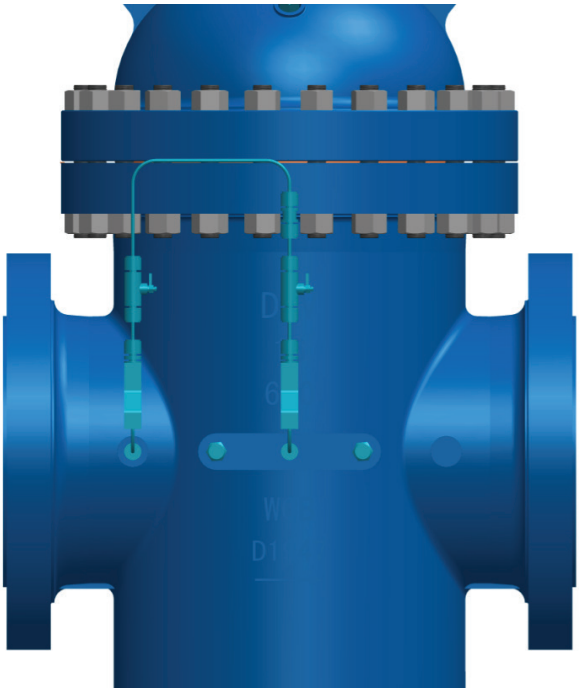
The lever arm is held parallel to the gate faces by the skirt plates, while the assembly is moving through its stroke. Near the end-of-travel position, the skirt allows the lever to tilt. The gate and segment slide against their angled faces, creating the expanding seal action. In their final position, the gate and segment are mechanically secured in place. The skirt plates are guide rails, at the sides of the gate. The skirts align the gate and segments with the seats.

Thermal Relief System

Because of the split gate design, it is possible for excess body pressure to develop in the body cavities of closed valves. This usually results from increasing temperature in valves in liquid service. A thermal body cavity relief system is provided to relieve this excess body pressure. Thermal relief systems which direct excess body pressure to the upstream conduit are standard. This system consists of two ball valves, a check valve, tubing and two bleed valves.

Body pressure greater than the segment conduit pressure causes the check valve to unseat and relieve excess pressure to the upstream conduit. The ball valve must be kept open while the valve is in service. These ball valves can be used to isolate the line pressure to service the relief system, as needed. This illustrates the standard body relief system. Custom body relief systems may be available.

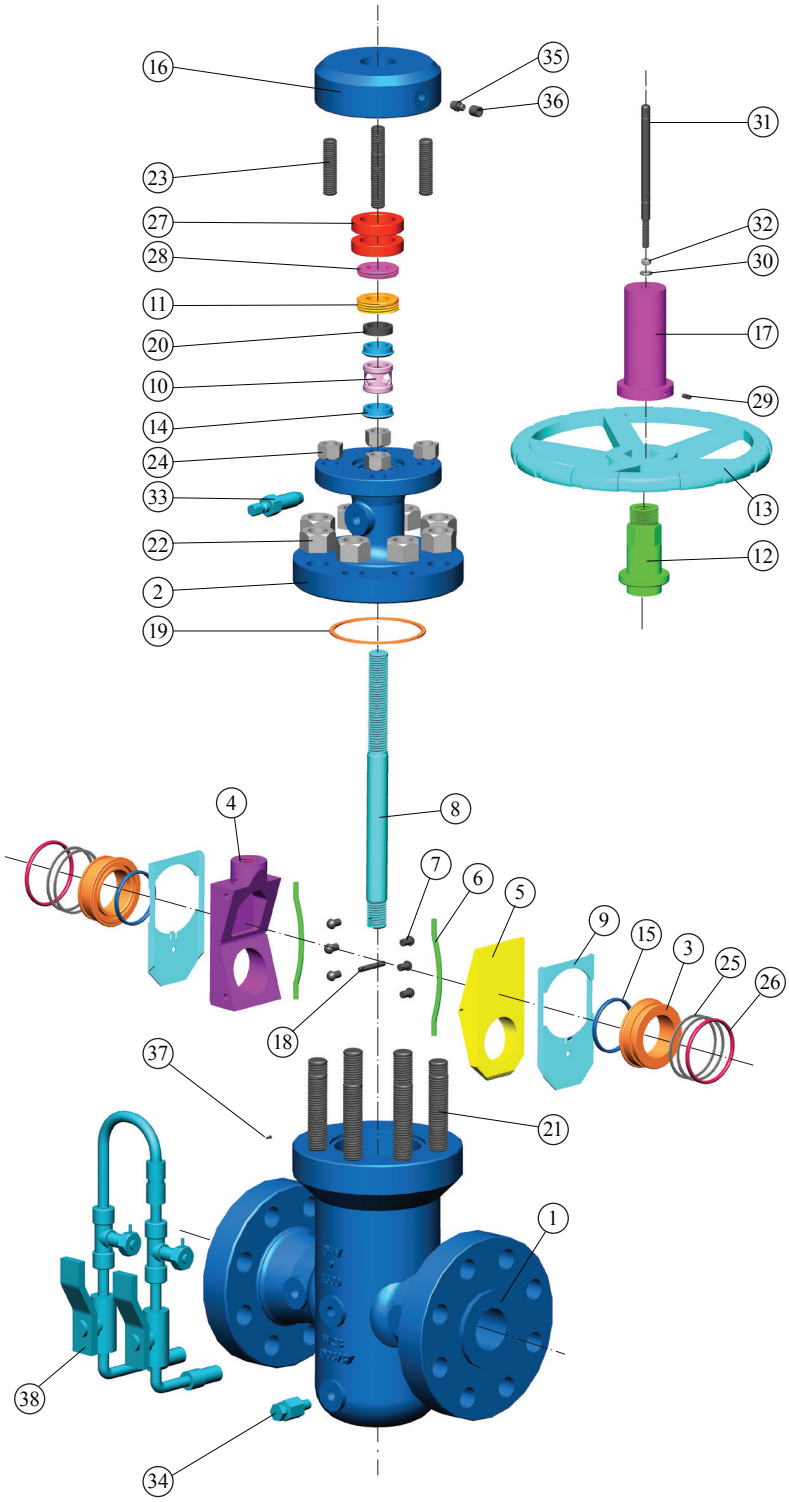




1	Male Tubing Connector	6
2	Ball Valve	2
3	Tubing	3
4	Bleed Valve	2
5	Tee	2
6	Check Valve	1
7	Tubing	1
8	Tubing	1
9	Tubing	1

