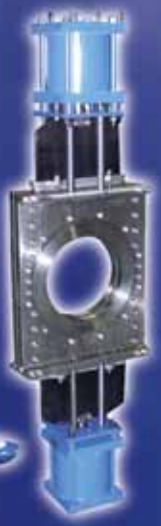
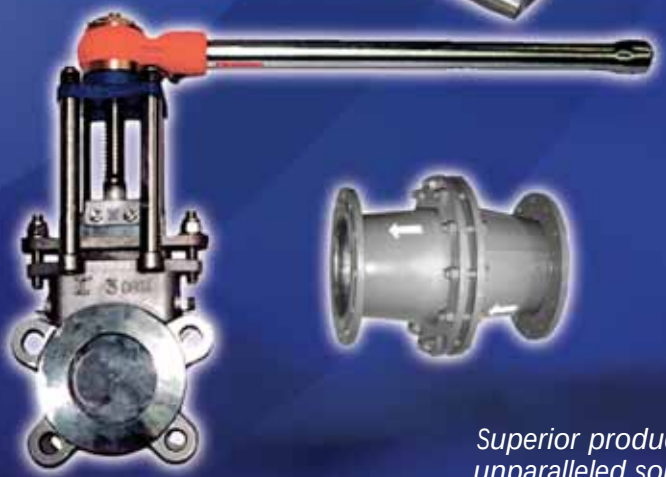
TRUELINE®

Not just your standard valve supplier...

...but custom valve solutions for your most severe applications.





Superior products and unparalleled solutions.

Uni-Directional Knife Gate (Resilient Seat Optional)

Standard:
ASME (ANSI)

General Features:
These valves (including resilient seat option) are typically used in the following applications:

- Pulp and paper.
- Municipal.

Design Standards:
New lightweight epoxy coated handwheel standard on valves up to 14".

Back-up ring facilitates the conversion to 2-way shut off.

Stopper allows the gate to form a tight seal against the seat.

Flanges match ASME (ANSI) B 16.5 - 150 lbs. All come standard with tapped holes and serrated gasket faces.

Special investment cast couplings for each size. Tight tolerances on holes allows for immediate response without Hysteresis.

Upper and lower bearings for valves 14" and larger.

Stainless steel stanchions precisely machined for alignment and ease of field retrofit from manual to automated.

Machined surfaces to accept machined stanchions.

VITON "O" ring (Standard).

Other operators available include:

- Epoxy coated ductile iron handwheel.
- Chain-wheel.
- Bevel gear.
- Pneumatic cylinder.
- Electric actuator.
- Non-rising stem complete with operating nut or handwheel.
- Control accessories such as positioners, limit switches, solenoids, etc.

Optional "O" rings

- EPDM.
- AFLAS.
- BUNA.

For special applications contact factory.

Options Available:

- Resilient seat for drip tight shut-off.
- Vee-port for throttling service.

Testing and Certification:
All Trueline Knife Gate valves are built and tested in accordance with MSS-SP81 and TAPPI T1S 405-8 specifications. All metal-seated valves meet or exceed seat test requirements. Test data is available on request.

Materials:
Full Lug Body: Cast in Various Materials

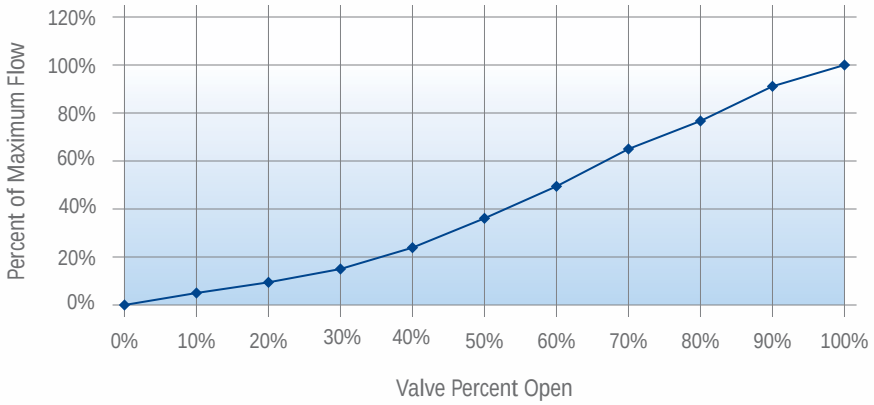
- F8112 - CF8M (316 SST).
- F8113 - CG8M (317 SST).
- F8114 - 254 SMO.
- F8115 - Cast Ductile Iron.
- F8116 - Special Alloys.

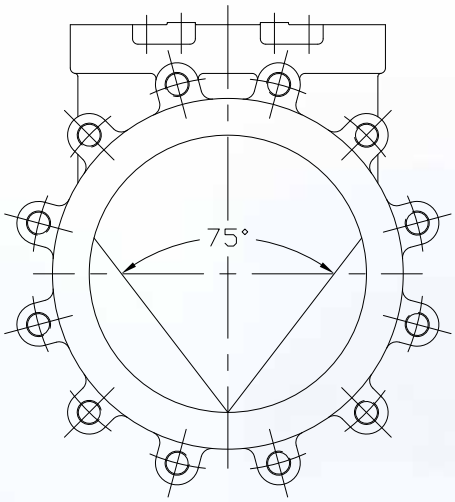
Fully Machined Gate:

- Available in 316, 317, 254 SMO and other exotic alloys.
- All gates have full radius on both sides.

Dimensions:
Sizes available: 2" ~ 48"

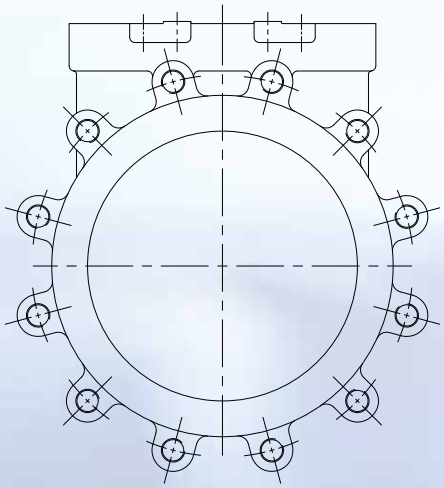
F8112 Metal Seated Vee-Orifice
Flow Characteristic Curve





F8112 Metal Seated Vee-Orifice
Flow Coefficients (Cv)% Open

VALVE	PERCENTAGE OPEN									
SIZE	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
2”	1.3	4	9	14	22	32	40	50	58	64
3”	3.7	12	24	42	65	91	116	145	168	185
4”	7.2	23	47	83	126	177	228	282	329	362
6”	16	53	107	186	283	401	515	636	739	815
8”	32	105	203	356	539	765	981	1,209	1,416	1,555
10”	50	164	329	582	886	1,244	1,593	1,975	2,302	2,531
12”	75	243	487	861	1,312	1,835	2,360	2,918	3,411	3,744
14”	101	319	651	1,160	1,753	2,449	3,151	3,908	4,549	5,000
16”	133	422	868	1,546	2,336	3,259	4,196	5,200	6,068	6,657
18”	161	538	1,048	1,858	2,821	3,951	5,085	6,285	7,338	8,055
20”	201	661	1,298	2,295	3,501	4,898	6,291	7,798	9,091	9,989
24”	294	989	1,932	3,408	5,191	7,261	9,330	11,576	13,441	14,811



