



# C67 Bi-Directional Knife Gate Valve



**ITT**

# C67 Bi-Directional Knife Gate Valve



The Fabri-Valve Figure C67 features a unique, patented\*, perimeter seat that provides bi-directional, bubble-tight shutoff. The seat is retained in the valve body by its trapezoidal shape. A relief area has been cast into the valve body behind the seat. Designed to overcome problems common to other perimeter seated designs, the relief area greatly reduces compression set of the seat, allowing it to maintain a tight shutoff performance over varying service conditions. This unique valve design is available in cast stainless steel and carbon steel body construction and can be supplied with a wide variety of seat materials to address a range of application parameters.

The C67 has been upgraded with the universal yoke design which provides greater range of valve application. The yoke plates include a lockout provision for both manual and actuated valves, while greatly simplifying the conversion of valve operators in the field. The yoke plates also allow for easier mounting of mechanical and proximity sensors.

## Specifications

### Size Range

2" – 36"

### Pressure Rating

2"-36" 150 psi (10.3 bar) CWP (cold working pressure)  
Consult factory for higher pressure designs.

### Temperature Rating

Aflas Seat	0°F (-18°C) to 400°F (204°C)
Viton Seat	-30°F (-34°C) to 350°F (177°C)
EPDM Seat	-50°F (-45°C) to 280°F (138°C)
HNBR Seat	-20°F (-29°C) to 280°F (138°C)
Neoprene Seat	-30°F (-34°C) to 180°F (82°C)

### Flange Drilling

ANSI 125/150 Drilling

Consult factory for other flange drillings.

## Testing

Every Fabri-Valve Figure C67 valve is fully tested prior to shipment. Testing includes a body shell test, a seat test and a cycling test to insure proper functioning of moving parts. Please consult the factory for any special testing requirements.

- Standard Shell Test: Hydro test at 1.5 times the rated CWP (cold working pressure) – Zero allowable leakage
- Standard Resilient Seat Test: Hydro test at 15 psi (1 bar) and the rated CWP (cold working pressure) – Zero allowable leakage