Through Conduit Expanding Gate

2 ~ 4", Soft seat, Spring Gate Centralizer



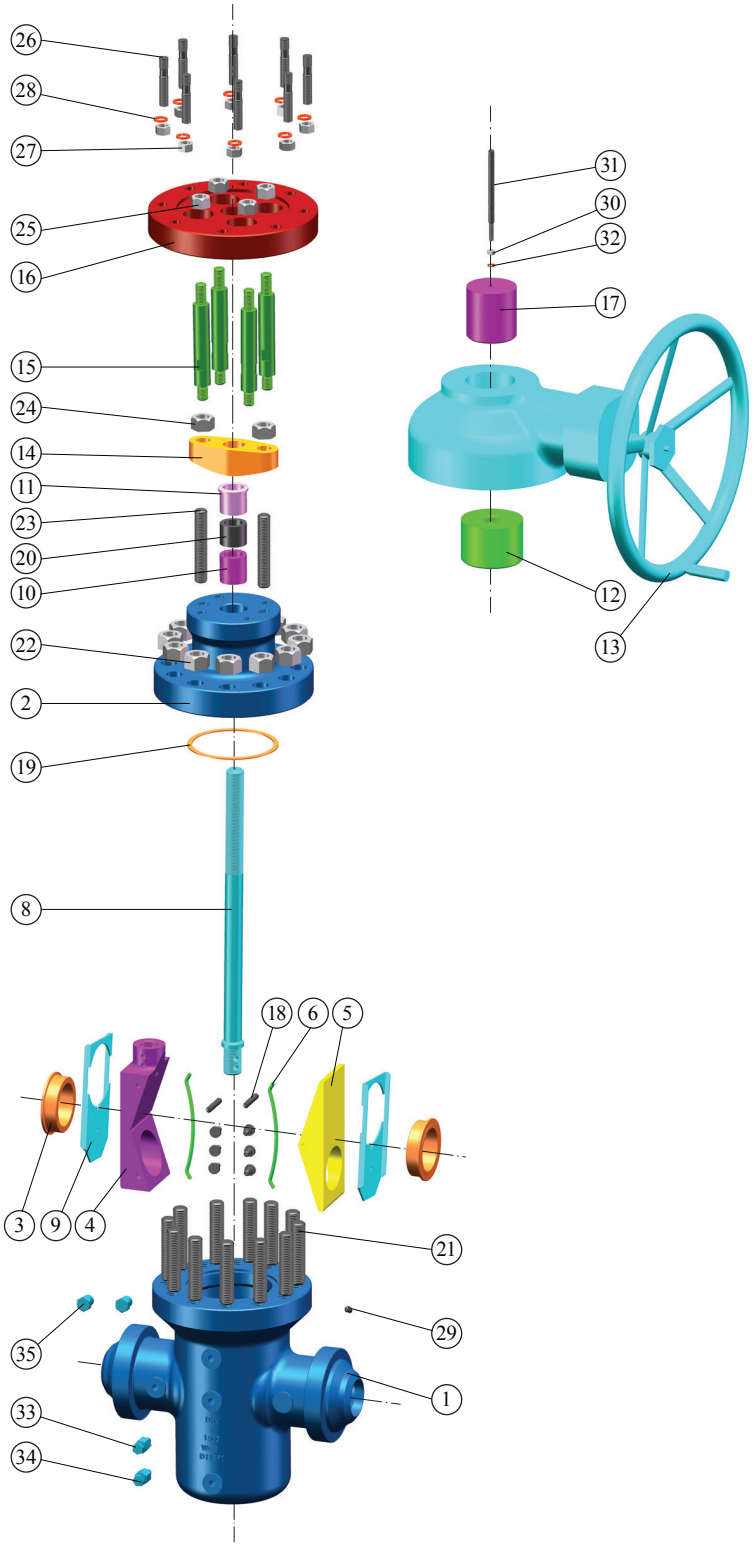
Material Specification

No.	Part Name	Material
1	Body	ASTM A216 WCB
2	Bonnet	ASTM A216 WCB
3	Seat	ASTM A105N+ENP
4	Gate	ASTM A105N+ENP
5	Segment	ASTM A105N+ENP
6	Spring	PH15-7Mo
7	Screw	STAINLESS STEEL
8	Stem	ASTM A182 F6a(II)
9	Skirt	35+ENP
10	Lattern Ring	ASTM A276 410
11	Gland Flange	ASTM A276 410
12	Stem Nut	QAL9-4
13	Handwheel	QT400-18
14	Seal Packing	D90 VITON-B
15	Seat Insert	PTFE
16	Bearing Cover	ASTM A105N
17	Dustproof Cover	CARBON STEEL
18	Pin	STAINLESS STEEL
19	Seal Ring	ASTM A182 F316(≤160HB)
20	Firesafe packing	Flexible Graphite
21	Bolt	ASTM A193 B7M
22	Nut	ASTM A194 2HM
\	Bolt	ASTM A193 B7M
24	Nut	ASTM A194 2HM
25	Backup Ring	PTFE
26	O-Ring	D90 VITON-B
27	Bearing	GCr15
28	Gland	ASTM A105N
29	Screw	STAINLESS STEEL
30	O-Ring	D90 VITON-B
31	Indicator	STAINLESS STEEL
32	Nut	ASTM A194 2HM
33	Stem Injection Fitting	ASTM A29 4140+9Cr18Mo
34	Drain Fitting	STAINLESS STEEL
35	Oil Cap	CARBON STEEL
36	Oil Cap Dust Proof	PVC
37	Screw	CARBON STEEL
38	Bypass System	CARBON STEEL

General Note: Structure shown in the illustration is typical, other configurations are available upon request.

Through Conduit Expanding Gate

2 ~ 4", Metal seat, Spring Gate Centralizer



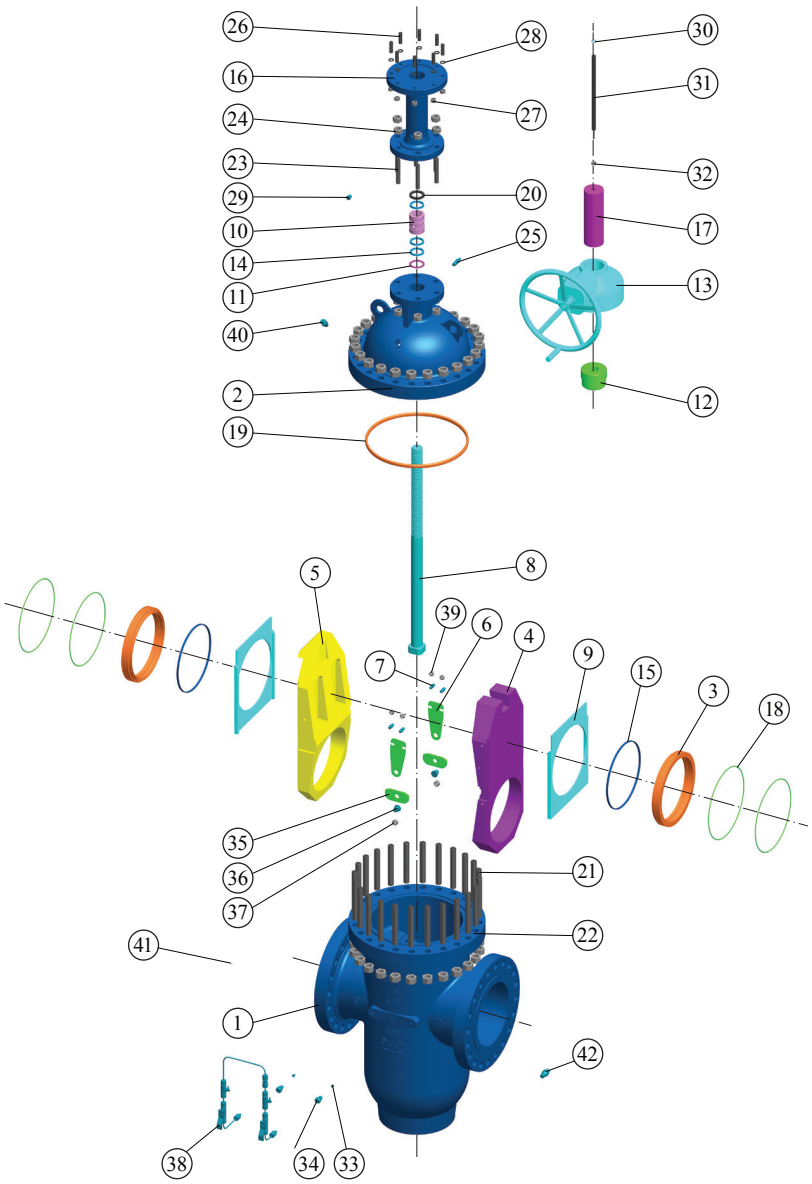
Material Specification

No.	Part Name	Material
1	Body	ASTM A216 WCB
2	Bonnet	ASTM A105N
3	Seat	ASTM A182 F6a(II)
4	Gate	ASTM A182 F6a(II)
5	Segemnt	ASTM A182 F6a(II)
6	Spring	INCONEL X-750
7	Bolt	STAINLESS STEEL
8	Stem	ASTM A182 F6a(II)
9	Skirt	35+ENP
10	Spacer Ring	ASTM A276 420
11	Packing Gland	ASTM A276 420
12	Stem Nut	ASTM A439 D-2C
13	Gearox	ASTM A216 WCB
14	Gland Flane	ASTM A105N
15	Stud	ASTM A29 4130
16	Adapter Plate	ASTM A105N
17	Dustproof Cover	CARBON STEEL
18	Tapered Cotter	17-4PH
19	Seal Ring	ASTM A182 F316
20	Packing	Inconel Wire+Braided Graphite
21	Bolt	ASTM A193 B7
22	Nut	ASTM A194 2H
23	Bolt	ASTM A193 B7
24	Nut	ASTM A194 2H
25	Nut	ASTM A194 2H
26	Bolt	ASTM A193 B7
27	Nut	ASTM A194 2H
28	Spring Washer	CARBON STEEL
29	Screw	STAINLESS STEEL
30	Dustproof Seal	D90 VITON-B
31	Indicator	STAINLESS STEEL
32	Nut	ASTM A194 2H
33	Plug Screw	ASTM A105N
34	Drain Fitting	STAINLESS STEEL
35	Vent Fitting	STAINLESS STEEL

General Note: Structure shown in the illustration is typical, other configurations are available upon request.