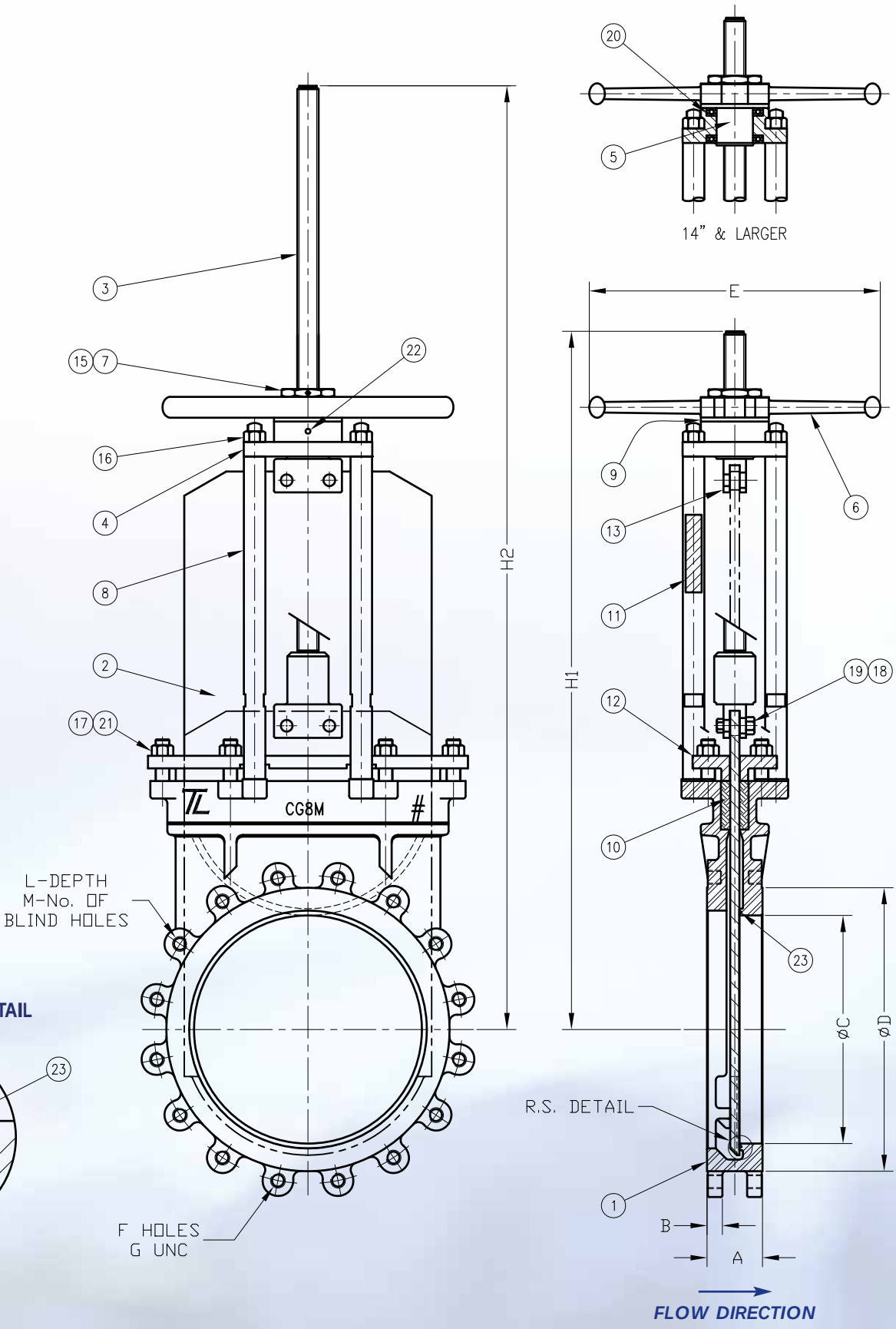
F8112 Round Port
Flow Coefficients (Cv)% Open

VALVE	PERCENTAGE OPEN									
SIZE	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
2”	23	46	65	85	100	120	135	145	155	165
3”	70	142	200	255	310	360	405	440	475	500
4”	120	235	340	435	525	610	690	755	800	850
6”	285	565	810	1,025	1,250	1,460	1,635	1,795	1,920	2,020
8”	505	1,015	1,440	1,835	2,240	2,600	2,920	3,215	3,430	3,610
10”	810	1,615	2,310	2,950	3,590	4,160	4,680	5,140	5,490	5,780
12”	1,290	2,565	3,670	4,675	5,690	6,610	7,430	8,175	8,720	9,180
14”	1,485	2,965	4,240	5,410	6,570	7,630	8,565	9,410	10,090	10,600
16”	2,140	4,275	6,120	7,800	9,460	11,035	12,425	13,630	14,560	15,300
18”	2,805	5,600	8,000	10,185	12,430	14,390	16,170	17,760	18,970	20,000
20”	2,640	7,260	10,370	13,250	16,030	18,620	21,020	23,040	24,670	26,000
24”	5,390	10,760	15,420	19,590	28,860	27,700	31,320	32,240	36,570	38,200
30”	8,330	16,700	23,800	30,300	36,800	42,800	48,190	52,900	56,500	59,680
36”	12,550	25,110	35,930	45,780	55,700	64,700	72,700	79,980	85,390	89,900

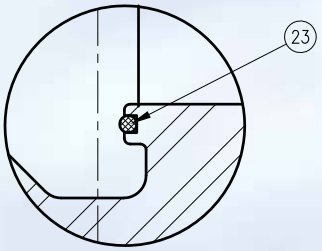
Uni-Directional Knife Gate (Resilient Seat Optional)

OPENED POSITION

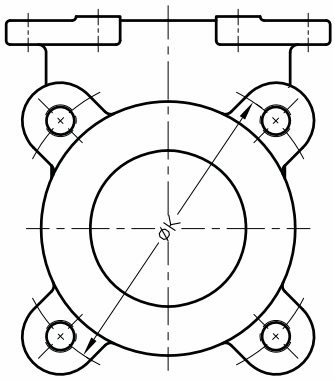
CLOSED POSITION



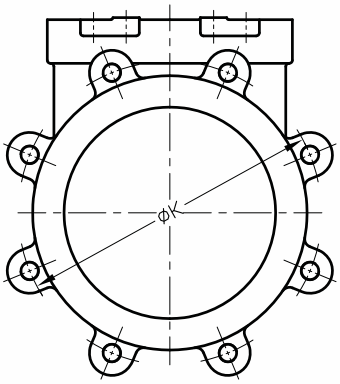
RESILIENT SEAT DETAIL



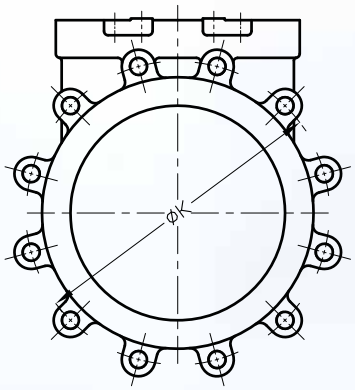
BOLT CIRCLE CONFIGURATION FOR SIZE 2" TO 3"



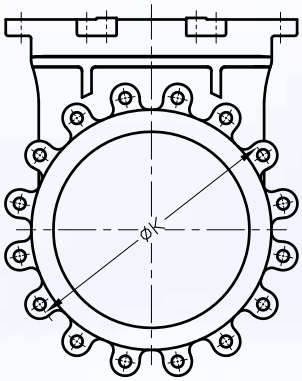
BOLT CIRCLE CONFIGURATION FOR SIZE 4" TO 8"



