



**THROUGH CONDUIT API 6D
C2 SLAB GATE VALVE**



Through Conduit Slab Gate Valve

Calvary Valve, Inc. **THROUGH CONDUIT SLAB GATE VALVES** are manufactured with a full bore port, rising stem, pressure energized seals, and a bubble tight shut off upstream and downstream under both low and high differential pressure. The valve seat design is bi-directional; DBB and will automatically relieve excess body pressure. The seat faces are outside the flow stream and therefore protected from the erosive action of the flow as well as pigs and or scraper use without damage.

CVI's Through Conduit Slab Gate Valves are designed, manufactured, and tested in accordance with API, ANSI, and ASME requirements. CVI valves may also be produced in accordance with other standards upon request.

A wide variety of body designs, materials, and trims make CVI's Through Conduit Slab Gate Valves exceptionally versatile for a multitude of liquid and gas fluid applications in the industry. Both **WCC** and **LCC** body design stocked.

National Association of Corrosion Engineers (NACE) Option

MRO 175 Sulfide stress cracking resistant metallic materials for oil field equipment (Superseded by ISO15156)

Applications

•Oil and Gas Production

- Centrifugal compressor Discharge
- Fire Water Lines
- Oil/Steam Separation
- Gas/Oil Gathering Systems
- Flow Lines
- Wellheads

• Petrochemicals

- Ethylene
- Propylene
- Steam
- Reboilers
- Gases

• Chemicals

- Chlorine
- Phosgene
- Aromatics
- Polymers
- Acids
- Air Separations
- Caustics

•Water and Wastewater

- Distribution Lines
- Pumping Stations
- Sewage Plant Blower Discharge
- Chemical Treatment
- Fire Protection Systems
- HVAC Systems

•Sub-Sea Applications

- Pig Traps - Launchers and Receivers**
- Upstream Gas Compressor Isolation**
- Critical and Primary Isolation**

•Power Generation

- Steam
- Condensate
- Boiler Feed Pumps
- Cooling Towers
- Service Water Recirculators
- River Water Intake

•Marine Industry

- Oil Tankers
- Tanker Loading Terminals
- Offshore Platforms
- Sub-Sea Manifolds
- Terminal Transfer Lines

•Pulp and Paper

- Bleaching Lines
- Black Liquor
- Green Liquor
- White Liquor
- Steam
- Chemical Recovery



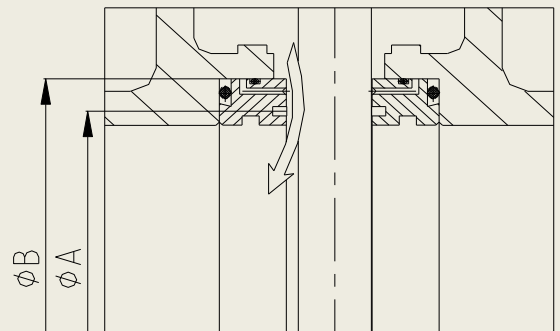
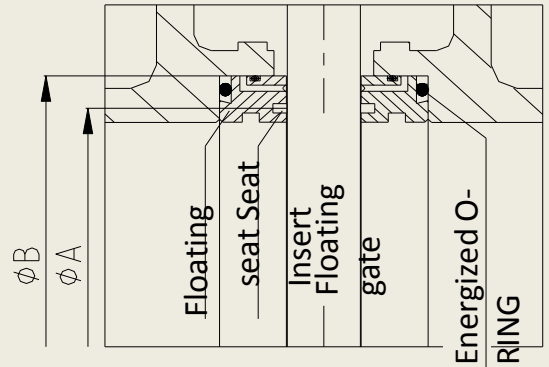
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DESIGN FEATURES AND BENEFITS:

1: Floating seat with energized O-RING provide constant contact with gate. This insures a **Perfect Sealing** with lower torque than spring loaded seats. (See Figure A)