Through Conduit Expanding Gate

6" and Above, Soft seat, Leverlock Gate Centralizer



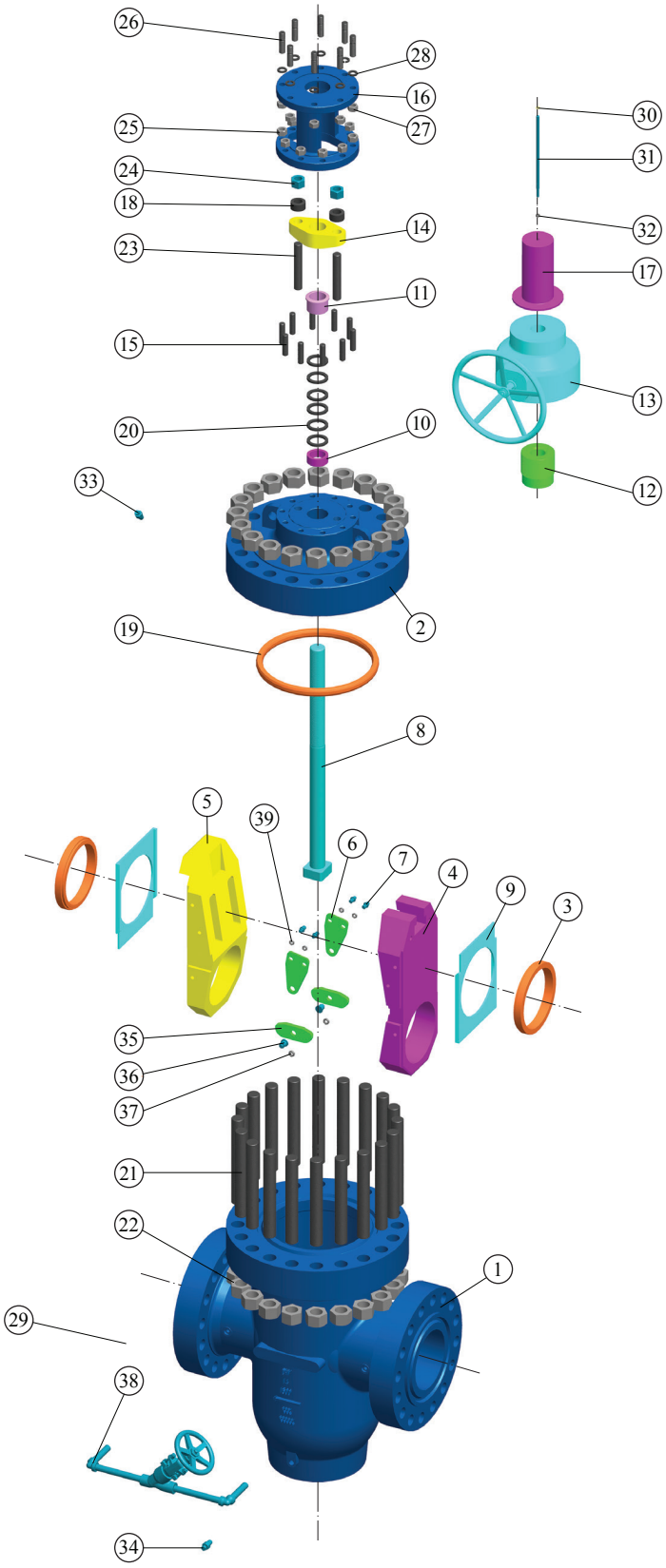
Material Specification

No.	Part Name	Material
1	Body	ASTM A216 WCB
2	Bonnet	ASTM A216 WCB
3	Seat	ASTM A105N+ENP
4	Gate	ASTM A216 WCB+ENP
5	Segment	ASTM A216 WCB+ENP
6	Lever lock	ASTM A276 410
7	Lever lock Screw	STAINLESS STEEL
8	Stem	ASTM A182 F6a(II)
9	Skirt	35+ENP
10	Lattern Ring	ASTM A276 410
11	Spacer Ring	ASTM A276 410
12	Stem Nut	QAL9-4
13	Gearbox	ASTM A216 WCB
14	Seal Packing	D90 VITON-B
15	Seat Insert	PTFE
16	Yoke	ASTM A216 WCB
17	Dustproof Cover	CARBON STEEL
18	O-Ring	D90 VITON-B
19	Seal Ring	08 (≤120HB)
20	Firesafe Packing	FLEXIBLE GRAPHITE
21	Bolt	ASTM A193 B7M
22	Nut	ASTM A194 2HM
23	Bolt	ASTM A193 B7M
24	Nut	ASTM A194 2HM
25	Stem Injection Fitting	ASTM A29 4140+9Cr18Mo
26	Bolt	ASTM A193 B7M
27	Nut	ASTM A194 2HM
28	Spring Washer	CARBON STEEL
29	Screw	STAINLESS STEEL
30	Dustproof seal	D90 VITON-B
31	Indicator	ASTM A182 F304
32	Nut	ASTM A194 2HM
33	Check Valve	STAINLESS STEEL
34	Seat Injection Fitting	STAINLESS STEEL
35	Slider	ASTM A276 410
36	Bolt	STAINLESS STEEL
37	Nut	ASTM A194 2HM
38	Bypass Pressure Relief System	CARBON STEEL
39	Nut	ASTM A194 2HM
40	Vent Fitting	STAINLESS STEEL
41	Screw	CARBON STEEL
42	Drain Fitting	STAINLESS STEEL

General Note: Structure shown in the illustration is typical, other configurations are available upon request.

Through Conduit Expanding Gate

6" and Above, Metal seat, Leverlock Gate Centralizer



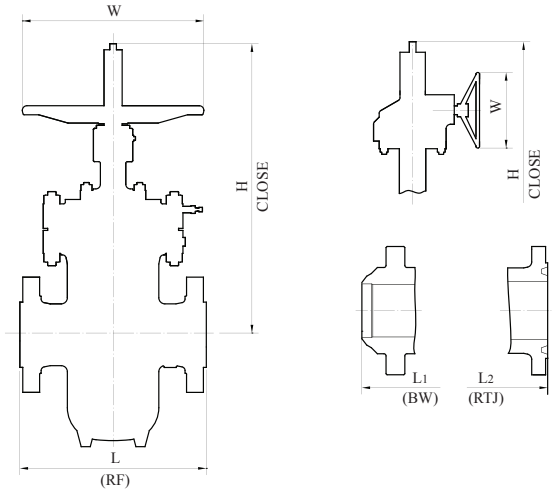
Material Specification

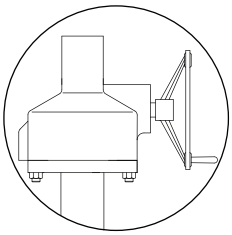
No.	Part Name	Material
1	Body	ASTM A216 WCB
2	Bonnet	ASTM A216 WCB
3	Seat	ASTM A105N
4	Gate	ASTM A216 WCB
5	Segment	ASTM A216 WCB
6	Lever Lock	ASTM A276 410
7	Lever Lock Screw	STAINLESS STEEL
8	Stem	17-4PH
9	Skirt	STAINLESS STEEL
10	Spacer Ring	ASTM A276 420
11	Packing Gland	ASTM A276 420
12	Stem Nut	QAL9-4
13	Gearbox	ASTM A216 WCB
14	Gland Flange	ASTM A216 WCB
15	Bolt	ASTM A193 B7M
16	YOKE	ASTM A216 WCB
17	Dustproof Cover	CARBON STEEL
18	Disc Spring	17-4PH
19	RTJ Seal Ring	08 (≤120HB)
20	Stem Packing	CPS 8700
21	Bolt	ASTM A193 B7M
22	Nut	ASTM A194 2HM
23	Bolt	ASTM A193 B7M
24	Nut	ASTM A194 2HM
25	Nut	ASTM A194 2HM
26	Bolt	ASTM A193 B7M
27	Nut	ASTM A194 2HM
28	Spring Washer	CARBON STEEL
29	Screw	STAINLESS STEEL
30	Dustproof Seal	D90 VITON-B
31	Indicator	STAINLESS STEEL
32	Nut	ASTM A194 2HM
33	Vent Fitting	STAINLESS STEEL
34	Drain Fitting	STAINLESS STEEL
35	Slider	ASTM A276 410
36	Bolt	ASTM A276 420
37	Nut	ASTM A194 2HM
38	Bypass Pressure Relief System	Assembly
39	Nut	ASTM A194 2HM

General Note: Structure shown in the illustration is typical, other configurations are available upon request.