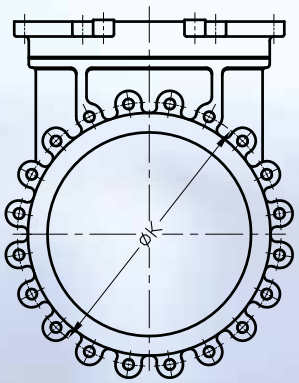
BOLT CIRCLE CONFIGURATION FOR SIZE 10" TO 14"



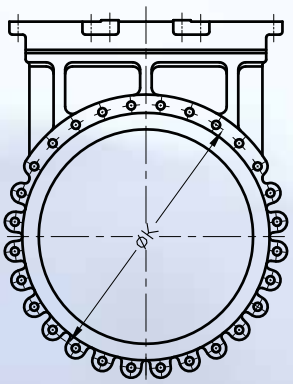
BOLT CIRCLE CONFIGURATION FOR SIZE 16" TO 18"



BOLT CIRCLE CONFIGURATION FOR SIZE 20" TO 24"



BOLT CIRCLE CONFIGURATION FOR SIZE 30"



SIZE		A	B	C	D	E	F	G	H1	H2	K	L	M	WEIGHT
2	IN	1.88	0.50	1.89	3.62	11.02	4	5/8"-11	10.66	12.83	4.75	0.51	2	13 LBS
	MM	48	13	48	92	280			271	326	121	13	2	6 KG
3	IN	2.00	0.50	2.70	5.00	11.02	4	5/8"-11	12.79	16.18	6.00	0.47	2	23 LBS
	MM	51	13	69	127	280			325	411	152	12		10 KG
4	IN	2.00	0.63	3.62	6.19	11.02	8	5/8"-11	14.64	18.81	7.50	0.39	2	30 LBS
	MM	51	16	92	157	280			372	478	191	10		14 KG
6	IN	2.25	0.63	5.51	8.50	11.02	8	3/4"-10	17.95	24.05	9.50	0.51	2	52 LBS
	MM	57	16	140	216	280			456	611	241	13		24 KG
8	IN	2.75	0.63	7.20	10.62	11.81	8	3/4"-10	23.78	31.81	11.75	0.71	2	93 LBS
	MM	70	16	183	270	300			604	808	298	18		42 KG
10	IN	2.75	0.75	9.02	12.75	11.81	12	7/8"-9	25.70	35.70	14.25	0.71	4	120 LBS
	MM	70	19	229	324	300			653	907	362	18		54 KG
12	IN	3.00	0.75	11.26	15.00	13.98	12	7/8"-9	31.61	43.70	17.00	0.71	4	185 LBS
	MM	76	19	286	381	355			803	1110	432	18		84 KG
14	IN	3.00	0.81	13.08	16.75	15.75	12	1"-8	39.84	53.07	18.75	0.63	4	312 LBS
	MM	76	21	332	425	400			1012	1348	476	16		142 KG
16	IN	3.50	1.05	14.81	19.01	19.69	16	1"-8	44.60	59.92	21.25	0.91	6	411 LBS
	MM	89	27	376	483	500			1133	1522	540	23		186 KG
18	IN	3.50	1.05	16.46	21.00	19.69	16	1 1/8"-7	48.03	65.39	22.75	0.75	6	489 LBS
	MM	89	27	418	533	500			1220	1661	578	19		222 KG
20	IN	4.50	1.24	18.35	23.00	23.62	20	1 1/8"-7	52.28	71.69	25.00	1.10	8	701 LBS
	MM	114	31	466	584	600			1328	1821	635	28		318 KG
24	IN	4.50	1.24	22.00	27.25	23.62	20	1 1/4"-7	59.92	83.34	29.50	0.98	8	1000 LBS
	MM	114	31	559	692	600			1522	2117	749	25		454 KG
30	IN	4.50	1.44	27.50	33.75	28.35	28	1 1/4"-7	74.21	102.75	36.00	0.98	10	1500 LBS
	MM	114	37	699	857	720			1885	2610	914	25		680 KG
36	IN	5.00	1.56	33.50	40.26	36.00	32	1 1/2"-6	89.17	123.62	42.75	0.98	12	2500 LBS
	MM	127	40	851	1023	914			2265	3140	1086	25		1134 KG
42	IN	5.00	1.63	38.75	47.00	36.00	36	1 1/2"-6	114.50	154.25	49.50	1.50	14	3700 LBS
	MM	127	41	984	1194	914			2908	3918	1257	38		1378 KG
48	IN	6.00	2.00	43.50	53.50	36.00	44	1 1/2"-6	134.38	178.88	56.00	1.22	16	
	MM	152	51	1105	1359	914			3413	4544	1422	31		

Options available:

- Resilient seat for drip tight shut-off
- Two-way shut off
- Vee-port for throttling service
- Operators such as bevel gear, pneumatic cylinder, electric actuator, etc.
- Control accessories such as positioners, limit switches, etc.

CONSTRUCTION				
#	ITEM	F8112	F8113	F8114
1	BODY	CF8M	CG8M	254 SMO
2	KNIFE	316	317	254 SMO
3	STEM	304	304	304
4	BRIDGE	D.I.	D.I.	D.I.
5	YOKE SLEEVE	BRONZE	BRONZE	BRONZE
6	HANDWHEEL	D.I.	D.I.	D.I.
7	HANDWHEEL NUT	BRONZE	BRONZE	BRONZE
8	STANCHION	303	303	303
9	THRUST WASHER (2"~12")	BRONZE	BRONZE	BRONZE
10	PACKING (NOTE 1)	TEFLON*	TEFLON*	TEFLON*
11	NAME PLATE	ADHESIVE	ADHESIVE	ADHESIVE
12	GLAND FLANGE	CF8M	CG8M	254 SMO
13	STEM COUPLING (NOTE 2)	CF8M	CF8M	CF8M
15	GRUB SCREW	304	304	304
16	STANCHION NUTS	304	304	304
17	GLAND PACKING NUTS	304	304	304
18	COUPLING BOLTS	304	304	304
19	COUPLING NUTS	304	304	304
20	THRUST BEARING (>=14")	BALL	BALL	BALL
21	GLAND PACKING STUDS	304	304	304
22	GREASE NIPPLE	ZINC PLATED	ZINCE PLATED	ZINC PLATED
23	RESILIENT SEAT 0-RING	VITON	VITON	VITON

FIG. F8116-Special material of construction.

NOTE 1: O-ring and packing retainer in stuffing box

NOTE 2: Investment cast

* Teflon braided or Impreganted.

Bi-Directional Knife Gate (Resilient Seat Optional)

Standard:
ASME (ANSI)

General Features:
These valves (including resilient seat option) are typically used in the following applications:

- Pulp and paper.
- Municipal.

Design Standards:
New lightweight epoxy coated hand-wheel standard on valves up to 14".

Bi-directional ring.

Back-up ring facilitates the conversion to 2-way shut off.

Bubble-tight shut-off in both directions (Only for Resilient Seat).

Stopper allows the gate to form a tight seal against the seat.

Flanges match ASME (ANSI) B 16.5 - 150 lb. All come standard with tapped holes and serrated gasket faces.

Special investment cast couplings for each size. Tight tolerances on holes allows for immediate response without hystereis.

Upper and lower bearings for valves 14" and larger.

