

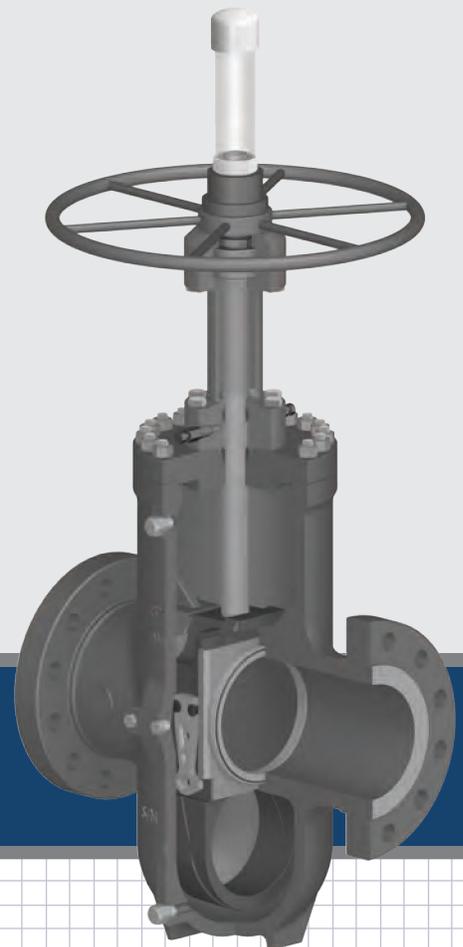


Calvary Valve Inc.

## *Model C1<sup>®</sup> API 6D Expanding Gate Valves*



High integrity expanding gate valves for pipeline, power plant, ESD & other isolation applications.



**Calvary Valve**  
**(903) 729-0485**

# 6D Expanding Gate Valves





Calvary Valve API 60 through-conduit expanding gate valves provide dependable shutoff and sealing reliability for a variety of demanding isolation applications including, but not limited to:

• Pipelines • Power Plants  
• Emergency Shutdown

• Liquids Storage

Calvary Valve valves provide superior bi-directional, mechanical sealing by utilizing a two-piece gate assembly that expands against each valve seat sealing surface. Because the seal is achieved mechanically in either the open or closed position, the seal becomes tighter as the torque applied to the hand wheel increases. This provides a truly reliable seal that is typically not affected by heat, pressure surges, vibration or other abnormal service conditions.

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# Features & Availability

## **Block and Bleed Capability**

When in the closed position the Calvary valve forms a tight seal on both seats, allowing the valve body to be drained. For specific application please consult factory.

## **Tight Mechanical Seal**

Both upstream and downstream are blocked off simultaneously. This mechanical advantage is normally undisturbed by pressure gradient fluctuations or vibrational reflux. The seal is both TFE-to-metal and metal-to-metal.

## **Smooth, continuous conduit**

Virtual elimination of turbulence. Pressure gradient through valve stays the same, relative to the pressure drop in an equal-length pipe.

## **Seat Face Protection**

Seat life is greatly extended by engineering the seats to face outwards in order to avoid contact with the flow medium and engage fully with the gate. This protection is in both the fully open and fully closed positions.

## **Gate Centralizer**

Valve diameters that are 6 inch or larger feature the leverlock gate centralizer, which retains the gate-segment assembly in a neutral position during opening and closing travel. However expansion of the assembly for seating, in an open or closed position, is permitted.

## **Actuation**

The Calvary 6D gate valve is furnished with either hand wheel or bevel gear operators, but they can readily be adapted to fit a wide range of power operators if desired. Power operators can be installed in the field or at the manufacturing facility.

## **Thermal Relief Options**

The split gate design allows for excess body pressure to develop in the body cavities of closed valves, and usually results from heating in the valves in liquid service. A thermal body cavity relief system can be provided to relieve the excess body pressure upon request.

## **National Association of Corrosion Engineers (NACE) Option**

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



## HANDWHEEL OPERATED STYLE VALVE



## GEAR OPERATED STYLE VALVE



Valve sizes and configuration availability shown below.

### HAND WHEEL OPERATED

SIZE (IN)	300	400	600	900	1500
2	x	x	x	x	x
3	x	x	x	x	x
4	x	x	x	x	x
6	x	x	x	x	
8	x	x	x	x	
10	x	x	x		