Through Conduit Slab Gate

Dimensions





Bevel Gear

150LB	*≥ 12″*
300LB	*≥ 10″*
600LB	*≥ 8″*
900LB	*≥ 6″*
1500LB	*≥ 6″*
2500LB	*≥ 4″*

150LB

Description		Valve Size						
		16	18	20	24	30	32	36
Flanged End L	in	16.00	17.00	18.00	20.00	26.00	28.00	32.00
	mm	406	432	457	508	660	711	813
Weld End L1	in	24.00	26.00	28.00	32.00	36.00	38.00	40.00
	mm	610	660	711	813	914	965	1016
Height H	in	80.55	90.00	98.19	116.14	138.86	145.08	161.42
	mm	2046	2286	2494	2950	3527	3685	4100
Handwheel Dia W	in	12.20	18.11	18.11	18.11	24.02	24.02	27.56
	mm	310	460	460	460	610	610	700
Weight RF	Kg	1123	1391	1500	3780	4700	5780	8680
Weight BW	Kg	1077	1343	1464	3740	4520	5300	8500

300LB

Description		Valve Size									
		6	8	10	12	14	16	18	20	24	30	32	36
Flanged End L	in	15.88	16.50	18.00	19.75	30.00	33.00	36.00	39.00	45.00	55.00	60.00	68.00
	mm	403	419	457	502	762	838	914	991	1143	1397	1524	1727
Weld End L1	in	15.88	16.50	18.00	19.75	30.00	33.00	36.00	39.00	45.00	55.00	60.00	68.00
	mm	403	419	457	502	762	838	914	991	1143	1397	1524	1727
Height H	in	36.64	46.37	52.55	59.44	71.26	82.68	87.01	99.02	114.57	138.98	145.08	160.63
	mm	931	1178	1335	1510	1810	2100	2210	2515	2910	3530	3685	4080
Handwheel Dia W	in	15.75	23.62	23.62	29.53	18.11	18.11	18.11	18.11	24.02	24.02	24.02	24.02
	mm	400	600	600	750	460	460	460	460	610	610	610	610
Weight RF	Kg	277	418	549	804	1075	1409	2278	2551	4359	7332	8000	10014
Weight BW	Kg	243	347	490	751	911	1231	2191	2360	3899	6792	7270	8154

600LB

Description		Valve Size														
		2	3	4	6	8	10	12	14	16	18	20	24	30	32	36
Flanged End L	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00	65.00	70.00	82.00
	mm	292	356	432	559	660	787	838	889	991	1092	1194	1397	1651	1778	2083
Weld End L1	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00	65.00	70.00	82.00
	mm	292	356	432	559	660	787	838	889	991	1092	1194	1397	1651	1778	2083
RTJ L2	in	11.63	14.13	17.13	22.13	26.13	31.13	33.13	35.13	39.13	43.13	47.25	55.38	65.50	70.63	82.63
	mm	295	359	435	562	664	791	841	892	994	1095	1200	1407	1664	1794	2099
Height H	in	14.38	19.33	21.88	42.56	48.54	61.30	69.29	71.26	85.39	87.01	102.36	121.93	138.98	145.08	160.63
	mm	365	491	556	1081	1233	1557	1760	1810	2169	2210	2600	3097	3530	3685	4080
Handwheel Dia W	in	11.81	11.81	13.78	17.72	23.62	24.02	24.02	24.02	24.02	24.02	27.56	27.56	27.56	27.56	27.56
	mm	300	300	350	450	600	610	610	610	610	610	700	700	700	700	700
Weight RF	Kg	75	132	160	323	671	921	1100	1654	2286	2684	4101	5305	9728	11200	14910
Weight BW	Kg	64	119	124	254	606	859	1010	1383	2100	2384	3781	4646	8658	10500	13132

900LB

Description		Valve Size											
		2	3	4	6	8	10	12	14	16	18	20	24
Flanged End L	in	14.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	61.00
	mm	368	381	457	610	737	838	965	1029	1130	1219	1321	1549
Weld End L1	in	14.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	61.00
	mm	368	381	457	610	737	838	965	1029	1130	1219	1321	1549
RTJ L2	in	14.63	15.13	18.13	24.13	29.13	33.13	38.13	40.88	44.88	48.50	52.00	61.75
	mm	371	384	460	613	740	841	968	1038	1140	1232	1334	1568
Height H	in	15.98	21.47	25.65	40.20	53.70	58.39	66.37	78.39	90.94	95.71	108.92	126.02
	mm	406	545	652	1021	1364	1483	1686	1991	2310	2431	2767	3201
Handwheel Dia W	in	11.81	11.81	15.75	18.11	23.62	29.53	24.02	24.02	27.56	27.56	27.56	27.56
	mm	300	300	400	460	600	750	610	610	700	700	700	700
Weight RF	Kg	83	178	311	583	1002	1319	1970	2623	2999	4823	6360	8356
Weight BW	Kg	68	149	259	506	860	1029	1838	2383	2627	4174	5823	7577

1500LB

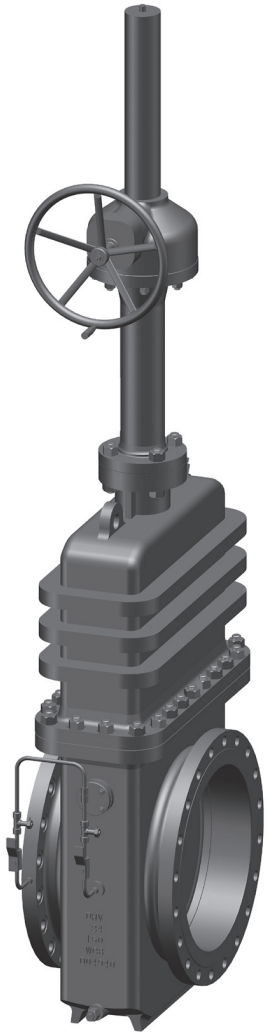
Description		Valve Size							
		2	3	4	6	8	10	12	14
Flanged End L	in	14.50	18.50	21.50	27.75	32.75	39.00	44.50	49.50
	mm	368	470	546	705	832	991	1130	1257
Weld End L1	in	14.50	18.50	21.50	27.75	32.75	39.00	44.50	49.50
	mm	368	470	546	705	832	991	1130	1257
RTJ L2	in	14.63	18.63	21.63	28.00	33.13	39.38	45.13	50.25
	mm	371	473	549	711	841	1000	1146	1276
Height H	in	18.86	30.83	25.65	54.89	59.85	71.11	81.00	78.74
	mm	479	783	652	1394	1520	1806	2057	2000
Handwheel Dia W	in	11.81	18.03	17.72	24.02	24.02	27.56	27.56	27.56
	mm	300	458	450	610	610	700	700	700
Weight RF	Kg	105	270	416	909	1331	2275	3410	5136
Weight BW	Kg	85	234	365	757	1249	2005	2936	4582

Compact Expanding Gate

Applicable Standards

Basic Design:	**ASME B16.34**
Face to Face:	**Manufacturer standard**
Flange End:	**ASME B16.5 (up to 24")**
	ASME B16.47 series A (26" and above)
Butt Welding End:	**ASME B16.25**
Test and Inspection:	**API 598**

Manufacturing to NACE current edition available upon request.