Stainless steel stanchions precisely machined for alignment and ease of field retrofit from manual to automated.

Machined surfaces to accept machined stanchions.

VITON "O" ring (Standard).

Other operators available include:

- Epoxy coated ductile iron handwheel.
- Chain-wheel.
- Bevel gear.
- Pneumatic cylinder.
- Electric actuator.
- Non-rising stem complete with operating nut or handwheel.
- Control accessories such as positioners, limit switches, solenoids, etc.

Optional "O" rings:

- EPDM.
- AFLAS.
- BUNA.

For special applications contact factory.

Options Available:

- Resilient seat for drip tight shut-off.
- Vee-port for throttling service.

Testing and Certification:
All Trueline Knife Gate valves are built and tested in accordance with MSS-SP81 and TAPPI T1S 405-8 specifications. All metal-seated valves meet or exceed seat test requirements.
Test data is available on request.

Bubble-tight shut-off in both directions (only for resilient seat).

Materials:
Full Lug Body: Cast in Various Materials

- F8112 - CF8M (316 SST).
- F8113 - CG8M (317 SST).
- F8114 - 254 SMO.
- F8115 - Cast Ductile Iron.
- F8116 - Special Alloys.

Fully Machined Gate:

- Available in 316, 317, 254 SMO and other exotic alloys.
- Each gate specially matched to body allowing for tight tolerances.
- All gates have full radius on both sides.

Dimensions:
Sizes available: 2" ~ 48"

Dual Renewable Seats (DRS)

Standard:
Other

General Features:
This valve is designed for high-pressure applications without damaging the integrity of the valve. Body style design makes it easy to install between flanges.

The following are some examples of typical applications:

- Heavy slurries.
- High-pressure pump discharge (horizontally mounted).
- Chemical slurries (i.e. PVC pellets and other forms of plastics).
- Pulp and paper.
- Petro-chemical.
- Mining.

Design Standards:
This valve is specially designed with no cavities to prevent stock build-up. Bubble-tight sealing is achieved in both directions. Pressure design is 50, 75, 100, and 150 or as per customer requirements. You must specify your design pressure.

Other operators available include:

- Epoxy coated ductile iron handwheel.
- Chain-wheel.
- Bevel gear.
- Pneumatic cylinder.
- Electric actuator.
- Non-rising stem complete with operating nut or handwheel.
- Control accessories such as positioners, limit switches, solenoids, etc.

Optional "O" rings:

- EPDM.
- AFLAS.
- BUNA.

For special applications contact factory.

Options Available

- Gate guards.

Materials:
Fully fabricated from heavy plate and sheet.

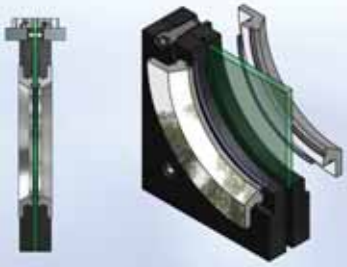
Available in:

- CF8 (304 SST).
- CF8M (316 SST).
- CG8M (317 SST).
- 254 SMO.
- 654 SMO.
- Titanium.
- Hastelloy C276 or C22
- Carbon Steel and Ductile Iron.
- Bronze.
- Aluminum
- Titanium.

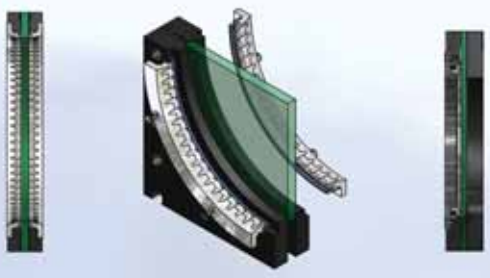
Other exotic alloys upon request

Dimensions:
Sizes available: 2" ~ 48"

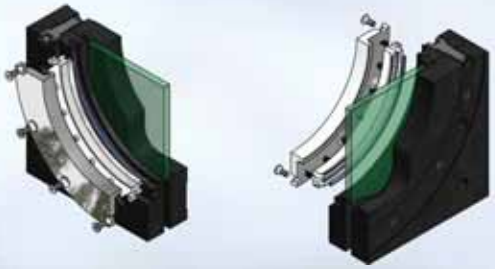
Tapered Seat Design



Wire Cutter Seat Design



Live Loaded Seat Design



Split Flange

Standard:
Other

General Features:
This valve is designed for high-pressure applications up to 150 psi without damaging the integrity of the valve.

In-line maintenance, the adaptor can be removed to clean the valve without removing the body from the main line.

The following are some examples of typical applications:

- High-density stock tower by-pass.
- Heavy slurries.
- High-pressure pump discharge (horizontally mounted).
- Chemical slurries (i.e PVC pellets and other forms of plastics).
- Pulp and paper.
- Petro-chemical.
- Mining

FULLY BI-DIRECTIONAL TO 150 PSI

O-Port style gate fully protects the seat face in open position. This characteristic increases the service life of the valve.

This valve will close through a static column of material.

Design Standards:
New lightweight epoxy coated handwheel standard on valves up to 14".

HT-65 treated gate.

HT-65 seat rings.

GFO Packing.

Flanges match ASME (ANSI) B 16.5 - 150 lbs. DIN PN10 all come standard with tapped holes and serrated gasket faces.

Special investment cast couplings for each size. Tight tolerances on holes allows for immediate response without hystereis.

Upper and lower bearings for valves 14" and larger.

Stainless steel stanchions precisely machined for alignment and ease of field retrofit from manual to automated.

Machined surfaces to accept machined stanchions.

VITON "O" ring (Standard).

Other operators available include:

- Epoxy coated ductile iron handwheel.
- Chain-wheel.
- Bevel gear.
- Pneumatic cylinder.
- Electric actuator.
- Control accessories such as positioners, limit switches, solenoids, etc.

Optional "O" rings:

- EDPM.
- AFLAS.
- BUNA.

For special applications contact factory.

Testing and Certification:
All Trueline Knife Gate valves are built and tested in accordance with MSS-SP81 and TAPPI T1S 405-8 specifications. All metal-seated valves meet or exceed seat test requirements. Test data is available on request.

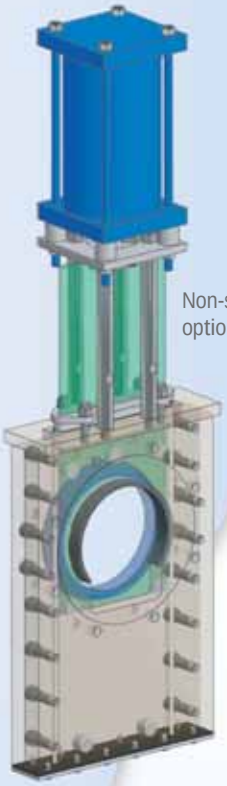
Materials:
Fully fabricated from heavy plate and sheet.

Available in:

- CF8 (304 SST).
- CF8M (316 SST).
- CG8M (317 SST).
- 254 SMO.
- 654 SMO.
- Titanium.
- Hastelloy C276 or C22.
- Carbon Steel and Ductile Iron.