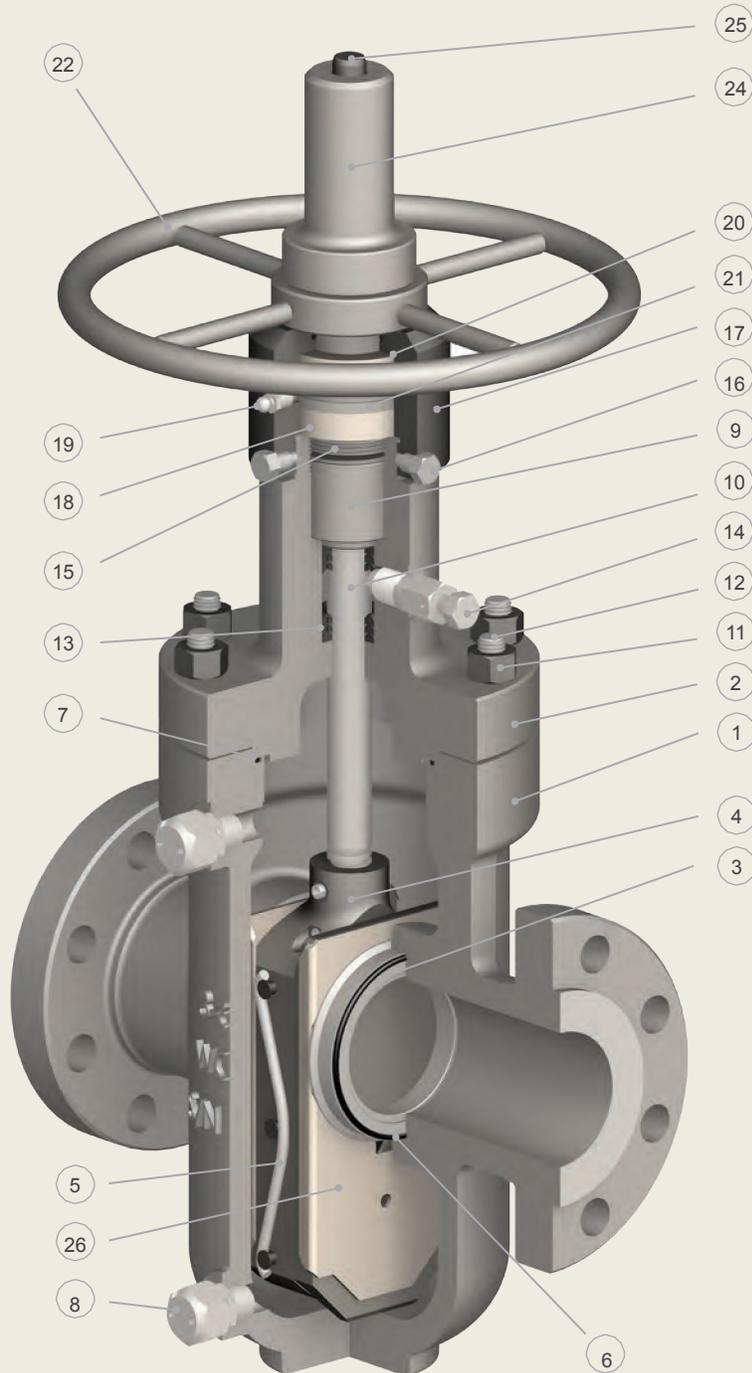
= Available as either hand wheel operated or gear operated.

### GEAR OPERATED

SIZE (IN)	300	400	600	900	1500
6					x
8				x	x
10			x	x	x
12	x	x	x	x	x
14	x	x	x	x	x
16	x	x	x	x	x
20	x	x	x	x	x
24	x	x	x	x	x
30	x	x	x	x	x
36	x	x	x	x	x

# Internal Configuration

## 2" - 4" HANDWHEEL OPERATED CALVARY 6D GATE VALVES





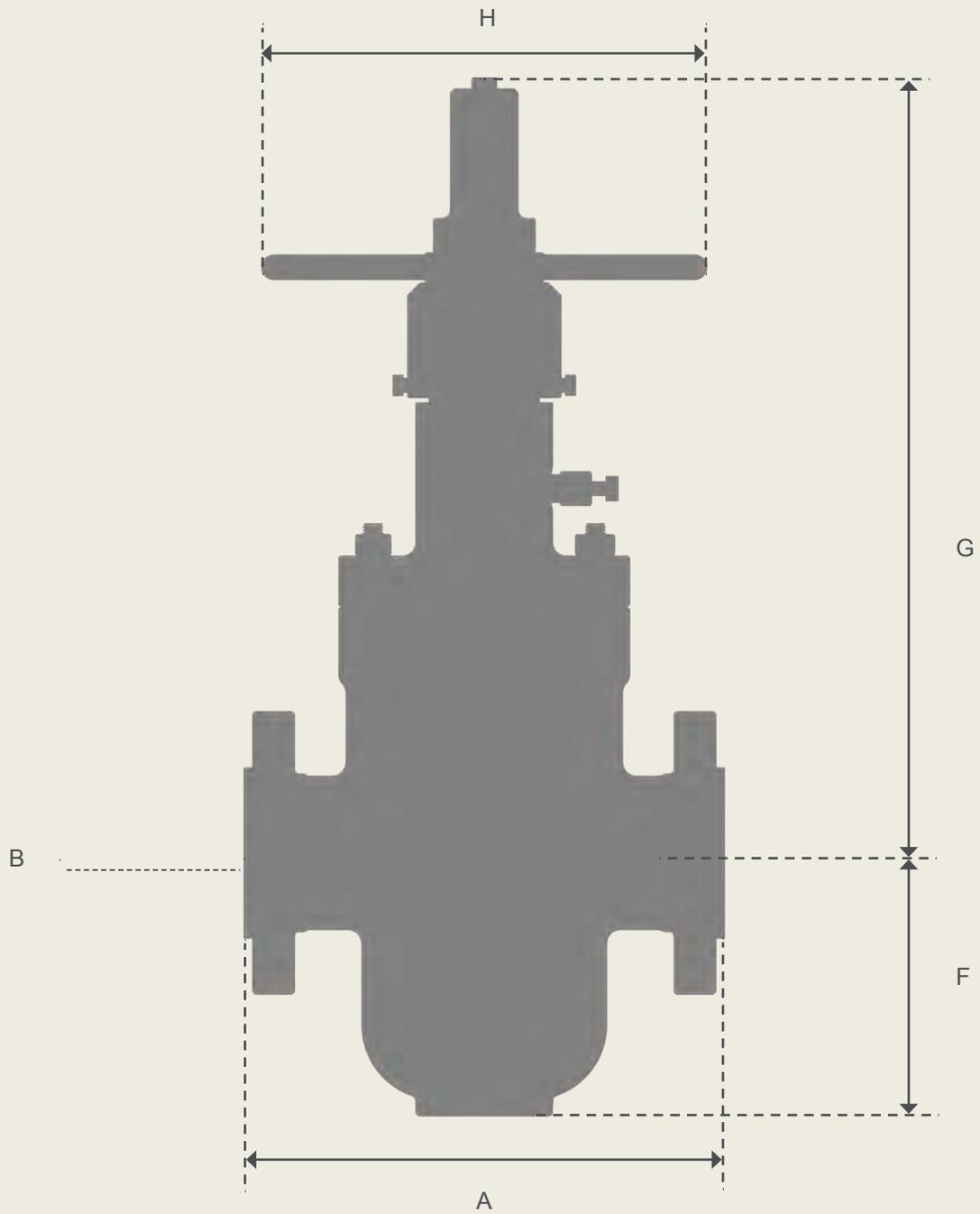
## 2" - 4" HANDWHEEL OPERATED CALVARY 6D GATE VALVES