\*U.S. Patent #5, 154,397

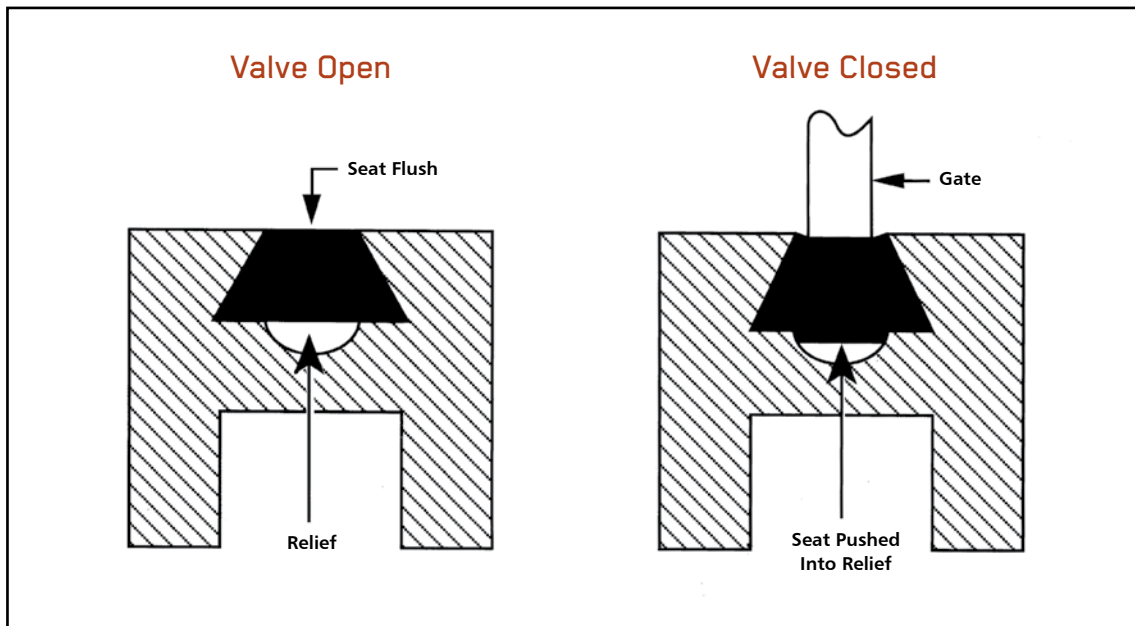
## Pressure/Temperature Ratings

The table below is the Maximum Pressure Temperature Ratings for the metallic components only. When checking pressure/temperature ratings, check the temperature rating and chemical compatibility of the packing material and the resilient seat material. In a majority of knife gate valve designs, the temperature limit or the chemical compatibility of the seat and/or packing material determines the practical pressure/temperature limitations.

Figure C67							
Pressure-Temperature Rating -psi							
Temp		Cast 304	Cast 304L	Cast 316	Cast 316L	Cast 317L	Cast WCB A-216
°F	°C						
150	66	150	150	150	150	150	150
200	93	142	142	150	150	135	150
250	121	135	135	142	142	128	150
300	149	129	129	134	134	121	150
350	177	123	123	128	128	116	150
400	204	118	118	123	123	112	150
450	232	114	114	118	118	108	150
500	260	111	111	114	114	105	150

## Trapezoidal Seat Technology

The C67 trapezoidal seat design provides bubble tight shutoff across the full pressure rating of the valve. When the gate is opened, the seat remains flush with the valve body, reducing turbulence and media build-up. As the gate is closed, the resilient seat is pushed into the body relief area, reducing compression set of the rubber and maintaining a long-term, tight seal. The trapezoidal shape also eliminates issues from seat rollover and prevents seat pullout due to fluid velocity.



## Flow Coefficients

The Cv values below represent U.S. gallons per minute 60°F water through a 100% open valve at a pressure drop of 1 psi. The metric equivalent, Kv, is the flow of water at 16°C through the valve in cubic meters per hour at a pressure drop of 1 kg/cm<sup>2</sup>. To convert Cv to Kv, multiply the Cv by 0.8569.

Figure C67 Knife Gate Valves							
Cv Ratings, Port Diameter and Area							
Valve Size		Standard Port			With V-Seat		
		Cv	Port I. D. Inches	Port Area Sq. In.	Cv	Port I.D. Inches	Port Area Sq. In.
2	50	288	2.00	3.1	165	2.00	2.8
3	75	648	3.00	7.1	355	3.00	6.3
4	100	1,152	4.00	12.6	515	4.00	9.5
6	150	2,592	6.00	28.3	1,350	6.00	24.9
8	200	4,608	8.00	50.3	2,050	8.00	38.1
10	250	7,208	10.00	78.5	3,200	10.00	59.0
12	300	10,400	12.00	113.1	4,450	12.00	82.3
14	350	12,650	13.25	137.9	5,350	13.25	98.8
16	400	16,750	15.25	182.6	6,950	15.25	128.4
18	450	21,450	17.25	233.7	10,700	17.25	198.2
20	500	26,700	19.25	291.0	13,250	19.25	245.4
24	600	38,900	23.25	424.6	15,400	23.25	284.7
30	750	61,600	29.25	671.9			
36	900	89,460	35.25	975.9			