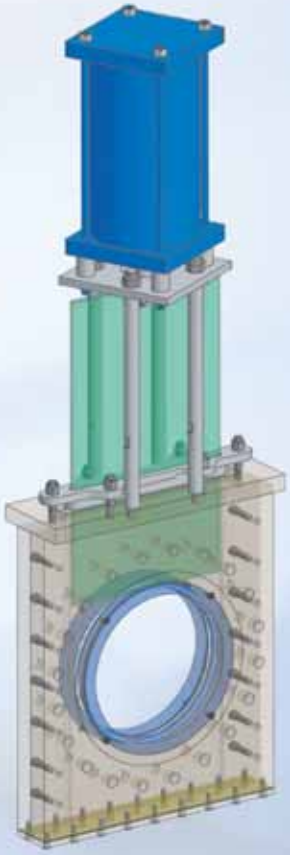
Dimensions:
Sizes available: 12" ~ 36"

Fully Machined Custom Knife Gate Valve Bottom Port Arrangement



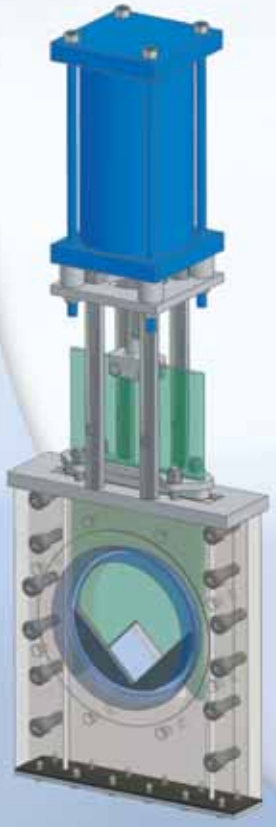
Non-shouldering option

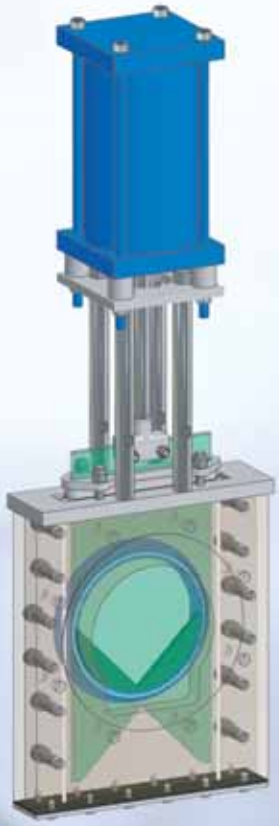
Fully Machined F8112 300# Class Knife Gate Valve



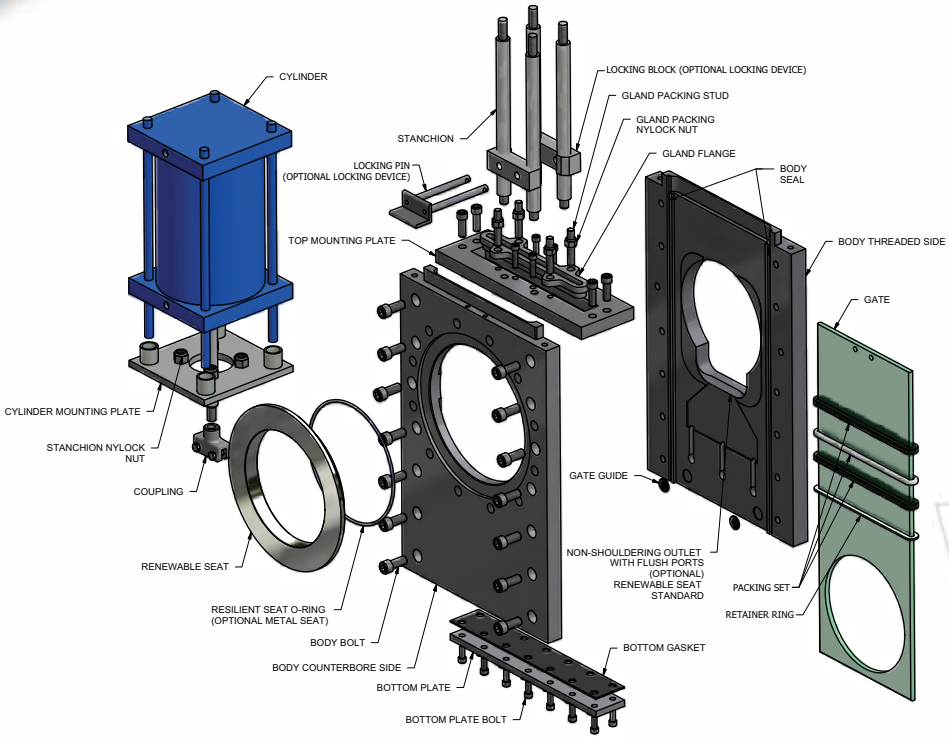
Fully Machined Custom "Diamond-Port" Knife Gate Valve