COMPONENT	PART DESCRIPTION	MATERIAL WCC	MATERIAL LCC	QTY
1	Valve Body	ASTM A216 WCC	ASTM A352 LCC	1
2	Bonnet	ASTM A216 WCC	ASTM A352 LCC	1
3	Seat Assembly	ASTM A216 WCC/AISI-1018	A572 GR50 + ENP + PTFE	2
4	Gate Assembly	ASTM A216 WCC	A572 GR50 + ENP	1
5	Gate Spring	Inconel	Inconel	2
6	O ring (seat)	Viton	Viton	2
7	O Ring / Gasket (bonnet)	Viton	SS304 + Flexible Graphite	1
8	Grease Fittings	316SS	316SS	2
9	Gland Bushing	4130 75k	ASTM A352 LCC	1
10	Stem	17-4 PH SS	A572 GR50	1
11	Heavy Hex. Nut	ASTM A194 Gr. 2H	ASTM A194 7M	Varies
12	Stud	ASTM A193 Gr. B7	ASTM A320 L7	Varies
13	Packing Set	25%Glass Filled PTFE	25%Glass Filled PTFE	1
14	Packing Injection Fitting	316SS	316SS	2
15	Packing Retainer Nut	AISI 1018/1020	ASTM A352 LCC	1
16	Hex. Bolt	ASTM A193 Gr. B7	ASTM A320 L7	4
17	Bearing Housing	AISI 1018/1020	AISI 1018/1020	1
18	Thrust Bearing	STD	STD	2
19	Grease Nipple	IS: 4009	IS: 4009	1
20	O Ring (Stem Nut)	Viton	Viton	1
21	Stem Nut	ASTM B505/C954 Alu. Bronze	ASTM B505/C954 Alu. Bronze	1
22	Handwheel	AISI 1018/1020	AISI 1018/1020	1
23 (NS)	Key	AISI 1018/1020	AISI 1018/1020	2
24	Stem Protector	AISI 1018/1020	AISI 1018/1020	2
25	Indicator Rod	316SS	316SS	1
26	Gate Guide	AISI 1018/1020	AISI 1020	2

(NS) - Not Shown

# Dimensional Drawing

## 2" - 4" HANDWHEEL OPERATED 6D CALVARY GATE VALVES





## 2" - 4" HANDWHEEL OPERATED CALVARY 6D GATE VALVES

### ASME 600

DIMENSIONS													WEIGHT	
SIZE		A		B		F		G		H		N *	LB.	KG
IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM			
2	50	11.50	292	2.06	52	4.81	122	17.75	451	12	300	16	90	41
3	80	14.00	356	3.19	81	6.94	176	23.88	606	12	300	20	180	82
4	100	17.00	432	4.13	105	8.63	219	27.00	686	14	350	20	345	156

### ASME 900

DIMENSIONS													WEIGHT	
SIZE		A		B		F		G		H		N	LB.	KG
IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM			
2	50	14.50	368	2.06	52	5.06	129	17.75	451	12	300	16	150	68
3	80	15.00	381	3.19	81	7.94	202	23.88	606	12	300	20	265	120
4	100	18.00	457	4.13	105	9.06	230	27.00	686	14	350	20	515	234