2: **Double Block and Bleed Capability** and automatic relief of excess body pressure are standard features. When pressure is applied to the downstream seal, the applied force will act on the gate, forcing it to float against the upstream seat to form a tight seal on the seat. Also an upstream seal can be provided by the force of line pressure acting against the downstream seat to the gate. This provides a bi-directional sealing in both flow direction. (See Figure A)

3: The single piston design and **Self Cavity Relief** effect is when seats rings are of floating type and are energized against the gate by means of O-ring. If cavity pressure exceeds the line pressure, the upstream or downstream seat is forced slightly away from the gate surface. The excess cavity pressure in the body is then discharged into the upstream or downstream line safely. This affect permits the automatic release of any over pressurization in the body cavity. (See Figure B)

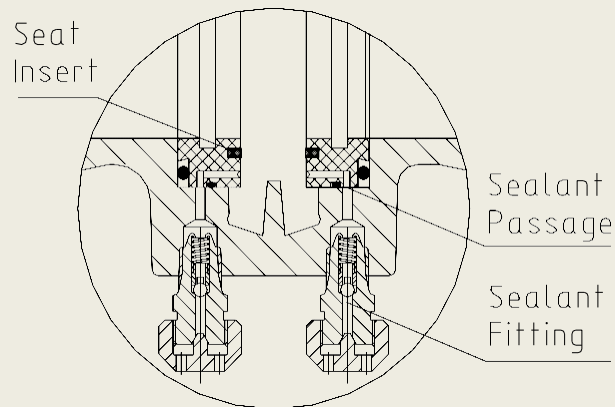


(Figure A ,Figure B)

4: **Replaceable Seats** thru top entry bonnet for easy online maintenance.

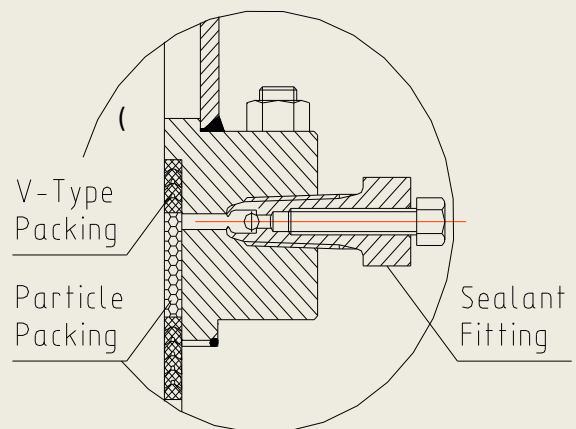
5: Through Conduit Slab Gate Valves are designed to be **Fully Pigable**. Pigs and scrapers can be run through the valve without any damage.

6: **Fire Safe Design** offers the highest resistance against fire. So when sealing materials (PTFE seat insert) are damaged, the metal seat face and gate will be the primary seal.



(Figure C)

7: **Seat Sealant Injection** system for Emergency Sealing. (See Figure C)