Diamond-Port to provide optimum flow control characteristics





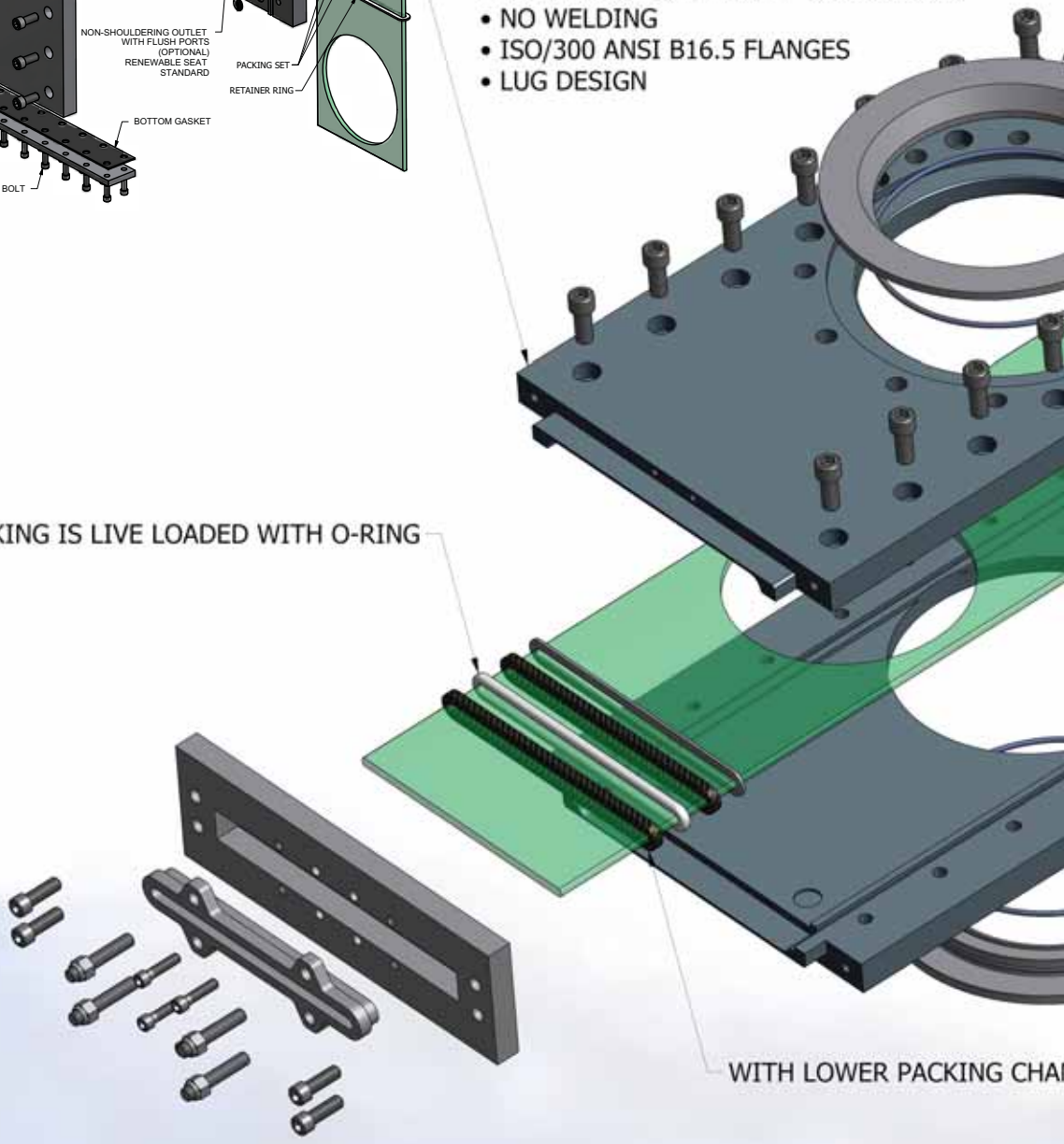
Bottom Port Arrangement



CUSTOM-MADE HIG
SLURRY

4 STAINLESS STEEL STANCHIONS PRECISELY M

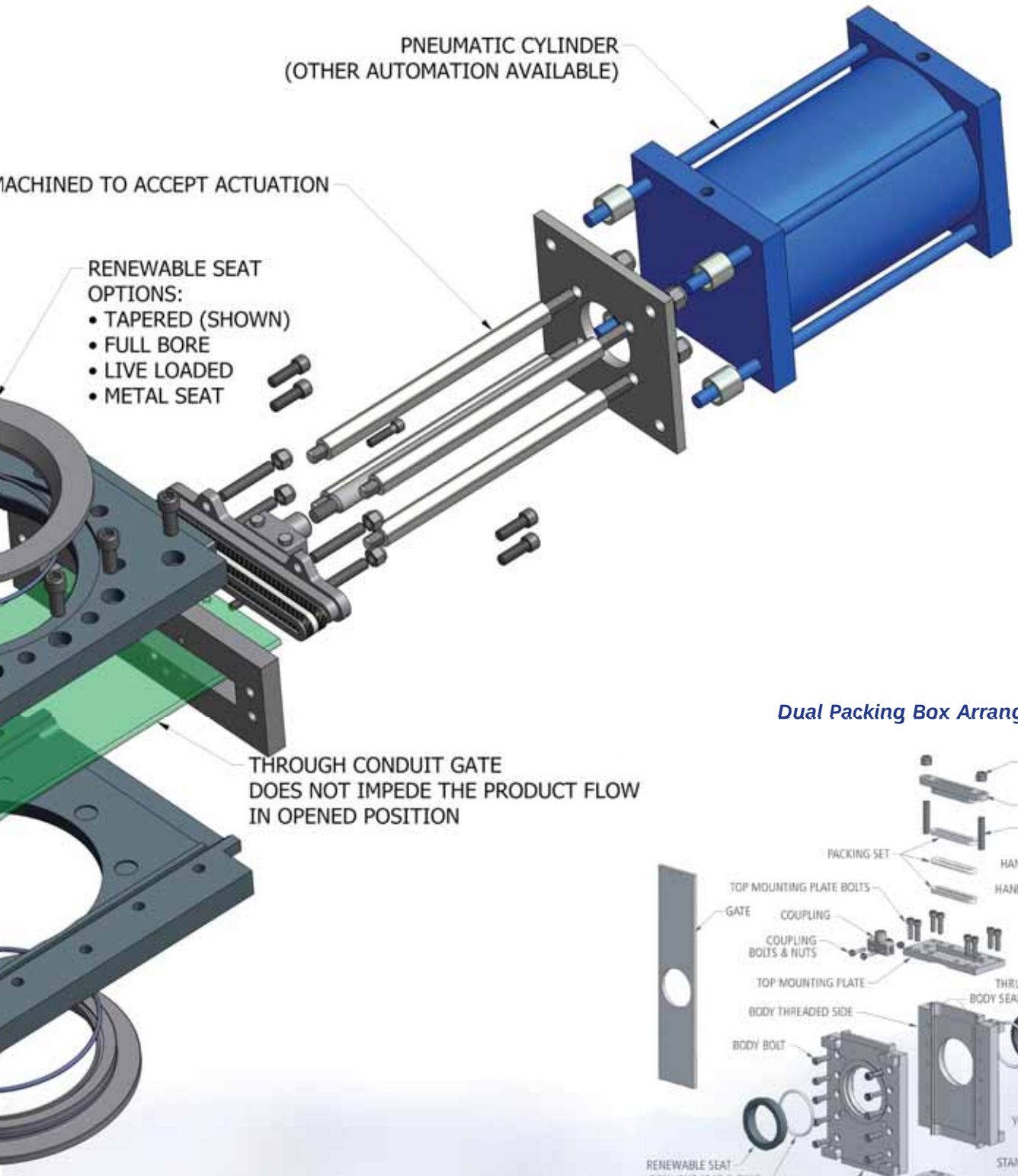
- FULLY MACHINED TIGHT TOLERANCES
- NO WELDING
- ISO/300 ANSI B16.5 FLANGES
- LUG DESIGN