### ASME 1500

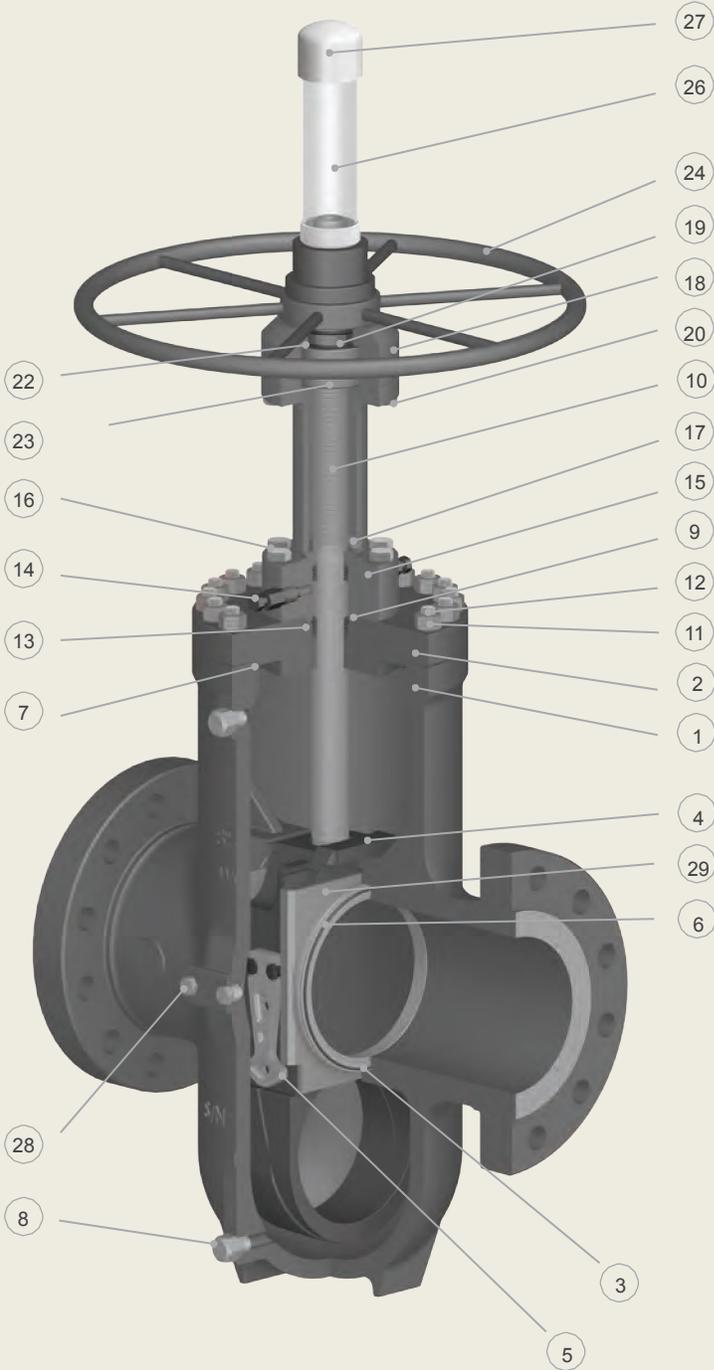
DIMENSIONS													WEIGHT	
SIZE		A		B		F		G		H		N	LB.	KG
IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM			
2	50	14.50	368	2.06	52	5.06	129	17.75	451	12	300	16	150	68
3	80	15.00	381	3.19	81	7.94	202	23.88	606	12	300	20	295	134
4	100	18.00	457	4.13	105	9.06	230	27.00	686	14	350	20	530	240

N= Number of turns of handwheel or bevel gear operator handwheel to fully open or close the valve.