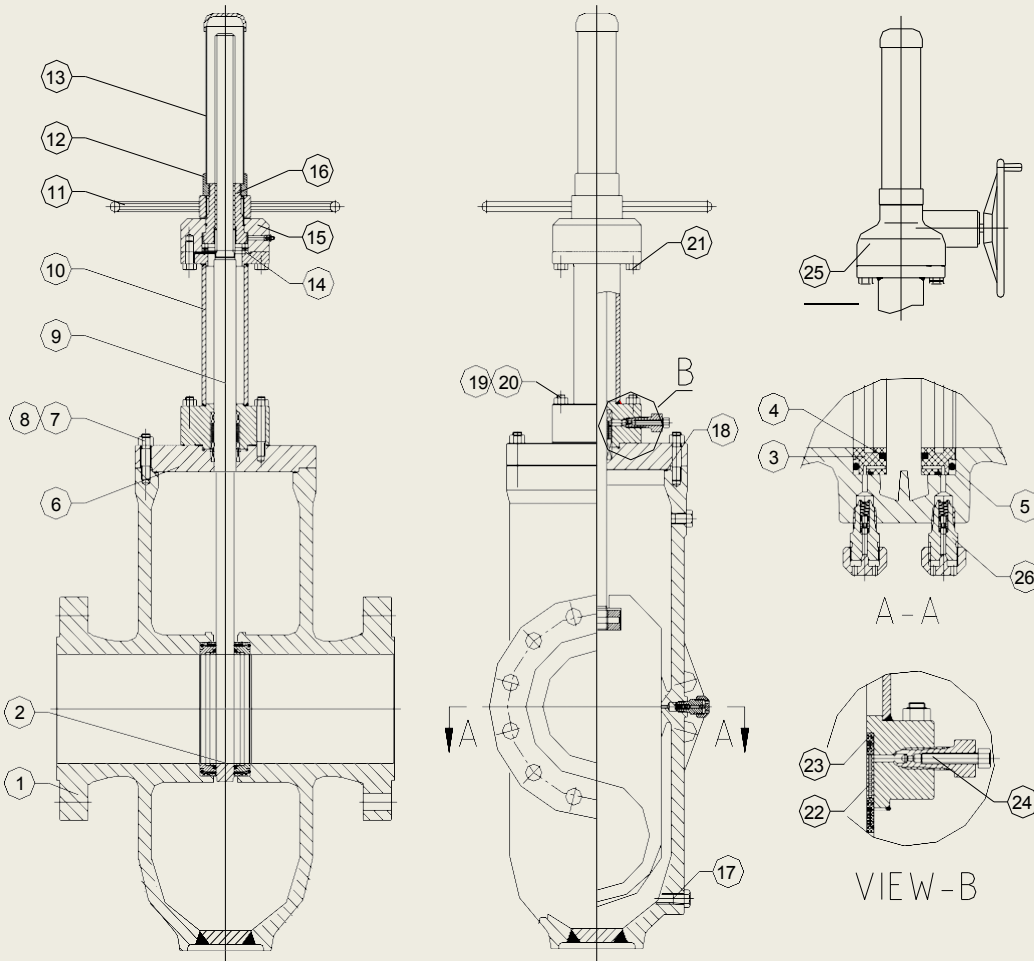


(Figure D)

8: The packing box seal configuration allows **Injectable Packing** to be injected between the **V-Type Packing** sets in case of a stem leak. The self energizing non rolling lip V-seals, have no side load or friction drag on the stems low operating thrust. Alternate stem seal designs are available to meet a wide variety of customer's requirements. (See Figure D)

Through Conduit Slab Gate Valve

VALVE COMPONENTS-THROUGH CONDUIT SALB GATE VALVE



1	BODY
2	GATE
3	SEAT RING
4	SEAT INSERT
5	O-RING
6	BONNET
7	BONNET BOLT
8	NUT
9	STEM
10	WELDED YOKE TUBE
11	HANDWHEEL
12	RETAINING NUT
13	STEM PROTECTOR
14	THRUST BEARINGS
15	BEARING BOX
16	STEM NUT
17	PLUG
18	O-RING
19	YOKE TUBE BOLT
20	NUT
21	BEARING BOX BOLT
22	INJECTABLE PACKING
23	V-PACKING
24	PACKING FITTING
25	GEARBOX
26	SEAT INJECTION FITTING