PACKING IS LIVE LOADED WITH O-RING

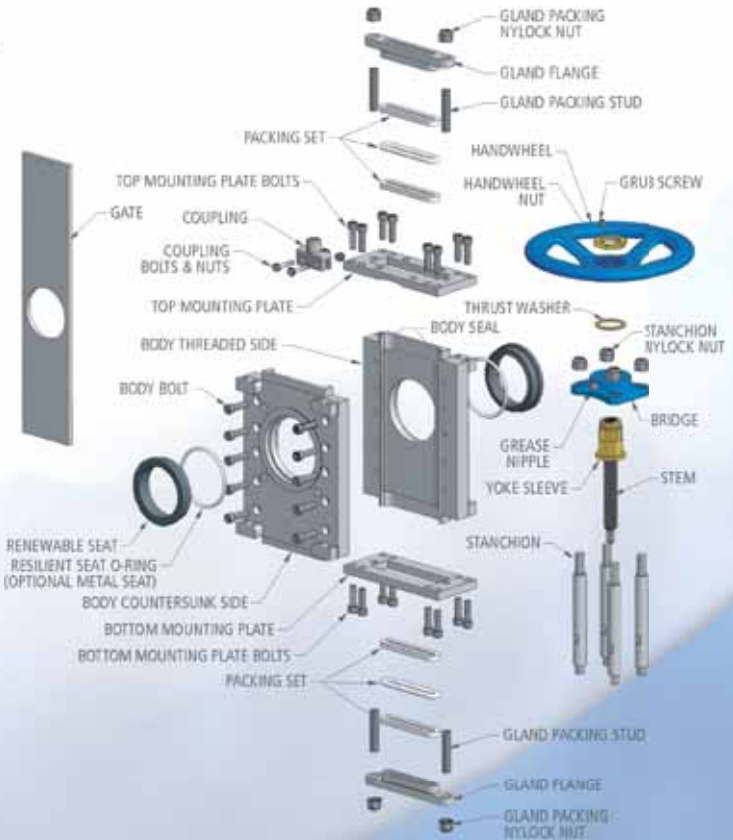
WITH LOWER PACKING CHA

GH PERFORMANCE
Y VALVE



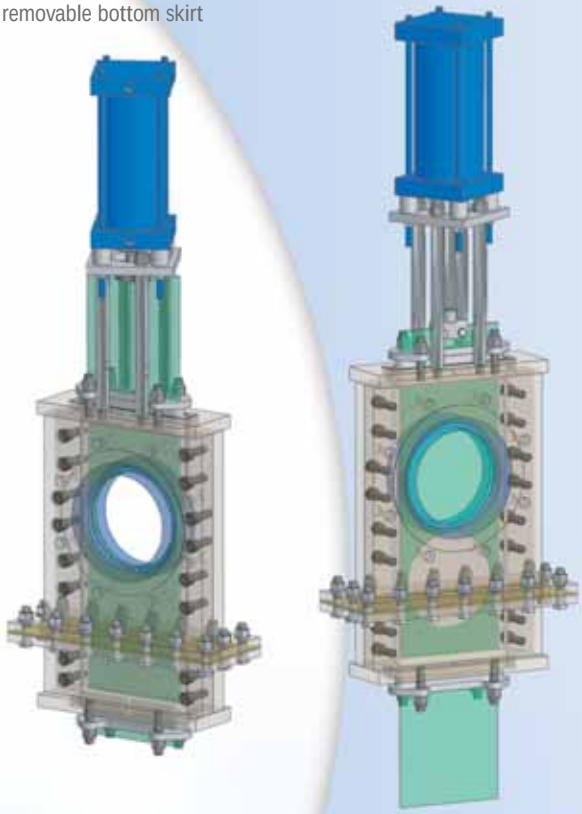
MBER

Dual Packing Box Arrangement



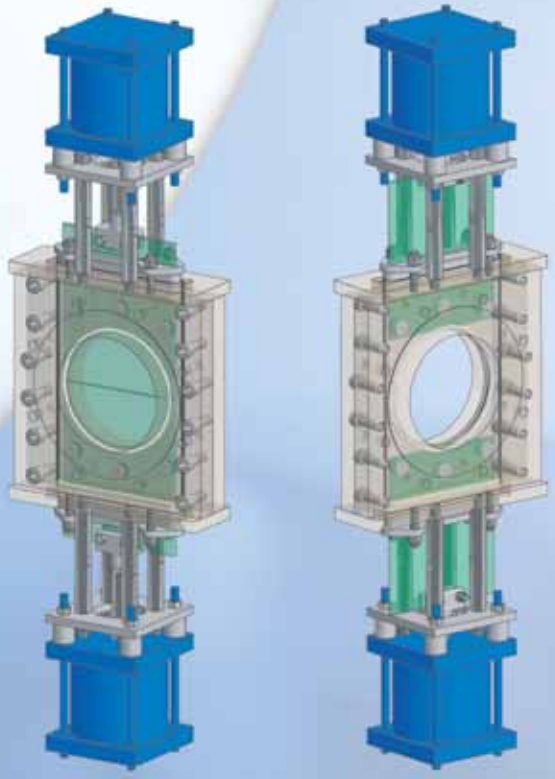
Fully Machined "O-Port" Knife Gate Valve

c/w dual packing box arrangement and removable bottom skirt



Fully Machined Custom Knife Gate Valve Dual Packing Box Arrangement

Fully Machined "Dual Gate" Knife Gate Valve



Fully Machined Custom "O-Port" Knife Gate Valve

Bi-directional & prepared for horizontal position c/w Vee-port to provide optimum flow control characteristics

Custom Made Round Port Knife Gate Valves

Standard:

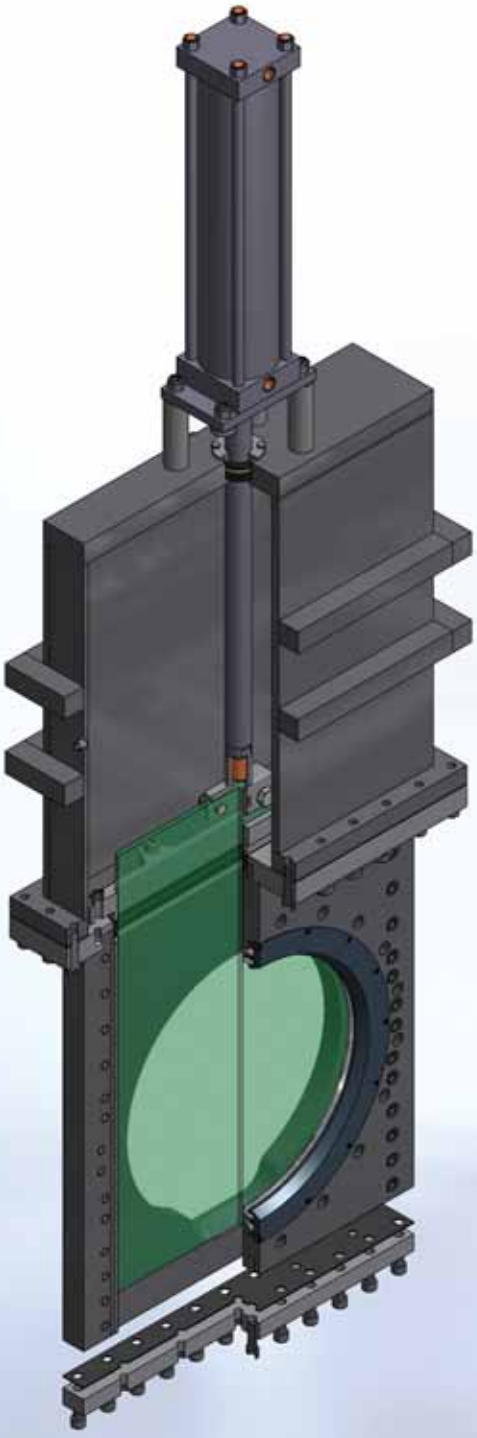
ASME (ANSI) 150/300 rating available

Design Standards:

Bi-directional, dual renewable seats.

Low and high pressure as per customer requirements.

ANSI B16.5 bolting pattern standard.



Materials:

Available in:

- SS 304
- SS 316
- SS 317
- 254 SMO.
- 654 SMO.
- Titanium.
- Hastelloy C276 or C22.
- Carbon Steel and Ductile Iron.

Optional HT-65 or HT-2200 on gate and seats for abrasive processes.

Dimensions:

Sizes available: 2" ~ 72"

Transmitter Isolation Valve

Standard:
ASME (ANSI)

General Features:
Designed specifically to provide isolation of an instrument level transmitter from a storage tank. Installation of this valve allows for transmitter replacement or maint-enance without disruption of process or draining of the vessel.

Design Standards:
Special Service Full-Port Instrument Knife Gate Valve - Size 3"

Tank side flange permits blind bolting from the vessel exterior. All valves are provided with a ratchet operator which, together with the narrow face to face dimensions, allows the valve to be flush mounted to the vessel and thereby minimizes the dead space between the vessel and transmitter.

Materials:
Body: CG8M (317 SST).

Gate: CF8M (316 SST).

Teflon impregnated packing and Viton resilient seat.

1/4" flush ports are standard.

The valve is also available in 254 SMO and other exotic alloys.

Dimensions:
Sizes Available: 3"

Check Valves

Flanged - F6112

Standard:
ASME (ANSI)

Materials:
Available in:

- CF8M (316 SST).
- CG8M (317 SST).
- 254 SMO.
- Titanium.

Many other options and material combinations are available.