Specifications

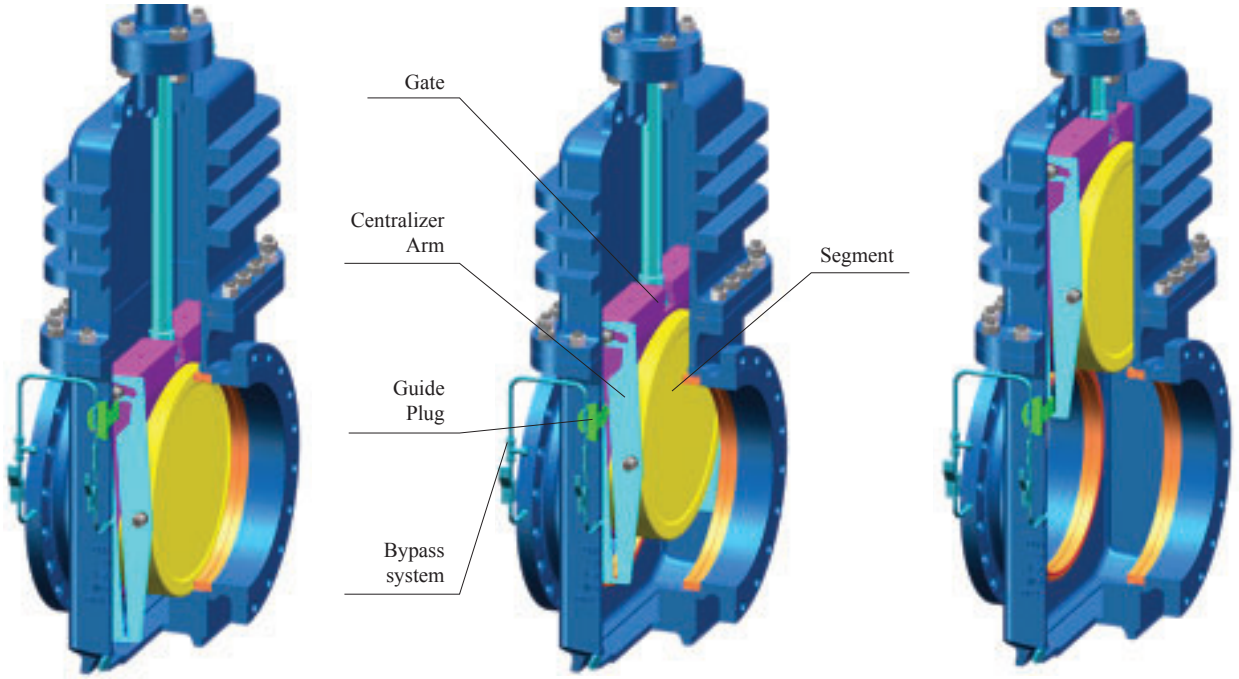
Size Range:	**2" ~ 48"**
Pressure Range:	**150LB ~ 2500LB**
End Connection:	**Flanged end / Butt welding end**
Bore:	**Full bore**
Operation:	**Manual operation, Actuated operation**
Material:	**Body: Carbon steel, Stainless steel, Duplex Stainless steel, etc.**
	Trim: Carbon steel+ENP, Alloy steel+ENP,
	Stainless steel, Duplex stainless steel, etc.
	Seat Insert: R-PTFE/NYLON-M/PEEK or Metal to Metal

Note: Additional sizes and pressure classes are available upon request.

Consult DHV for drawing and dimensionional information.

Mechanical Sealing

The Compact Expanding Gate Valve achieves its superior sealability by utilization of a two-piece parallel expanding gate. The Gate and Segment are connected by a unique centralizer mechanism which allows the gate to expand only in the closed position. The mechanical advantage provided by the angled surfaces between the gate and segment multiplies the operating thrust to provide increased sealing forces for seat sealing. The higher the stem thrust, the tighter the seal. Increases or decreases of line pressure will not affect the tight mechanical seal.



Full Expanded Closed *Mid-Travel* *Full Expanded Open*

Operation

While in the open position and during opening and closing travel, the gate-segment assembly is collapsed with back angle surfaces in contact. The unique centralizer mechanism prevents relative movement between the gate and segment allowing the gate and segment assembly to travel freely without sticking or wedging.Traveling to the final closed position, the back angles of the gate and segment remain in contact with each other. When further downward movement of the segment is stopped by the downstop, the centralizer mechanism allows the gate to continue downward causing the gate/segment to expand, sealing against both seats -forming a tight mechanical seal.

Double Block and Bleed

The mechanical sealing performance of the Compact Expanding Gate Valve makes it ideal for critical double block and bleed applications. The expanding gate provides high sealing forces between the gate and seat faces of both the upstream and downstream seats.

In Line Repair/maintenance

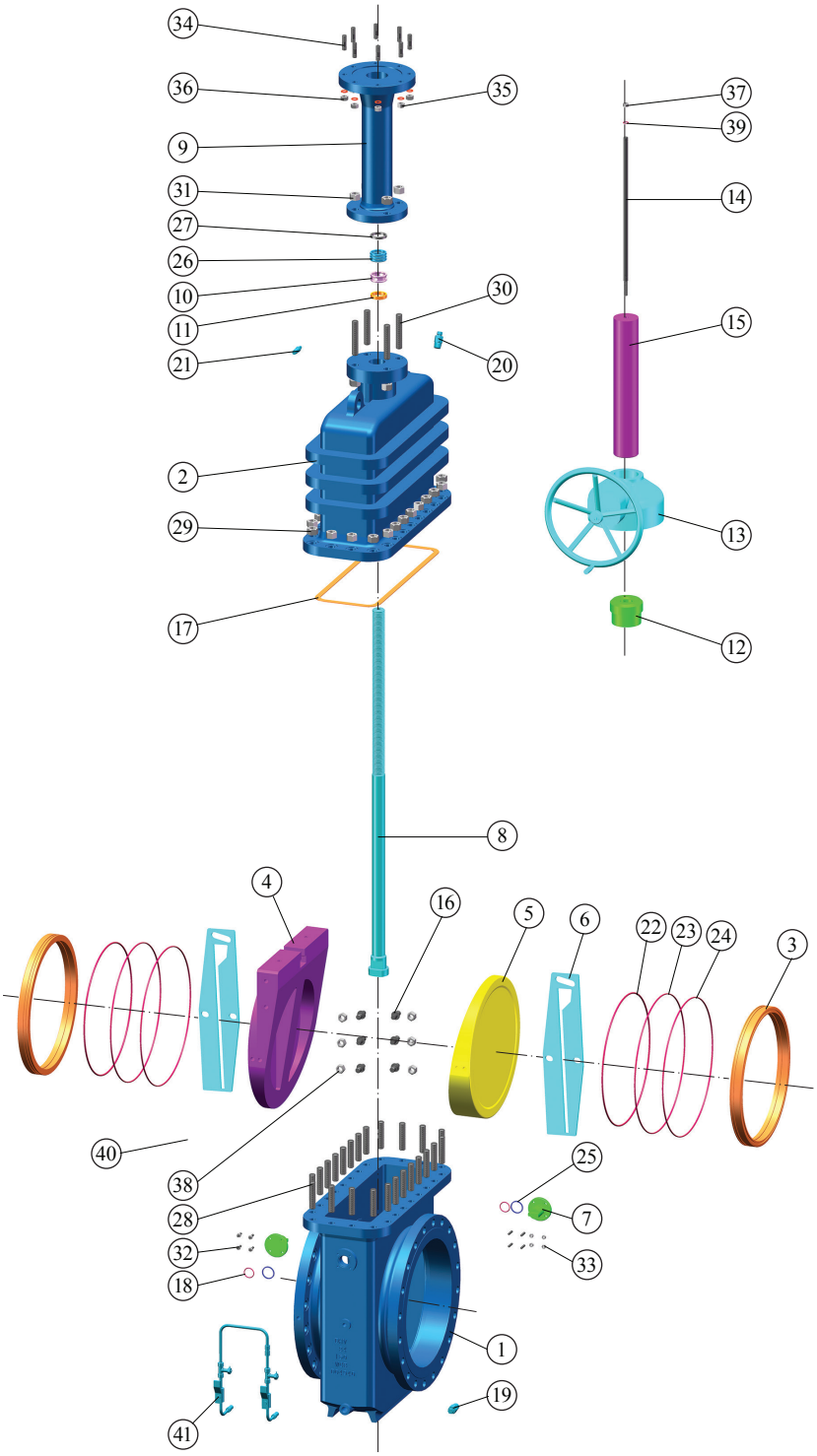
Valves are top entry and may be repaired without removing the valve from the pipeline. All internal components can be removed and installed without removing the body from the line.