ASME CLASS	MAX. WP @ 100°F (38°C)	
SIZE	CWP	TEST
600	1500	2250
900	2250	3375
1500	3750	5625

# Internal Configuration

6" - 12" HANDWHEEL OPERATED & BEVEL GEAR OPERATED 6D CALVARY GATE VALVES





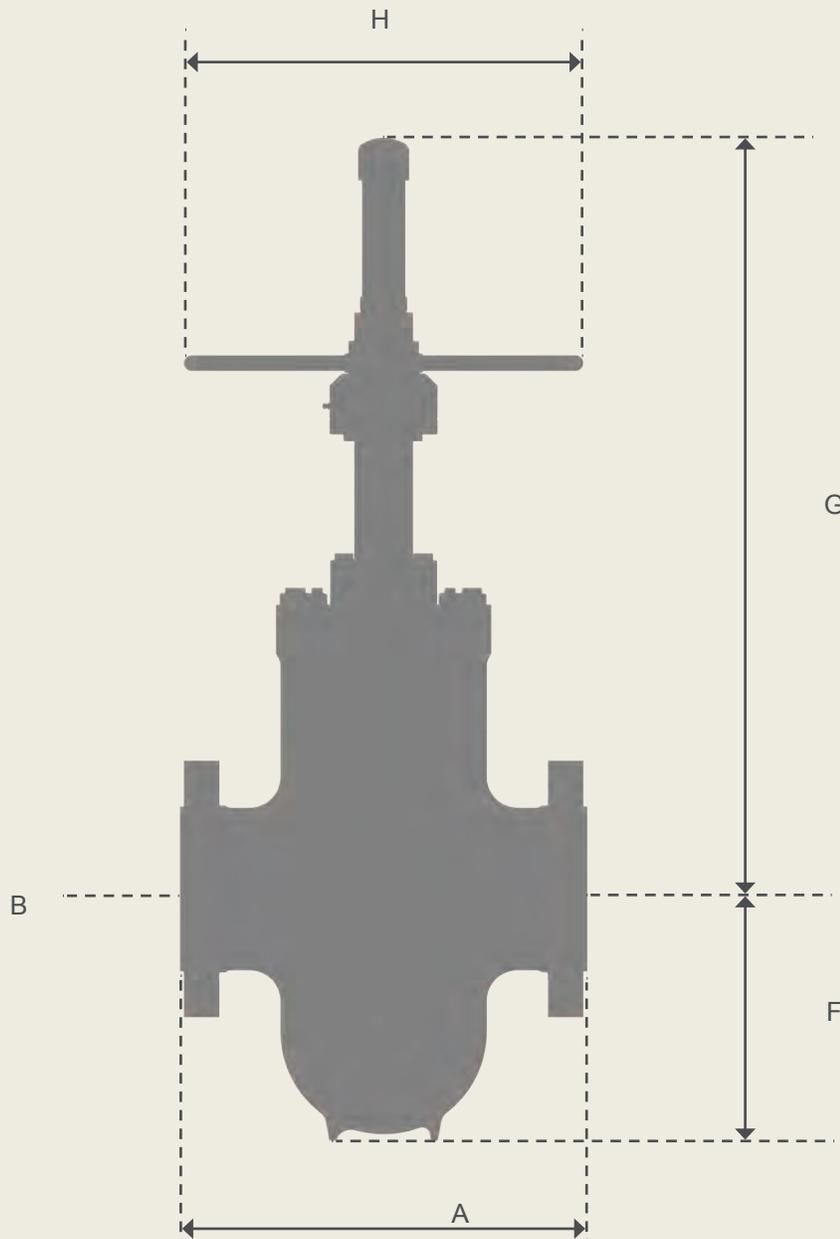
## 6" - 12" HANDWHEEL OPERATED & BEVEL GEAR OPERATED 6D CALVARY GATE VALVES

COMPONENT	PART DESCRIPTION	MATERIAL WCC	MATERIAL LCC	QTY
1	Valve Body	ASTM A216 WCC	ASTM A352 LCC	1
2	Bonnet	ASTM A216 WCC	ASTM A352 LCC	1
3	Seat Assembly	ASTM A216 WCC/AISI-1018	A572 GR50 + ENP + PTFE	2
4	Gate Assembly	ASTM A216 WCC	A572 GR50 + ENP	1
5	Lever Lock Arm	410SS	ASTM A182 410	2
6	O ring (seat)	Viton	Viton	2
7	O Ring / Gasket (bonnet)	Viton	SS304 + Flexible Graphite	1
8	Grease Fittings	316SS	316SS	2
9	O Ring (Yoke Tube)	Viton	Viton	1
10	Stem	17-4 PH SS	A572 GR50	1
11	Heavy Hex. Nut	ASTM A194 Gr. 2H	ASTM A194 7M	Varies
12	Stud	ASTM A193 Gr. B7	ASTM A320 L7	Varies
13	Packing Set	25% Glass Filled PTFE	25% Glass Filled PTFE	1
14	Packing Injection Fitting	316SS	316SS	2
15	Yoke Tube Assembly	AISI 1018/1020	ASTM A352 LCC	1
16	Hex. Bolt	ASTM A193 Gr. B7	ASTM A320 L7	8
17	Pipe Plug	Steel	Steel	1
18	Bearing Housing	ASI 1018/1020	ASI 1018/1020	1
19	Trust Bearing	STD	STD	2
20	Hex Bolt	ASTM A193 Gr. B7	ASTM A320 L7	4
21 (NS)	Grease Nipple	IS: 4009	IS: 4009	1
22	O Ring (Stem Nut)	Viton	Viton	1
23	Stem Nut	ASTM B505/C954 Alu. Bronze	ASTM B505/C954 Alu. Bronze	1
24	Handwheel	AISI 1018/1020	AISI 1018/1020	1
25 (NS)	Key	AISI 1018/1020	AISI 1018/1020	1
26	Stem Protector	AISI 1018/1020	AISI 1018/1020	2
27	Plastic Protector	1st Gr. HDPE	1st Gr. HDPE	1
28	Pipe Plug	ASTM A105	316SS	3
29	Gate Guide	AISI 1018/1020	AISI 1020	2

(NS) - Not Shown

# Dimensional Drawing

6" - 12" HANDWHEEL OPERATED & BEVEL GEAR OPERATED 6D CALVARY GATE VALVES



# Dimension Tables



## 6" - 12" HANDWHEEL OPERATED & BEVEL GEAR OPERATED 6D CALVARY GATE VALVES

### ASME 300

DIMENSIONS																	WEIGHT				
SIZE		A		B		F		G (HWO)		G (BGO)		H		K		N (HWO)	N (BGO)	(HWO)		(BGO)	
IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM			LB.	KG	LB.	KG
6	150	15.88	403	6.00	152	12.50	318	45.25	1149	46.25	1175	24	600	30.69	779	29	114	472	214	500	227
8	200	16.50	419	8.00	203	16.00	406	57.25	1454	56.25	1429	24	600	36.69	932	37	146	853	387	903	410
10	250	18.00	457	10.00	254	20.00	508	63.25	1607	64.24	1632	24	600	44.69	1135	45	180	1345	610	1475	669
12*	300	30.00	762	12.00	305	22.75	578	73.38	1864	74.63	1895	30	750	54.69	1389	40	239			1950	885