API 6D THROUGH CONDUIT GATE VALVE TRIM CHART

Item	Description	Carbon Steel -29°C to 427°C	Carbon Steel High Temp* -29°C to 427°C	Low temp. Carbon steel -46°C to 343°C	STAINLESS STEEL -254°C to 815°C	High Temperature* -29°C to 538°C
1	Body	A216 WCB/WCC	A216 WCB/WCC	A352 LCB/LCC	A351 CF8/CF8M	A217 WC6/WC9
2	Bonnet	A216 WCB/WCC	A216 WCB/WCC	A352 LCB/LCC	A351 CF8/CF8M	A217 WC6/WC9
3	Welding yoke	ANSI 1020	ANSI 1020	ANSI 1020	ASTM A516/A36	ASTM A335
4	Gate	A216 WCB/WCC/ENP	A216 WCB/WCC WITH HF-6 Hard Faced	A352 LCB/LCC/ENP	A351 CF8/CF8M	A217 WC6/WC9 HF- 6 Hard Faced
5	Stem	A182 F6a	A182 F6a	17-4PH/ SS304/SS316	SS304/SS316	17-4PH/F321
6	Seat Insert/ Seal surface	RPTFE	A105N WITH HF-6 Hard Faced	RPTFE	RPTFE	A182 F11/F22 HF-6 Hard Faced
7	Seat	A105N/ENP	A105N/ENP	A350 LF2/ENP	SS304/SS316	A182 F11/F22
8	Body/Bonnet Studs	A193 B7	A193 B7	A320 L7	A193 B8	A193 B16
9	Body/Bonnet Nuts	A194 2H	A194 2H	A320 7	A194 8	A194 4
10	Packing	PTFE	PTFE	PTFE	PTFE	Graphite
11	Packing Fitting	A105N	A105N	A350 LF2	SS304/SS316	SS304/SS316
12	Packing Plug/Vent	A105N	A105N	A350 LF2	SS304/SS316	SS304/SS316

*Note: WCB/WCC and LCC Standard Trims. Stainless Steel and High Temperature Gate Valve are available upon requests FOB Factory. Please consult our home office for specific recommendations.

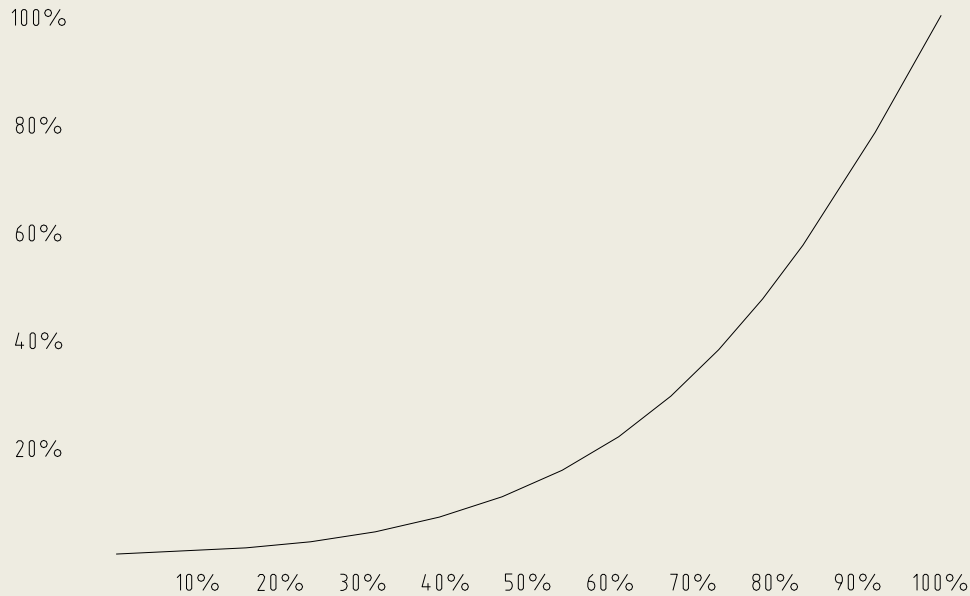
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FLOW CHARACTERISTIC