Pressure Relief

The Compact Expanding Gate Valve will trap pressure in the valve body cavity when the valve is in the closed position. High internal pressures can result from thermal expansion. To protect the valve from overpressure, the valve is provided with upstream relief piping which relieves excess body pressure to the upstream side of the valve.

Through Conduit Expanding Gate

6" and Above, Soft seat, Leverlock Gate Centralizer



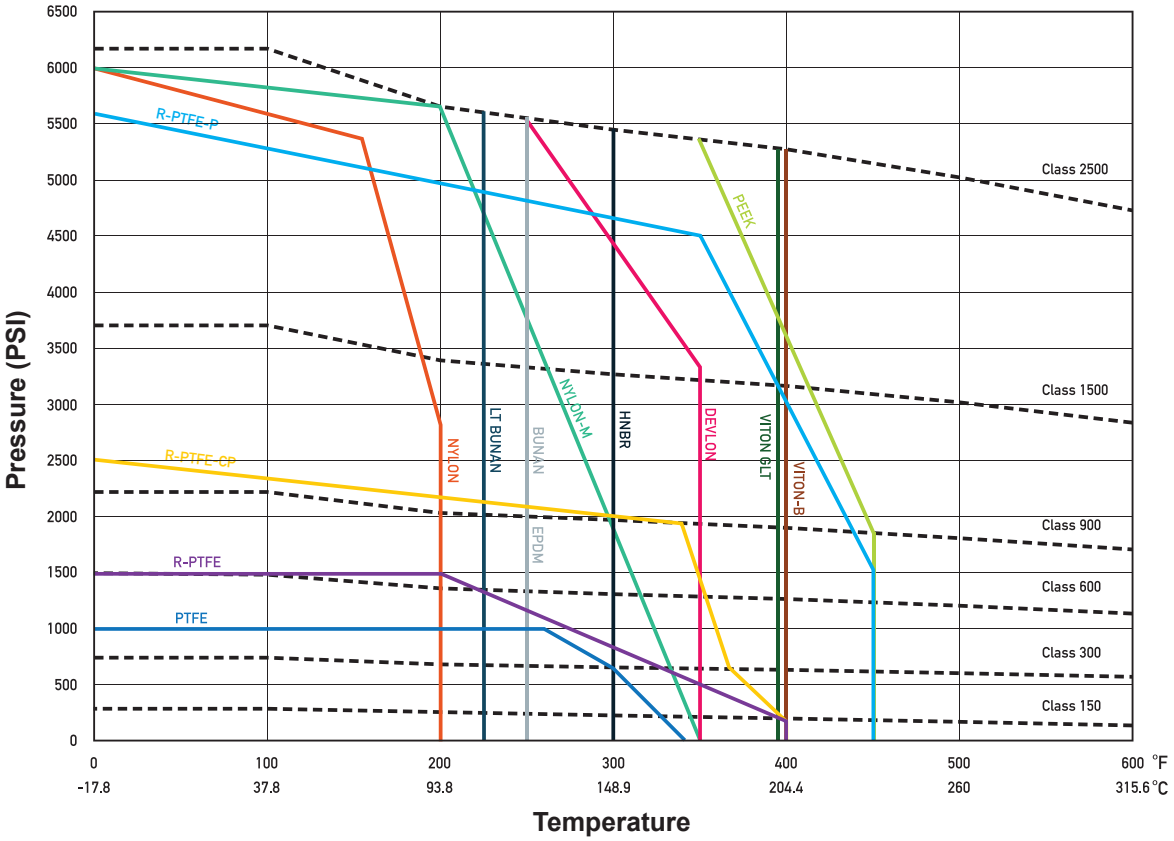
Material Specification

No.	Part Name	Material
1	Body	ASTM A216 WCB
2	Bonnet	ASTM A216 WCB
3	Seat	ASTM A105N+ENP
4	Gate	ASTM A105N+ENP
5	Segment	ASTM A105N+ENP
6	Guide Strip	ASTM A276 410
7	Guide Plug	ASTM A276 410
8	Stem	ASTM A29 4140+ENP
9	Yoke	ASTM A216 WCB
10	Lattern Ring	ASTM A276 410
11	Packing Ring	ASTM A276 410
12	Stem Nut	QAL9-4
13	Gear	ASTM A216 WCB
14	Indicator	STAINLESS STEEL
15	Dustproof Cover	CARBON STEEL
16	Screw	STAINLESS STEEL
17	Body / Bonnet Gasket	304SS+GRAPHITE
18	Sprial Wound Gasket	304SS+GRAPHITE
19	Drain Valve	STAINLESS STEEL
20	Drain Valve	STAINLESS STEEL
21	Grease Valve	ASTM A29 4140+9Cr18Mo
22	O-Ring	D90 VITON-B
23	O-Ring	D90 VITON-B
24	O-Ring	D90 VITON-B
25	O-Ring	D90 VITON-B
26	Seal Ring	D90 VITON-B
27	Packing	FLEXIBLE GRAPHITE
28	Bolt	ASTM A193 B7M
29	Nut	ASTM A194 2HM
30	Bolt	ASTM A193 B7M
31	Nut	ASTM A194 2HM
32	Bolt	ASTM A193 B7M
33	Nut	ASTM A194 2HM
34	Bolt	ASTM A193 B7M
35	Nut	ASTM A194 2HM
36	Spring Washer	CARBON STEEL
37	Nut	ASTM A194 2HM
38	Nut	ASTM A194 2HM
39	O-Ring	D90 VITON-B
40	Screw	STAINLESS STEEL
41	Bypass Pressure Relief System	CARBON STEEL

General Note: Structure shown in the illustration is typical, other configurations are available upon request.

Materials Pressure-Temperature Chart

Pressure-Temperature Chart



Note: R-PTFE-P = PEEK + PTFE R-PTFE-CP = PEEK + RPTFE
Please consult with a DHV representative for further details.

Low Temperature Limits

Body Material	°F	°C
WCB/WCC/A105	-20	-29
LCB/LCC/LF2	-50	-46
CF8M/F316	-320	-196
CF8/F304	-320	-196

O-Ring Material	°F	°C
VITON B	-20	-29
VITON GLT	-50	-46
BUNA N	-15	-26
EPDM	-60	-51
AFLAS	+32	0
HNBR (ED Resistant)	-50	-46

Seat Material	°F	°C
R-PTFE	-100	-73
R-PTFE-P	-100	-73
R-PTFE-CP	-100	-73
NYLON(PA12)	-50	-46
NYLON-M	-20	-29
PTFE	-100	-73
PEEK	-148	-100
DEVLON	-50	-46

Terms & Conditions

1. DEFINITIONS

(a) "The CONTRACT" - The General Conditions of Orders together with COMPANY'S quote and any exhibits, attachments and other documents incorporated by reference.

(b) "The PRODUCT'S" - valves and related products and services as well as their packaging that form the subject-matter of the CONTRACT.

(c) "The COMPANY" – DHV Industries, Inc. or DHV Valve Company, Inc. or alternatively any affiliated company named in COMPANY'S quotation.

(d) "The CUSTOMER" - The individual, firm, partnership, company or other party with whom the Company contracts.