\* 12" 300 class valves have 400 class end-to-end dimensions

### ASME 600

DIMENSIONS										WEIGHT											
SIZE		A		B		F		G (HWO)		G (BGO)		H		K		N (HWO)	N (BGO)	(HWO)		(BGO)	
IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM			LB.	KG	LB.	KG
6	150	22.00	559	6.00	152	12.63	321	45.25	1149	46.25	1175	24	600	30.69	779	29	114	595	270	695	315
8	200	26.00	660	8.00	203	15.50	394	57.25	1454	56.25	1429	24	600	36.69	932	37	146	1028	466	1075	488
10	250	31.00	787	10.00	254	19.75	502	64.88	1648	66.13	1680	24	600	45.19	1148	34	203	1735	787	1895	860
12	300	33.00	838	12.00	305	23.00	584	73.38	1864	74.63	1895	30	750	51.69	1313	40	239	2525	1145	3030	1374

### ASME 900

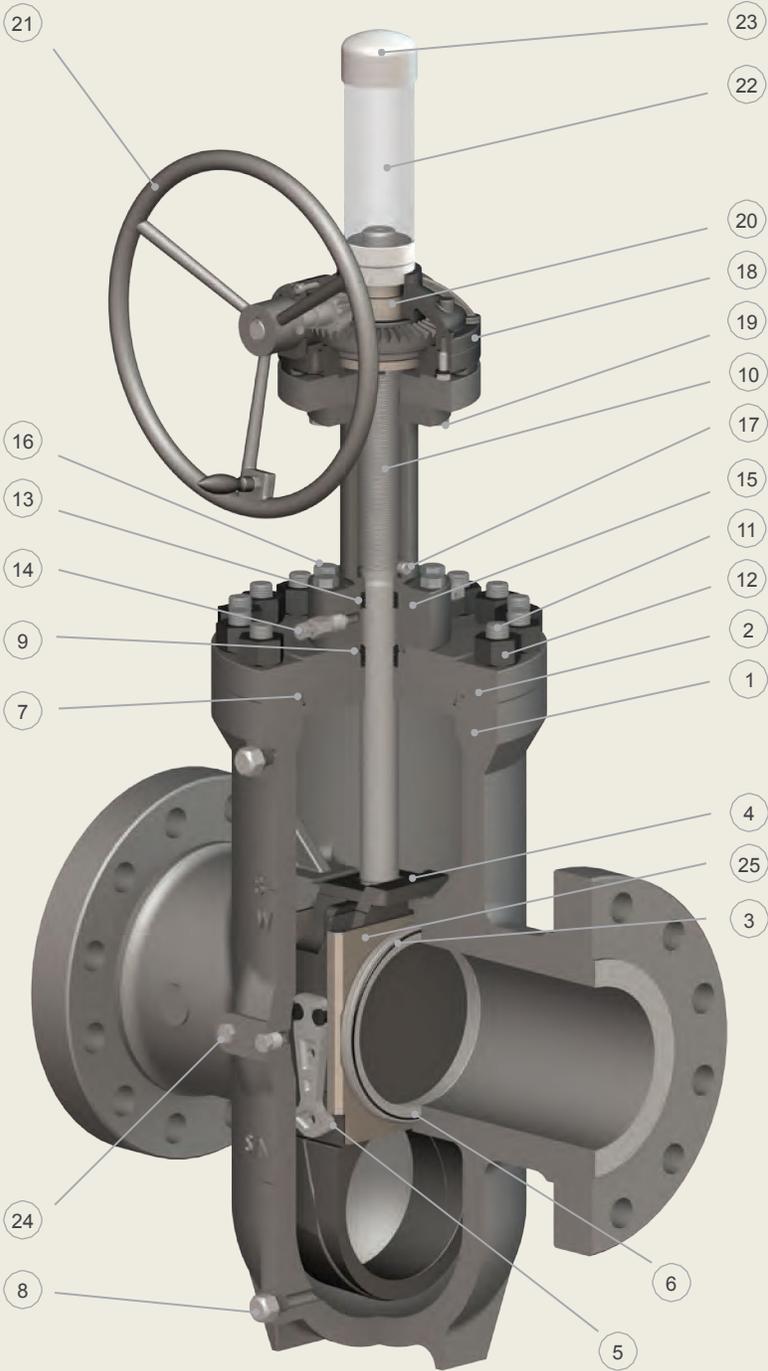
DIMENSIONS										WEIGHT											
SIZE		A		B		F		G (HWO)		G (BGO)		H		K		N (HWO)	N (BGO)	(HWO)		(BGO)	
IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM			LB.	KG	LB.	KG
6	150	24.00	610	6.00	152	12.88	327	45.25	1149	46.25	1175	24	600	30.75	781	29	114	743	337	805	365
8	200	29.00	737	8.00	203	15.75	400	57.25	1454	56.25	1429	24	600	36.75	933	37	146	1272	577	1329	603
10	250	33.00	838	10.00	254	20.13	511	64.88	1648	66.13	1680	24	600	45.25	1149	34	203	2250	1021	2315	1050
12	300	38.00	965	12.00	305	23.50	597			73.75	1873	30	750	56.63	1438	40	318	3392	1539	3600	1633

N= number of turns of handwheel or bevel gear operator handwheel to fully open or close the valve.