Consult Factory

## Dimensions: C67 with Handwheel or Cylinder

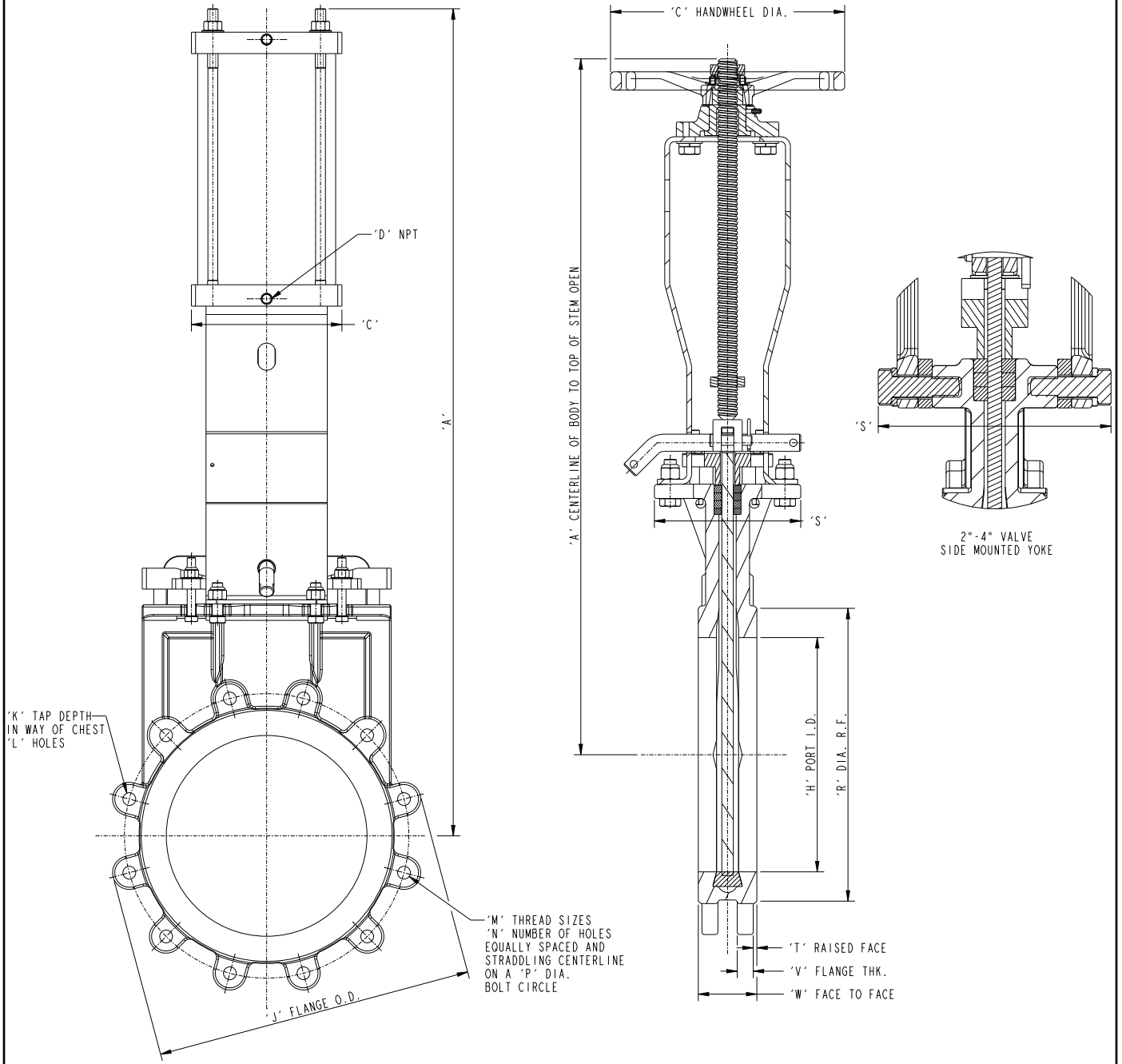
Valve Size		DIMENSION Inches (mm) C67 with HANDWHEEL OR CYLINDER															Weight*											
Inches	DN	A			C			D		H	J	K	L	M	N	P	R	S	T	V	W	lb (HW)	kg (HW)	lb (CYL)	kg (CYL)			
2	50	HW	4 CYL	-	HW	4 CYL	-	4 CYL	-	2 (51)	6 (152)	27/64 (10.72)	2	5/8-11NC	4	4-3/4 (121)	3-5/8 (92)	4 (102)	1/16 (2)	9/16 (14)	1-7/8 (48)	20	9	21	10			
		14-7/8 (378)	17 5/16 (439)	-	10 (254)	4-1/2 (114)	-	1/4-18	-																			
3	80	HW	4 CYL	-	HW	4 CYL	-	4 CYL	-	3 (76)	7-1/2 (191)	23/64 (9.13)	2	5/8-11NC	4	6 (152)	5 (127)	4-7/16 (102)	1/16 (2)	9/16 (14)	2 (51)	24	11	27	12			
		17-3/8 (439)	19-9/16 (493)	-	10 (254)	4-1/2 (114)	-	3/8-18	-																			
4	100	HW	5 CYL	-	HW	5 CYL	-	5 CYL	-	4 (102)	9 (229)	27/64 (10.72)	2	5/8-11NC	8	7-1/2 (191)	6-3/16 (157)	4-7/16 (102)	1/16 (2)	11/16 (17)	2 (51)	32	15	40	18			
		20(508)	22-3/8 (568)	-	10 (254)	5-1/2 (140)	-	3/8-18	-																			
6	150	HW	6 CYL	-	HW	6 CYL	-	6 CYL	-	6 (152)	11 (279)	7/16 (11.11)	2	3/4-10NC	8	9-1/2 (241)	8-1/2 (216)	7-3/8 (187)	1/16 (2)	5/8 (16)	2-1/4 (57)	68	31	71	32			
		29-7/32 (742)	30-5/16 (770)	-	16 (406)	6-1/2 (165)	-	3/8-18	-																			
8	200	HW	6 CYL	8 CYL	HW	6 CYL	8 CYL	6 CYL	8 CYL	8 (203)	13-1/2 (343)	21/32 (16.67)	2	3/4-10NC	8	11-3/4 (298)	10-5/8 (270)	7-3/8 (187)	1/16 (2)	13/16 (21)	2-3/4 (70)	109	49	104/124	47/56			