(e) "FORCE MAJEURE" - Any cause or circumstances (including but not limited to, act of God, fire, storm, flood, drought, earthquake, malicious damage, shortage of material, manufacturer's inability to provide the Product, embargo, riot, strike, look-out, trade dispute, civil disturbance, war, compliance with any law or government order, rule or direction or any other event or accident) beyond the reasonable and direct control of COMPANY.

2. SCOPE

(a) These General Conditions set out the standard terms on which the COMPANY supplies PRODUCTS to the CUSTOMER. Accordingly, these General Conditions apply to all quotations and sales unless otherwise agreed in writing.

(b) The legality, validity, and enforceability of other clauses in these General Conditions will not be affected if one of the clauses is, or becomes illegal, invalid, or unenforceable.

(c) We reserve the right to institute changes in material, design and specification without notice.

3. QUOTATIONS AND ORDERS

(a) Unless otherwise expressly stipulated, all of the COMPANY'S quotations and prices are subject to change without notice, and to availability. Prices are valid only for the duration indicated in the quotation and are subject to change without notice.

(b) Any written or oral purchase order received from the CUSTOMER by the COMPANY ("Order") shall be interpreted as a written acceptance of the COMPANY'S offer to sell, and shall be filled in accordance with the terms and conditions of the sale set forth herein. The terms and conditions of the Company's proposal (if at all any) shall prevail over any conflicting or different terms in CUSTOMER'S orders unless the CUSTOMER notifies the COMPANY in writing of its objections thereto within the earlier of the date of shipment of the Product or fifteen (15) days from receipt of COMPANY'S General Conditions. CUSTOMER'S standard terms of purchase will not be considered as a counter-offer to COMPANY'S terms and conditions of sale. The COMPANY will not be bound by conflicting purchasing conditions or reservations made by the CUSTOMER even if the COMPANY does not explicitly contradict the conditions or reservations.

(c) No order in pursuance of any quotation or otherwise shall be binding on the COMPANY unless and until such an order is accepted by the COMPANY. The COMPANY may reject any order in whole or part. A contract between the COMPANY and CUSTOMER is finalized once the COMPANY issues a telephonic, electronic, or written order confirmation to the CUSTOMER or ships the Product to the CUSTOMER. Except as otherwise specifically provided herein, the Order is the final and complete expression of the agreement between the parties, setting forth the entire agreement between the parties regarding this transaction and including all promises and representations both express and implied. Any matters not contained herein, or otherwise referenced or incorporated herein, are not part of the Order.

(d) Subject to the specific procedures for changes to the Order, none of the terms and conditions contained herein may be added to, modified, superseded, or otherwise altered except by a written instrument specifically referencing the affected provision of the Order signed by the President or Vice President of the COMPANY.

4. PRICES

(a) All prices shown are in U.S. dollars and are F.O.B. COMPANY'S shipping point, unless otherwise expressly agreed to by COMPANY.

(b) Prices exclude any duties, federal, state or local taxes or other government charges and delivery costs, which the CUSTOMER must pay unless the law specifically provides that the COMPANY must make such payment in which case the CUSTOMER shall reimburse the COMPANY for such payments as part of the purchase price. All prices include the COMPANY'S standard packing, but not pallets or crating for export goods.

5. PAYMENTS AND LICENSES

(a) Payment must be made in the currency specified in COMPANY'S invoice.

(b) The CUSTOMER must pay the full invoice amount before the shipment from the date of the invoice unless otherwise agreed in writing. The COMPANY is entitled to charge interest on overdue payments at the greater of the following two rates: (a) 1.5% monthly or (b) 2% annually above the current monthly base rate of the COMPANY'S bank. In no event shall the interest rate be higher than the maximum rate permitted by applicable law.

(c) In addition to exercising its rights at common law or under statute, the COMPANY is entitled to terminate the CONTRACT by written notice to the CUSTOMER if the CUSTOMER is in material breach of its obligations under the CONTRACT or any other agreements with the COMPANY. The CUSTOMER is in material breach:

- If it fails to meet its liabilities when they fall due;
- If it seeks a composition with its creditors;
- If all or part of its property is subject to receivership; or
- If a petition for liquidation, winding-up or administration is filed in respect of the CUSTOMER.

(d) The CUSTOMER is not entitled to withhold, set off or deduct claims against the COMPANY from an amount that it owes the COMPANY under the CONTRACT or other agreement with the COMPANY.

(e) The COMPANY is obligated to deliver a PRODUCT only if the CUSTOMER has made due payment of all amounts that it owes to the COMPANY at the date of delivery under the CONTRACT or other agreement with the COMPANY. The COMPANY is entitled to suspend delivery of a PRODUCT if the CUSTOMER is in default without this affecting the COMPANY'S other rights under the CONTRACT or other agreement with the CUSTOMER. The COMPANY is not obligated to resume deliveries until the CUSTOMER has paid all overdue amounts, including all expenses and accrued interest.

(f) It is the CUSTOMER'S exclusive responsibility to obtain all licenses, exchange control documents and other consents needed for the import and use of the PRODUCTS as well as for payment of the PRODUCTS. The CUSTOMER will not be discharged from his obligations under these General Conditions because he fails to obtain a license or other consents.

6. DELIVERY AND FORCE MAJEURE

(a) While the COMPANY will endeavor to deliver the PRODUCTS by any date or within any period agreed upon, such dates and periods are estimates only given in good faith and the COMPANY will not be liable for any failure to deliver by such date or within such a period. Time for delivery shall not be of the essence of the CONTRACT.

(b) Should the COMPANY be delayed in or prevented from making the delivery of the PRODUCTS due to Force Majeure, the COMPANY may terminate the CONTRACT or suspend the Order without incurring any liability for any loss or damage arising there from, but without prejudice in any such case to rights accrued to the COMPANY for deliveries already made.

(c) Unless otherwise agreed to in writing by the COMPANY, the COMPANY shall deliver the PRODUCTS by the means most convenient to the COMPANY to the address or addresses specified by the CUSTOMER at the time of placing the Order or (in the event that the CUSTOMER fails so to specify an address) to an address at which the CUSTOMER resided or carries on business. The PRODUCTS are considered to be delivered when they are physically handed over to 1) the CUSTOMER, 2) the CUSTOMER'S agent or a person that the CUSTOMER has authorized to take delivery, or (3) the carrier, regardless of who pays shipping costs. The COMPANY shall be entitled to add to the contract price a reasonable charge for packaging, delivery and insurance. Off-loading will be at CUSTOMER'S expense.

(d) The CUSTOMER is obligated to pay all costs that the COMPANY incurs because of the CUSTOMER'S failure to take delivery either 1) on the date stated in the invoice or the COMPANY'S confirmation, or 2) when the PRODUCTS are ready, if the COMPANY has notified the CUSTOMER in writing of their readiness and the CUSTOMER has not taken delivery within seven days or any period to which the parties agree.

(e) If the COMPANY is responsible for delivery, the CUSTOMER must thoroughly inspect the PRODUCTS sent at the COMPANY'S risk. The CUSTOMER is to notify the COMPANY in writing immediately of loss, damage or shortage of PRODUCTS. If the CUSTOMER does not receive the PRODUCTS on the agreed date of delivery, it is to notify the COMPANY within 48 hours of the agreed date of delivery. The COMPANY disclaims all liability, and the CUSTOMER waives its rights of recovery, under this provision unless the CUSTOMER'S information is sufficient to

allow the COMPANY to make a valid claim against the carrier of the PRODUCTS for their loss or damage.

(f) If the CUSTOMER is responsible for delivery, the COMPANY will not be responsible for delays or failure to deliver by the carrier set up by the CUSTOMER or due to causes beyond the COMPANY control. Delivery of material to a common carrier shall be considered delivery to the Buyer .Claims for loss or any damage to material in transit shall be filed by the Buyer direct with the carrier. Claims for any shortage, corrections or deductions must be made in writing within 48 hours after receipt of goods.

7. PASSING OF RISK AND TITLE, CANCELLATION AND RETURNS

The COMPANY'S liability for the PRODUCTS passes from the COMPANY to the CUSTOMER on the earlier of the following two dates: 1) the date when the PRODUCTS are delivered to the CUSTOMER, the CUSTOMER'S agent, or a person that the CUSTOMER has authorized to accept delivery, or 2) the agreed date of delivery, if the CUSTOMER fails to take delivery as required.
(a) Under the CONTRACT.