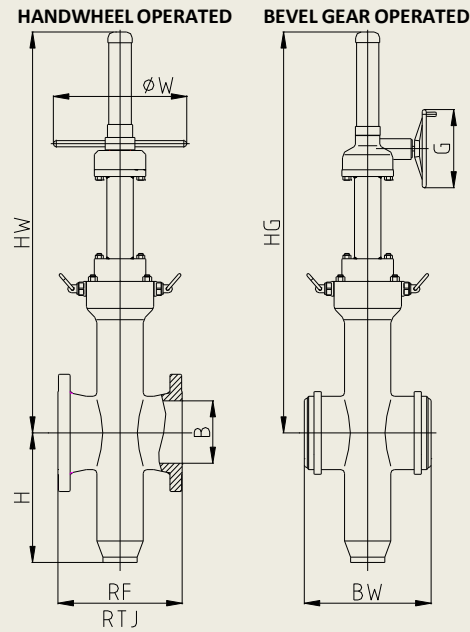


Cv DATASHEET:

To determine Cv values in relation to valve port refer to the following table:

Valve Size in.	150lb	300lb	600lb	900lb	1500lb	2500lb
2	482	482	482	482	437	258
3	1085	1085	1085	1072	986	514
4	2136	2136	2136	1890	1760	735
6	5230	5230	5230	4383	3722	2710
8	9054	9054	9054	8416	7279	5527
10	14856	14856	14856	14087	12283	8513
12	22150	22150	22150	21025	17843	13282
14	27883	27883	27883	25846	21336	-
16	38224	38224	38224	35358	29548	-
18	51740	51740	51740	46004	-	-
20	70386	70386	70386	62871	-	-
22	86869	86869	86869	-	-	-
24	116835	113835	116835	-	-	-
26	123222	123222	123222	-	-	-
30	210229	210229	210229	-	-	-
32	257251	257251	257251	-	-	-
36	325362	325362	325362	-	-	-
42	431050	431050	431050	-	-	-

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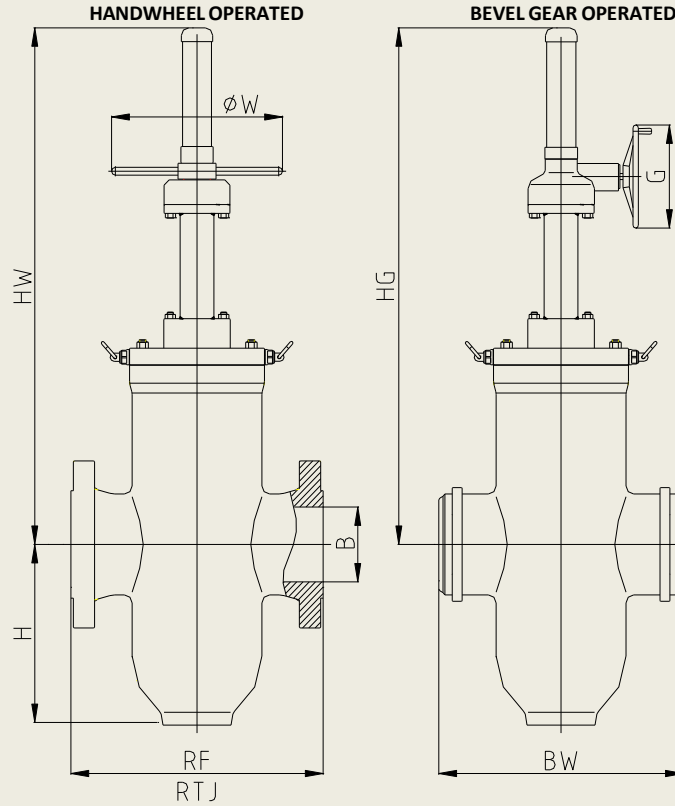
THROUGH CONDUIT SLAB GATE VALVE CLASS 150LB