		35-23/32 (907)	36-7/16 (926)	37-5/16 (947)	16 (406)	6-1/2 (165)	9 (229)	3/8-18	3/8-18																			
10	250	HW	8 CYL	10 CYL	HW	8 CYL	10 CYL	8 CYL	10 CYL	10 (254)	16 (406)	9/16 (14.29)	4	7/8-9NC	12	14-1/4 (362)	12-3/4 (324)	7-3/8 (187)	1/16 (2)	15/16 (24)	2-3/4 (70)	139	63	154/185	70/84			
		41-11/16 (1059)	43-7/16 (1095)	44-1/2 (1130)	16 (406)	9 (229)	11 (280)	3/8-18	1/2-14																			
12	300	HW	8 CYL	10 CYL	HW	8 CYL	10 CYL	8 CYL	10 CYL	12 (305)	19 (483)	1/2 (12.7)	4	7/8-9NC	12	17 (432)	15 (381)	7-1/2 (191)	3/16 (5)	1 (25)	3 (76)	199	90	207/237	94/108			
		48-1/16 (1220)	49-7/16 (1256)	50-7/8 (1291)	20 (508)	9 (229)	11 (280)	3/8-18	1/2-14																			
14	350	HW	12 CYL	-	HW	12 CYL	-	12 CYL	-	13-1/4 (337)	21 (533)	1/2 (12.7)	4	1-8NC	12	18-3/4 (476)	16-1/4 (413)	7-3/4 (197)	3/16 (5)	15/16 (24)	3 (76)	250	113	320	145			
		54-9/16 (1386)	58-1/4 (1480)	-	20 (508)	12-3/4 (324)	-	1/2-14	-																			
16	400	HW	12 CYL	-	HW	12 CYL	-	12 CYL	-	15-1/4 (387)	23-1/2 (597)	5/8 (15.88)	6	1-8NC	16	21-1/4 (540)	18-1/2 (470)	11-1/4 (286)	3/16 (5)	1-1/16 (27)	3-1/2 (89)	348	158	420	191			
		61-11/16 (1566)	63-5/16 (1608)	-	20 (508)	12-3/4 (324)	-	1/2-14	-																			