(b) The COMPANY remains the owner of the PRODUCTS until it receives full payment for all PRODUCTS whether or not the PRODUCTS are delivered to the CUSTOMER. If the CUSTOMER sells the PRODUCTS to a third party before the COMPANY receives full payment, the proceeds of the sale shall first apply to pay all amounts due to the COMPANY. The COMPANY or its representative is entitled to recover or resell the PRODUCTS and to enter the CUSTOMER'S premises for that purpose, without this affecting its other rights; if the CUSTOMER has not paid the full purchase price or if insolvency proceedings are commenced against the CUSTOMER.

(c) Purchase Orders once placed by CUSTOMER and accepted by COMPANY can be cancelled only with COMPANY'S written consent and upon terms which will save COMPANY from loss. No PRODUCTS may be returned for credit or adjustment without written permission from COMPANY'S officer authorized to issue such permission.

(d) All sales are final. This means that the CUSTOMER is not entitled to credit for returned PRODUCTS whether or not the CUSTOMER has made a complaint or a claim. If the Company expressly agrees in writing that the COMPANY will credit the CUSTOMER for returned PRODUCTS, the CUSTOMER must return the PRODUCTS promptly, carriage-paid, and in the COMPANY'S opinion in good condition to receive the credit. If the COMPANY expressly agrees in writing that the CUSTOMER can return the PRODUCTS, cancel order or change order, the CUSTOMER will be charged for work performed, based on the following schedule. All freight for return or cancelled/changed goods shall be prepaid by CUSTOMER.

- Twenty Five (25%) percent of price on stock items.
- Fifty (50%) percent of price of stock items ordered in quantities which exceed normal inventory levels.
- Twenty Five (25%) percent of price prior to drawing submittal on made to order items.
- Forty (40%) percent on drawing approval, but prior to start of castings.
- Seventy (70%) percent during casting cycle, dependent on the state of completion.
- One Hundred (100%) percent on castings that are not standard materials used by COMPANY in daily sales; i.e. Stainless Steel, Duplex, Nickel, etc.
- Eighty (80%) during machining and assembly operations, this is dependent on the state of completion.
- One Hundred (100%) percent after final assembly and test.
- Special Product Orders: or non standard products are not subject to any schedule level of cancellation, except on such terms as COMPANY may specify on application only.

8. WARRANTY AND LIMITATIONS OF LIABILITY

(a) As to all PRODUCTS sold hereunder, the COMPANY expresses no warranties whatsoever but only assigns to CUSTOMER all transferable warranties and remedies granted by the manufacturer of such PRODUCTS to which COMPANY is entitled and CUSTOMER agrees to look solely to such manufacturers with regard to claims and remedies relating to such PRODUCTS. THE COMPANY SPECIFICALLY DISCLAIMS ALL WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND SATISFACTORY QUALITY. THE COMPANY MAKES NO WARRANTIES AND REPRESENTATIONS, AS TO QUALITY, CAPABILITIES, OPERATIONS, NONINFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS, PERFORMANCE AND SUITABILITY OF THE PRODUCTS.

(b) LIMITATION OF LIABILITY. CUSTOMER'S EXCLUSIVE REMEDY AGAINST COMPANY FOR DEFECTS IN THE PRODUCTS IS THE MANUFACTURER'S WARRANTY SET FORTH IN SECTION 8 (a). THE PARTIES AGREE THAT UNDER NO CIRCUMSTANCE SHALL THE COMPANY HAVE ANY LIABILITY WHATSOEVER FOR ANY CLAIM ARISING FROM OR RELATING TO THE ORDERS OR THE PRODUCTS FOR AN AGGREGATE AMOUNT IN EXCESS OF THE INVOICED PRICE FOR THE PRODUCTS.

(c) The COMPANY shall not be liable for any damage resulting from delays, failure of the PRODUCTS, loss of profit or revenues, loss of time or loss of use, cost of capital, diminution of goodwill, or claims of CUSTOMER'S customers.

(d) IN NO CIRCUMSTANCES WILL THE COMPANY BE LIABLE FOR ANY CONSEQUENTIAL, SPECIAL, PUNITIVE OR INDIRECT LOSS OR DAMAGE WHATSOEVER.

(e) The COMPANY is not liable if the CUSTOMER'S use of the PRODUCTS infringes on a third party's patent rights.

(f) Any exclusions or limitations of liability in this CONTRACT in favor of the COMPANY are agreed to be extended for the benefit of all COMPANY'S and/or individuals within the COMPANY'S group of COMPANIES. The CUSTOMER agrees in the appointment of the COMPANY as its agent or trustee solely for the extension of the benefit of the exclusions and limitations of liability. All duties, liabilities and obligations that would otherwise result from this agency are expressly excluded.

(g) The COMPANY warrants the PRODUCTS provided to the original CUSTOMER, not any third party, for a period of one year after date of shipment, that PRODUCTS will be free from defects in materials and workmanship under proper and normal installation and use. Any claim for defect goods should be by written notice to the COMPANY immediately upon discovery. NO warranty shall apply to PRODUCTS which has been modified or changed in design or function, misused, or improperly maintained. The COMPANY shall be able to inspect claimed defects at original CUSTOMER's facility to determine its obligation. Without written authorization of COMPANY, any repair labor or material is not allowed. No PRODUCTS may be returned without written permission from COMPANY.

9. SPECIFICATION, INSTRUCTIONS AND/OR DESIGN

If PRODUCTS are modified to a specification, instruction or design supplied by CUSTOMER or any third party on behalf of CUSTOMER, then:
(a) The suitability and accuracy of that specification, instruction and/or design will be CUSTOMER'S responsibility.

(b) The CUSTOMER will indemnify COMPANY against any infringement or alleged infringement of any third party's intellectual property rights including but not limited to patent, design right, registered design, trademark, trade name or copyright and any loss, damage or expense which it may incur by reason of any such infringement or alleged infringement in any county, and

(c) The CUSTOMER will indemnify COMPANY against any loss, damage or expense in respect of any liability arising in any country by reasons of the PRODUCTS being made to such specification, instruction or design.

10. CHOICE OF LAW AND JURISDICTION

(a) The laws of the State of California, including the Uniform Commercial Code, shall govern this CONTRACT. Jurisdiction and venue shall be the Superior Court of Kern County, Bakersfield, California. However, the CUSTOMER expressly agrees that the COMPANY may take action in another jurisdiction to obtain security for the COMPANY'S claims under the CONTRACT.

(b) The CONTRACT constitutes the entire agreement between the COMPANY and the CUSTOMER concerning the supply of the PRODUCTS. The CUSTOMER agrees that he has no other rights of recourse to the COMPANY other than those expressly stated in these General Conditions. The General Conditions apply whether or not the CUSTOMER has a cause of action because the COMPANY or its representative has acted negligently.

11. ATTORNEY'S FEES

In the event of any litigation or arbitration or any quasi-judicial or administrative proceeding involving the parties hereto to enforce any provision of this Agreement, to enforce any remedy available upon default hereunder, or seeking a declaration of the rights of either party hereunder, the prevailing party shall be entitled to recover from the other such attorney's fees and costs as may be reasonably incurred, including the costs of reasonable investigation, preparation and professional or expert consultation incurred by reason of such litigation, arbitration or proceeding. Sums actually expended in the prosecution or defense of any litigation, arbitration or proceeding within the meaning of the foregoing sentence shall be prima facie evidence of reasonable attorneys' fees, costs and disbursements.

Seeking a Great Name in Valve Technology

Please visit our DHV website: www.dhvindustries.com or www.dhvvalve.com for a copy of our API 6D monogram certificate. Customer and Project referrals are available upon request. For certified data and current specifications, please contact us or your local DHV agent. Information provided in this catalog is for general purposes only.

DHV reserves the right to discontinue the manufacture or change and modify our design and construction of any DHV product, in due course of our manufacturing procedure without incurring any obligation to accept for credit, to replace or furnish or install such changes or modifications on products previously or subsequently sold.

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