ASME CLASS	MAX. WP @ 100°F (38°C)	
SIZE	CWP	TEST
300	750	1125
600	1500	2250
900	2250	3375

# Internal Configuration

14" - 24" HANDWHEEL OPERATED & BEVEL GEAR OPERATED 6D CALVARY GATE VALVES





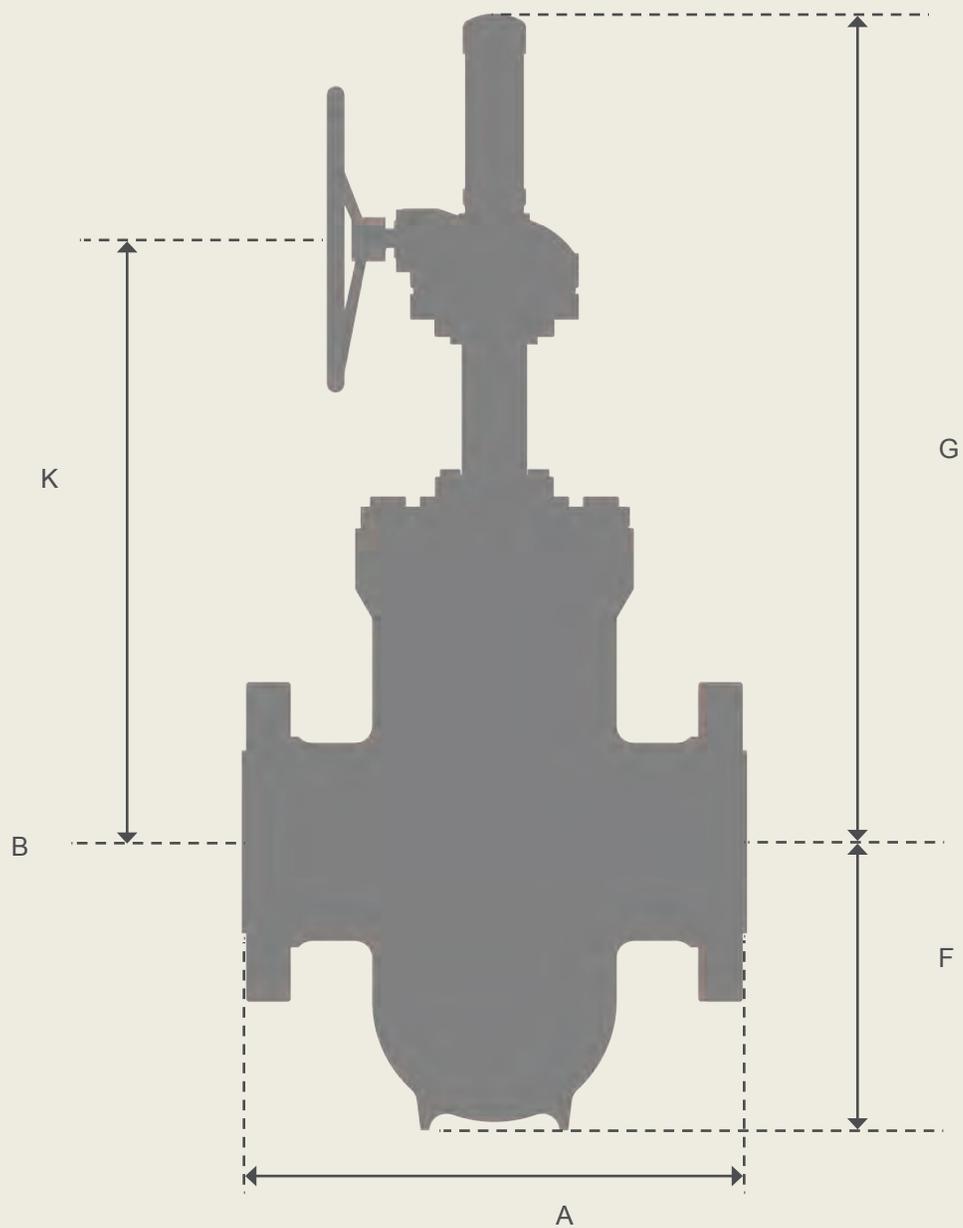
## 14" - 24" HANDWHEEL OPERATED & BEVEL GEAR OPERATED 6D CALVARY GATE VALVES

COMPONENT	PART DESCRIPTION	MATERIAL WCC	MATERIAL LCC	QTY
1	Valve Body	ASTM A216 WCC	ASTM A352 LCC	1
2	Bonnet	ASTM A216 WCC	ASTM A352 LCC	1
3	Seat Assembly	ASTM A216 WCC/ AISI-1018	A572 GR50 + ENP + PTFE	2
4	Gate Assembly	ASTM A216 WCC	A572 GR50 + ENP	1
5	Lever Lock Arm	410SS	ASTM A182 410	2
6	O ring (seat)	Viton	Viton	2
7	O Ring / Gasket (bonnet)	Viton (See Note-1)	SS304 + Flexible Graphite	1
8	Grease Fittings	316SS	316SS	2
9	O Ring (Yoke Tube)	Viton	Viton	1
10	Stem	17-4 PH SS	A572 GR50	1
11	Heavy Hex. Nut	ASTM A194 Gr. 2H	ASTM A194 7M	Varies
12	Stud	ASTM A193 Gr. B7	ASTM A320 L7	Varies
13	Packing Set	25% Glass Filled PTFE	25% Glass Filled PTFE	1
14	Packing Injection Fitting	316SS	316SS	2
15	Yoke Tube Assembly	AISI 1018/1020	ASTM A352 LCC	1
16	Hex. Bolt	ASTM A193 Gr. B7	ASTM A320 L7	8
17	Pipe Plug	Steel	Steel	1
18	Actuator Assembly			1
19	Hex Bolt	ASTM A193 Gr. B7	ASTM A320 L7	8
20	Stem Nut	ASTM B505/C954 Alu. Bronze	ASTM B505/C954 Alu. Bronze	1
21	Handwheel	AISI 1018/1020	AISI 1018/1020	1
22	Stem Protector	AISI 1018/1020	AISI 1018/1020	1
23	Plastic Protector	1st Gr. HDPE	1st Gr. HDPE	1
24	Pipe Plug	316SS	316SS	3
25	Gate Guide	AISI 1018/1020	AISI 1020	2