18	450	-	12 CYL	14 CYL	-	12 CYL	14 CYL	12 CYL	14 CYL	17-1/4 (438)	25 (635)	19/32 (15.08)	6	1-1/8-7NC	16	22-3/4 (578)	21 (533)	11-1/4 (286)	3/16 (5)	1-1/16 (27)	3-1/2 (89)	-	-	487/692	221/314			
		-	70-13/16 (1799)	69-7/8 (1774)	-	12-3/4 (324)	14-3/4 (375)	1/2-14	3/4-14																			
20	500	-	14 CYL	16 CYL	-	14 CYL	16 CYL	14 CYL	16 CYL	19-1/4 (489)	27-1/2 (699)	31/32 (24.61)	8	1-1/8-7NC	20	25 (635)	23 (584)	14 (356)	3/16 (5)	1-3/16 (30)	4-1/2 (114)	-	-	862/972	391/441			
		-	77-1/4 (1962)	77-1/4 (1962)	-	14-3/4 (375)	17 (432)	3/4-14	3/4-14																			
24	600	-	16 CYL	18 CYL	-	16 CYL	18 CYL	16 CYL	18 CYL	23-1/4 (591)	32 (813)	29/32 (23.02)	8	1-1/4-7NC	20	29-1/2 (749)	27-1/4 (692)	14-1/8 (359)	3/16 (5)	1-5/16 (33)	4-1/2 (114)	-	-	1204/1371	546/622			
		-	89-15/16 (2284)	90-11/16 (2303)	-	17 (432)	19 (483)	3/4-14	3/4-14																			
30	750	HW	18 CYL	18 CYL	HW	16 CYL	18 CYL	16 CYL	18 CYL	29-1/4 (591)	38-3/4 (984)	15/16 (24)	10	1-1/4-7NC	28	36 (914)	33-3/4 (857)	15 (381)	3/16 (5)	1-5/16 (33)	4-1/2 (114)	Consult Factory						
		-	106-15/16 (2716)	108-13/16 (2764)	-	17 (432)	19 (483)	3/4-14	3/4-14																			
36	900	HW	18 CYL	20 CYL	HW	18 CYL	20 CYL	18 CYL	20 CYL	35-1/4 (895)	46 (1168)	1 (25)	12	1-1/2-6NC	32	42-3/4 (1086)	40-1/4 (1022)	19 (483)	3/16 (5)	1-3/8 (35)	5-1/2 (140)							
		-	130-15/16 (3326)	131-11/16 (3345)	-	19 (483)	21 (533)	3/4-14	3/4-14																			