Size In	RF	RTJ	BW	B	H	HW(open)	W	HG(open)	G	WEIGHT(Kg)
2"	178	191	216	49	145	470	260	-	-	35
3"	203	216	283	76	180	695	260	-	-	55
4"	229	241	305	102	245	800	270	-	-	85
6"	267	279	403	152.4	344	1090	450	-	-	140
8"	292	305	419	203	416	1263	450	1263	250	240
10"	330	343	457	254	501	1416	450	1416	250	350
12"	356	368	502	305	580	1592	500	1592	300	450
14"	381	394	572	337	635	1765	550	1765	310	600
16"	406	419	610	387	719	2027	600	2027	310	750
18"	432	445	660	436	810	2250	600	2265	460	890
20"	457	470	711	591	1046	2350	700	2350	460	1120
24"	508	521	813	591	1196	-	-	2830	460	2000
28"	610	-	914	684	1250	-	-	3144	610	2650
30"	610	-	914	737	1285	-	-	3312	710	2950
32"	711	-	965	779	1196	-	-	3570	710	3500
36"	813	-	1016	876	1517	-	-	3923	900	5400
40"	914	-	-	978	1680	-	-	4323	900	6750

THROUGH CONDUIT SLAB GATE VALVE CLASS 300LB

Size In	RF	RTJ	BW	B	H	HW	W(Single)	HG	G(Single)	WEIGHT(Kg)
2"	216	232	216	51	145	470	260	-	-	54
3"	283	298	283	76	181	695	260	-	-	85
4"	305	321	305	102	248	800	270	-	-	110
6"	403	419	403	149	343	1089	450	-	-	240
8"	419	435	419	207	388	1326	450	1326	250	350
10"	457	473	457	254	505	1416	450	1416	250	510
12"	502	518	502	305	582	1647	610	1647	300	750
14"	762	778	762	337	642	1765	610	1765	300	1050
16"	838	854	838	387	728	2031	710	2031	460	1460
18"	914	930	914	436	800	-	-	2305	460	2050
20"	991	1010	991	489	893	-	-	2350	460	2650
24"	1143	1165	1143	591	1056	-	-	2903	610	4200
28"	1346	1372	1346	684	1206	-	-	3174	710	5500
30"	1397	1422	1397	737	1305	-	-	3332	710	6500
32"	1524	1553	1524	779	1364	-	-	3620	900	7200
36"	1727	1756	1727	876	1517	-	-	3973	900	8900

Through Conduit Slab Gate Valve



THROUGH CONDUIT SLAB GATE VALVE CLASS 600LB

Size In	RF	RTJ	BW	B	H	HW	W(Single)	HG	G(Single)	WEIGHT(Kg)
2"	292	295	292	49	150	480	280	-	-	65
3"	356	359	356	76	201	735	300	-	-	110
4"	432	435	432	102	260	799	300	-	-	150
6"	559	562	559	149	416	1263	450	-	-	285
8"	660	664	660	203	455	1326	450	1326	300	650
10"	787	791	787	254	520	1473	520	1473	300	900
12"	838	841	838	305	600	1647	610	1647	400	1100
14"	889	892	889	337	655	1820	710	1820	460	1700
16"	991	994	991	387	749	2036	900	2036	460	2300
18"	1092	1095	1092	436	830	-	-	2305	610	2750
20"	1194	1200	1194	489	903	-	-	2400	610	4200
24"	1397	1407	1397	591	1086	-	-	2953	710	4950
28"	1549	1562	1549	684	1226	-	-	3374	710	8250
30"	1651	1664	1651	737	1320	-	-	3492	900	9500
32"	1651	1664	1651	779	1384	-	-	3670	900	11500
36"	1880	1895	1880	876	1530	-	-	4093	900	15500