(NS) - Not Shown

# Dimensional Drawing

14" - 24" HANDWHEEL OPERATED & BEVEL GEAR OPERATED 6D CALVARY GATE VALVES





## 14" - 16" HANDWHEEL OPERATED & BEVEL GEAR OPERATED 6D CALVARY GATE VALVES

### ASME 300

DIMENSIONS													WEIGHT	
SIZE		A		B		F		G		K		N	LB.	KG
IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM			
14*	350	30.00	762	13.25	337	25.25	641	65.88	1673	53.00	1325	177	2632	1194
16	400	33.00	838	15.25	387	28.13	714	83.56	2122	58.38	1459	167	3450	1565

\* 14" & 24" 300 class valves have 400 class end-to-end dimensions

### ASME 600

DIMENSIONS													WEIGHT	
SIZE		A		B		F		G		K		N	LB.	KG
IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM			
14	350	35.00	889	13.25	337	25.56	649	69.75	1772	53.50	1338	177	3240	1470
16	400	39.00	991	15.25	387	28.13	714	81.13	2061	61.25	1531	167	4420	2005

### ASME 900

DIMENSIONS													WEIGHT	
SIZE		A		B		F		G		K		N	LB.	KG
IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM			
14	350	40.50	1029	12.75	324	26.13	664	69.75	1772	53.50	1338		5200	2359
16	400	44.50	1130	14.75	375	30.25	768	81.13	2061	66.63	1666	174	7346	3332

N= Number of turns of handwheel or bevel gear operator handwheel to fully open or close the valve.

ASME CLASS	MAX. WP @ 100°F (38°C)	
SIZE	CWP	TEST
300	750	1125
600	1500	2250
900	2250	3375



**HOW TO ORDER AND SPECIFY CVI AP6D EXPANDING GATE VALVES**

A TYPE	
C1	Expanding 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

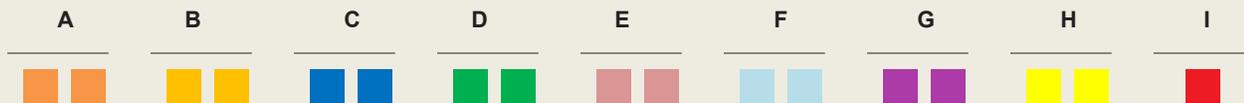
I OPERATION			
0	Bare Stem	4	Pneumatic
1	Hand Wheel	5	Hydraulic
2	Gear	6	Gas Over Oil
3	Electric		

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



EXAMPLE	DESCRIPTION
C1-12-60-RF-A2-G1-D1-E1-1	Expanding Gate, 12", 600 Class, Raised Face, Body WCC, Gate A105+ENP, Seat Teflon, Soft Goods Viton, Operation Hand Wheel



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## LIMITED PRODUCT WARRANTY

All products manufactured or sold by Calvary are warranted against defects of material and workmanship for a period of twelve (12) months from the date of installation or eighteen (18) months from date of shipment, whichever period first expires, when all such products are used in the service and within the pressure range for which they were manufactured.

In the case of products or parts not wholly of Calvary's manufacture, Calvary's liability shall be limited to the extent of Calvary's recovery from the original manufacturer of such products or parts under its warranty or liability to Calvary.

Any repair work performed by Calvary is warranted for one year from completion of such repairs and applies only to work performed. If, within these specified periods, Calvary receives notice from Buyer of any alleged defect in or nonconformance of any product or repair and if in Calvary's sole judgment the product or repair does not conform or is found to be defective in material or workmanship, then, Buyer shall, at Calvary's request, return the part or product F.O.B. to Calvary's designated plant or service location.

Calvary has no liability for removal or reinstallation of products or equipment. Calvary, at its option and expense, shall repair or replace the defective part or product, or repay to Buyer the full price paid by Buyer for such defective part, repair or product. Any repayment of purchase price shall be without interest.

Calvary's warranty liability, including defects caused by Calvary's negligence, shall be limited to such repair, replacement or refund, and shall not include claims for labor costs, expenses of Buyer resulting from such defects, recovery under general tort law or strict liability or for damages resulting from delays, loss of use, or other direct, indirect, incidental or consequential damages of any kind.

Calvary will not be responsible for failures of products which have been in any way tampered with or altered by anyone other than an authorized representative of Calvary, failures due to lack of compliance with recommended maintenance procedures or products which have been repaired or altered in such a way (in Calvary's judgment) as to affect the products adversely.

**THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, STATUTORY OR IMPLIED, INCLUDING THE WARRANTY OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE WHICH EXCEED THE FOREGOING WARRANTY.**

If you have questions regarding this warranty or if you would like information about other Calvary products and services please contact us at the address and phone numbers provided.



Calvary Valve Inc.

## *Calvary API 6D Expanding Gate Valves*



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