\* Figures C67R and C67S with Handwheel

Reference Dimensions in (parentheses)

# C67 with Handwheel or Cylinder

Refer to table on page 4 for dimensions



## Dimensions: C67 with Bevel Gear

Valve Size		DIMENSION Inches (mm) C67 W/BEVEL GEAR																	Weight	
Inches	DN	A	B	C	D	E	H	J	K	L	M	N	P	R	S	T	V	W	LBS	KG
6	150	29-1/4 (742)	22-1/8 (562)	12 (305)	13-11/16 (351)	3-1/4 (83)	6 (152)	11 (279)	7/16 (11.11)	2	3/4-10NC	8	9-1/2 (241)	8-1/2 (216)	7-3/8 (187)	1/16 (2)	5/8 (16)	2-1/4 (57)	93	42
8	200	35-3/4 (907)	26-1/4 (666)	12 (305)	13-11/16 (351)	3-1/4 (83)	8 (203)	13-1/2 (343)	21/32 (16.67)	2	3/4-10NC	8	11-3/4 (298)	10-5/8 (270)	7-3/8 (187)	1/16 (2)	13/16 (21)	2-3/4 (70)	127	58
10	250	41-11/16 (1059)	30 (762)	12 (305)	13-11/16 (351)	3-1/4 (83)	10 (254)	16 (406)	9/16 (14.29)	4	7/8-9NC	12	14-1/4 (362)	12-3/4 (324)	7-3/8 (187)	1/16 (2)	15/16 (24)	2-3/4 (70)	156	71
12	300	48-1/32 (1220)	34-11/32 (872)	12 (305)	13-11/16 (351)	3-1/4 (83)	12 (305)	19 (483)	1/2 (12.7)	4	7/8-9NC	12	17 (432)	15 (381)	7-1/2 (191)	3/16 (5)	1 (25)	3 (76)	208	95
14	350	53-9/16 (1360)	38-11/16 (983)	12 (305)	13-11/16 (351)	3-1/4 (83)	13-1/4 (337)	21 (533)	1/2 (12.7)	4	1-8NC	12	18-3/4 (476)	16-1/4 (413)	7-3/4 (197)	3/16 (5)	15/16 (24)	3 (76)	257	116
16	400	60-5/8 (1539)	43-3/4 (1111)	12 (305)	13-11/16 (351)	3-1/4 (83)	15-1/4 (387)	23-1/2 (597)	5/8 (15.88)	6	1-8NC	16	21-1/4 (540)	18-1/2 (470)	11-1/4 (286)	3/16 (5)	1-1/16 (27)	3-1/2 (89)	354	161
18	450	66-1/4 (1682)	47-1/4 (1200)	12 (305)	13-11/16 (351)	3-1/4 (83)	17-1/4 (438)	25 (635)	19/32 (15.08)	6	1-1/8-7NC	16	22-3/4 (578)	21 (533)	11-1/4 (286)	3/16 (5)	1-1/16 (27)	3-1/2 (89)	421	191
20	500	72-3/16 (1833)	54-1/8 (1374)	12 (305)	13-11/16 (351)	3-1/4 (83)	19-1/4 (489)	27-1/2 (699)	31/32 (24.61)	8	1-1/8-7NC	20	25 (635)	23 (584)	14 (356)	3/16 (5)	1-3/16 (30)	4-1/2 (112)	657	298
24	600	84-13/16 (2153)	62-13/16 (1595)	12 (305)	13-11/16 (351)	3-1/4 (83)	23-1/4 (591)	32 (813)	29/32 (23.02)	8	1-1/4-7NC	20	29-1/2 (749)	27-1/4 (692)	14-1/8 (359)	3/16 (5)	1-5/16 (33)	4-1/2 (114)	880	399
30	750	106-3/16 (1851)	77-1/4 (1305)	18 (457)	12-1/16 (306)	6-1/2 (165)	29-1/4 (743)	38-3/4 (984)	15/16 (24)	10	1-1/4-7NC	28	36 (914)	33-3/4 (857)	15 (381)	3/16 (5)	1-5/16 (33)	4-1/2 (114)	Consult Factory	
36	900	129-1/16 (2153)	94 (1508)	24 (610)	12-1/16 (306)	6-1/2 (165)	35-1/4 (895)	46 (1168)	1 (25)	12	1-1/2-6NC	32	42-3/4 (1086)	40-1/4 (1022)	19 (483)	3/16 (5)	1-3/8 (35)	5-1/2 (140)		

6" - 14" Valves have a bevel gear ratio of 3:1  
16" - 36" Valves have a bevel gear ratio of 4:1

Reference Dimensions in (parentheses)