THROUGH CONDUIT SLAB GATE VALVE CLASS 900LB

Size In	RF	RTJ	BW	B	H	HW	W(Single)	HG	G(Single)	WEIGHT(Kg)
2"	368	371	368	49	156	670	270	-	-	90
3"	381	384	381	76	231	735	300	-	-	162
4"	457	460	457	102	270	799	450	-	-	285
6"	610	613	610	152	429	1343	500	-	-	530
8"	737	740	737	203	469	1326	500	1326	300	950
10"	838	841	838	254	535	1573	610	1573	300	1300
12"	965	968	965	305	615	-	-	1667	460	1960
14"	1029	1038	1029	324	670	-	-	1820	460	2650
16"	1130	1140	1130	387	769	-	-	2176	500	3200
18"	1219	1232	1219	425	890	-	-	2247	610	4000
20"	1321	1334	1321	473	923	-	-	2501	610	5200
24"	1549	1568	1549	572	1107	-	-	2970	710	9200

*Note: For size and pressure class not listed consult our home office for specific recommendations

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Elastomer Seat Performance Chart

The Performance Chart below can be used as general guide of application.

MATERIAL	GENERAL APPLICATION	SERVICE TEMPERATURE	NOT RECOMMENDED FOR
EPDM	Fresh Water Sea Water Brine Esters Alkalis Ozone Alcohols Brake Fluid Treated Water With Caustic Soda	-59°F to +248°F (for intermittent operation 32°F ~ 212°F (Allowable temperature in continuous use)	Hydrocarbons Oils Fats Greases
NBR	Fresh Water Sea Water Treated Water With Caustic Soda Hydrocarbons Natural Oil and Fat Air Gasoline	-50°F to +176°F (Allowable temperature in continuous use) 32°F ~ 158°F (L-NBR-122°F to 158°F)	Solvents Benzene Xylyl
SBR	Acids and Alkalis	-68°F to +176°F	
VITON	Acids, Oils Hydrocarbon	-50°F to +446°F	Steam, Ester Freon22, Alkalis Solvents, Ketones
SILICONE	Food Beverage	-68°F to +284°F	Steam Solvents Hydrocarbons
PTFE	Solvents Corrosive Products Ketones	-122°F to +446°F (PTFE-384°F to +446°F)	Fluid Containing Powders Alkaline Greases Fluorine
NEOPRENE	Acid, Ozone, Oils Fats Greases Solvents	-64°F to +194°F	Ketones, Thinners Concentrated Acids



HOW TO ORDER AND SPECIFY CM API 6D SLAB GATE VALVES

A	TYPE
C2	Slab Gate

C	PRESSURE CLASS		
15	Class 150	90	Class 900
30	Class 300	150	Class 1500
60	Class 600	250	Class 2500
80	800	20	2 M

E	BODY				
A1	WCB	A5	CF8M	B1	F316
A2	WCC	A6	CF8	B2	F304
A3	LCB	A7	WC6		
A4	LCC	A8	WC9		

G	SEAT
D1	TEFLON
D2	DEVLON
D3	PEEK

I	OPERATION		
0	Bare Stem	4	Pneumatic
1	Hand Wheel	5	Hydraulic
2	Gear	6	Gas Over Oil
3	Electric		

B	DN		
01	1"	10	10"
02	2"	12	12"
03	3"	16	16"
06	6"	24	24" etc.

D	END
RJ	Ring joint
BW	Butt weld
RF	Raised face
SE	Screwed In

F	GATE		
G1	A105+ENP	G5	105+HCr
G2	316	G6	TUNGSTEN COATED
G3	304	G7	A572 GR50 + ENP
G4	LF2+ENP		

H	SOFT GOODS
E1	VITON
E2	HNBR
E3	BUNA

A	B	C	D	E	F	G	H	I
TYPE	DN	CLASS	END	BODY	GATE	SEAT	SOFT GOODS	OPERATION

EXAMPLE	DESCRIPTION
C2-06-30-RF-A4-G4-D2-E2-2	Slab Gate, 6", 300 Class, Raised Face, Body LCC, Gate LF2+ENP, Seat Devlon, Soft Goods HNBR, Operation Gear

Through Conduit Slab Gate Valve



Calvary Valve, Inc.
220 Threll Street
Palestine, Texas 75801
Phone (903) 729-0485
Fax (903) 729-0487
www.calvaryvalve.com