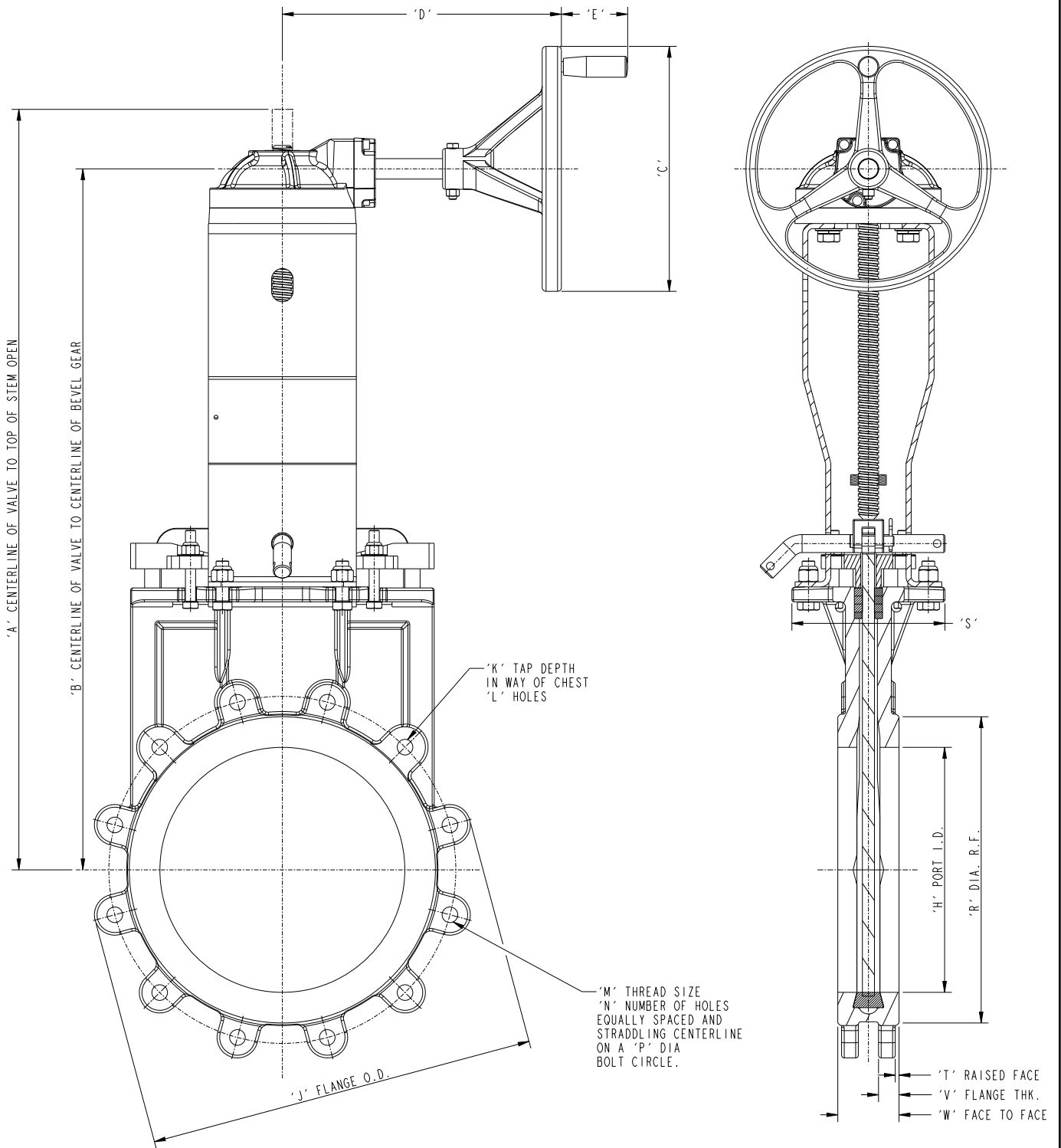
## Materials of Construction

Part	Materials		
	C67S 2"-24"	C67S 30"- 36"	C67R 30" - 36"
Body and Chest	Solid , one piece cast 304, 316 or 317L stainless Steel	Solid , one piece cast 304, 316 or 317L stainless Steel	Solid , one piece cast 304, 316 or 317L stainless Steel
Seat	Elastomer, white EPDM std	Elastomer, white EPDM std	Elastomer, white EPDM std
Gate	Same grade as body	Same grade as body	Same grade as body
Yoke	304 stainless steel	304 stainless steel	Carbon steel
Yoke Fasteners	Stainless steel	Stainless steel	Plated steel
Stem	304 Stainless steel	304 Stainless steel	304 Stainless steel
Stem Nut	Acid resistant bronze	Acid resistant bronze	Acid resistant bronze
Lubrication Fitting	Plated steel	Plated steel	Plated steel
Packing	Acrylic/PTFE/Silicone	Acrylic/PTFE/Silicone	Acrylic/PTFE/Silicone
Packing Follower	304 stainless steel	304 stainless steel	Carbon steel
Follower Bolts	Stainless steel	Stainless steel	Plated steel
Handwheel	Cast iron	Cast iron	Cast iron
Handwheel Retaining Nut	Stainless steel	Stainless steel	Maleable iron
TabWasher	Stainless steel	Stainless steel	Stainless steel
Travel Stop	Stainless steel	Stainless steel	Plated steel

PTFE/Graphite/Viton packing is standard with Viton and Aflas seals

# C67 with Bevel Gear

Refer to table on page 6 for dimensions



## Available Options

### Body

- Epoxy Coating
- Flush Ports: Chest Only, 6" (DN 150) and larger
- V-Port
- Chest Liners
- Thru Drilled Flanges
- Alternate Flange Drilling

### Gate

- Hard Gate Material
- Nickel-TFE Coated Gate
- Locking Devices
- Gate Covers

### Packing

- Optional Packing Materials
- Live Loaded Packing

### Operators

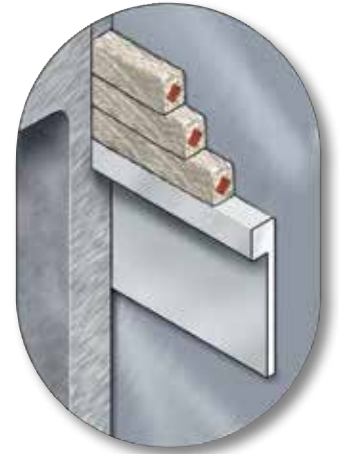
- E-Z Spin Handwheel
- Bevel Gear
- Chainwheels
- Cylinder Actuators
- Electric Actuators
- Ratchet Handle

### Other / Accessories

- Self-Supporting Yokes
- Extended Stems
- Rod Boots
- Limit Switches

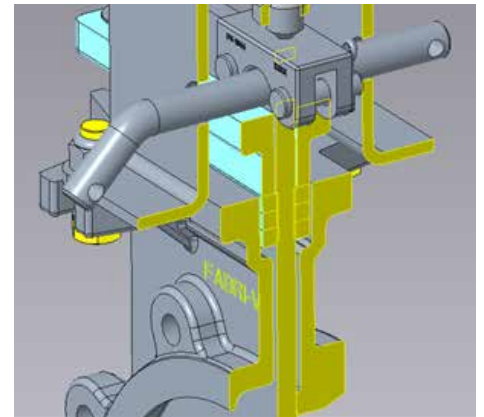
## Chest Liners

Optional chest liners fill the clearances between the gate and the chest of the Figure C67 body. Chest liners prevent solids entrapment in the chest area, and also provide increased gate support for high flow/high pressure applications. Standard materials are ultra high molecular weight polyethylene (UHMW) and reinforced PTFE.



## Gate Lockout

Both manual and actuated C67 valves can be equipped with a locking pin to physically lock the gate for safety provisions. This lockout option will function to lock the gate in either the open or closed position. The standard locking pin is constructed of 17-4 stainless steel.



ITT Engineered Valves  
33 Centerville Road  
Lancaster, PA 17603, USA  
Tel: +1 (717) 509-2200

Cam-Line, Cam-Tite, Dia-Flo,  
EnviZion, Pure-Flo, Skotch

ITT Engineered Valves  
1110 Bankhead Avenue  
Amory, MS 38821, USA  
Tel: +1 (662) 256-7185

Fabri-Valve

ITT Bornemann GmbH  
31683 Obernkirchen  
Germany  
Tel: +49 5724 390-0

EnviZion, Pure-Flo