IMPORTANT
When ordering the seat and disk assembly only, make sure you select the seat and disk one size smaller than your line size (i.e. 4" assembly for 6" line).

Flanged - F6110

Standard:
ASME (ANSI)

General Features:
Check Valve

150 lb. Bolting pattern

Materials:
Available in:

- CF8M (316 SST).
- CG8M (317 SST).
- 254 SMO.
- Titanium.

Many other options and material combinations are available.

Stock Sampling Valve

Standard:
ASME (ANSI)

General Features:
Operated by a simple spring loaded lever operator for quick and precise action.

Applications:

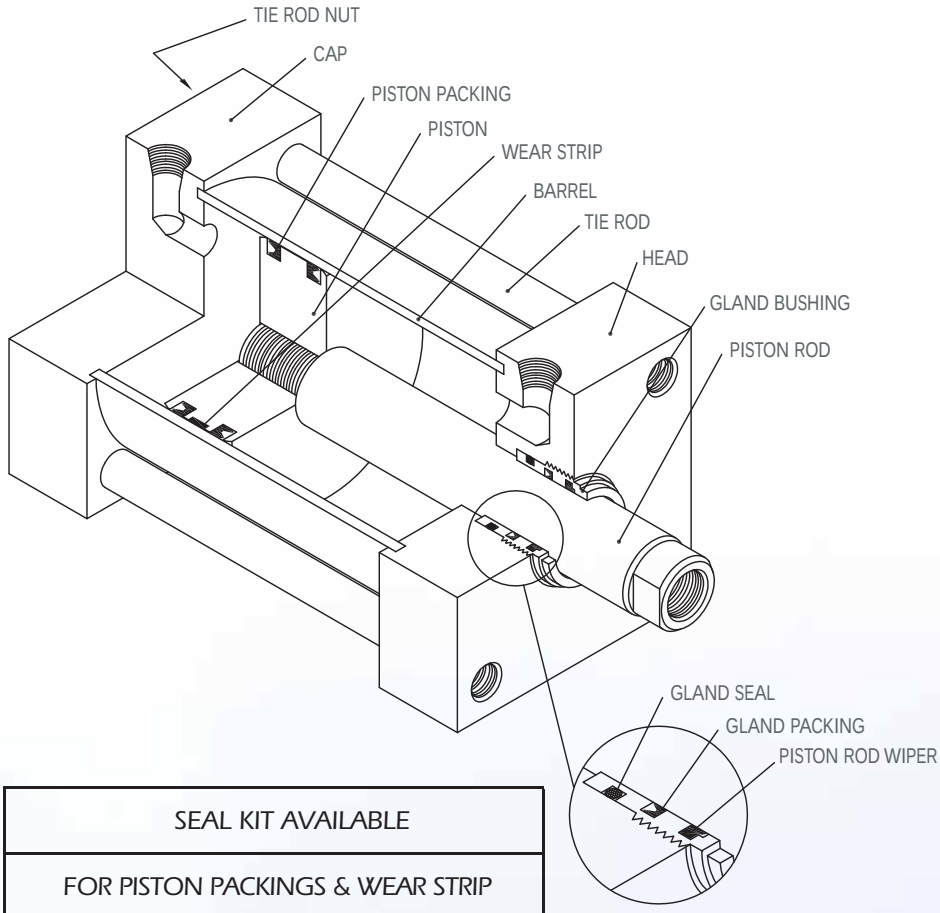
- Pulp and paper.

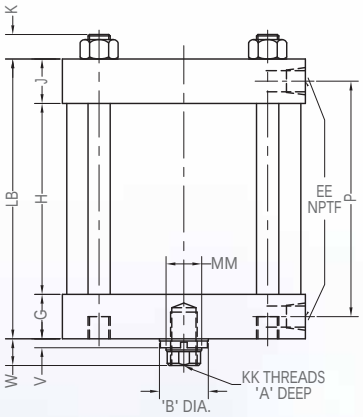
Materials:
Body: CF8M (316 SST).

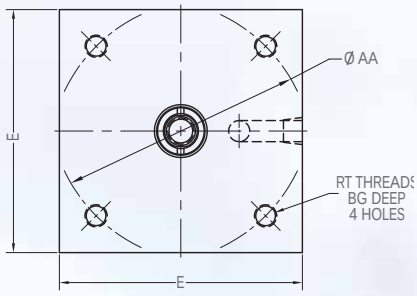
Dimensions:
Sizes available: 2"

Custom Made Cylinders

Specifically Manufactured for Trueline (Model 2A)







SEAL KIT AVAILABLE
FOR PISTON PACKINGS & WEAR STRIP
FOR GLAND PACKING, SEAL AND PISTION ROD WIPER
COMPLETE (PARTS INDICATED ABOVE)

BORE	MM ROD SIZE	KK UNF	A	AA	B	BG	E	EE NPTF	G	J	K	RT UNF	V	W	ADD STROKE		
															LB	H	P
3.25	1	0.625 -18	1.50	3.90	1.375	0.50	3.75	0.25	1	1	0.375	0.375 - 24	0.25	0.75	3	1	2
4	1	0.625 -18	1.50	4.70	1.375	0.50	4.50	0.25	1	1	0.375	0.375 - 24	0.25	0.75	3	1	2
5	1	0.625 -18	1.50	5.80	1.375	0.50	5.50	0.25	1	1	0.50	0.50 - 20	0.25	0.75	3.125	1.125	2.125
6	1	0.625 -18	1.50	6.90	1.375	0.50	6.50	0.25	1	1	0.50	0.50 - 20	0.25	0.75	3.125	1.125	2.125
7	1	0.625 -18	1.50	8.10	1.375	0.625	7.50	0.375	1.25	1.25	0.625	0.625 - 18	0.25	0.75	3.75	1.25	2.50
8	1	0.625 -18	1.50	9.10	1.375	0.625	8.50	0.375	1.25	1.25	0.625	0.625 - 18	0.25	0.75	3.75	1.25	2.50
10	1.375	1 - 14	2.00	11.20	1.875	0.75	10.625	0.375	1.50	1.50	0.75	0.75 - 16	0.3125	1	4.75	1.75	3.25
12	1.375	1 - 14	2.00	13.30	1.875	0.75	12.75	0.50	1.50	1.50	0.75	0.75 - 16	0.3125	1	4.75	1.75	3.25
14	1.375	1 - 14	2.00	15.40	1.875	0.875	14.75	0.50	1.75	1.75	0.875	0.875 - 14	0.3125	1	5.50	2	3.75
16	2	1.50 - 12	2.50	17.80	2.500	X	17	0.50	1.75	1.75	1	X	0.375	1.50	5.625	2.125	3.875
18	2	1.50 - 12	2.50	20.00	2.500	X	19	0.75	1.75	1.75	1.125	X	0.375	1.50	5.875	2.375	4.125
20	2	1.50 - 12	2.50	22.30	2.500	X	21	0.75	1.75	1.75	1.25	X	0.375	1.50	6.125	2.625	4.375

NOTE: All dimensions are in inches.

HT-65

Standard:
Other

General Features:

Introduction

The process HT-65 provides excellent corrosion resistance and cosmetic appeal for ferrous-based components. The treatment also enhances the other engineering properties, i.e. wear resistance, lubricity and fatigue strength. This process replaces Chromium and other critical materials where plating has traditionally been used for wear, corrosion resistance and improved cosmetic appearance.

The Process

HT-65 is a thermal-chemical diffusion process wherein ferrous parts are heat treated at 1050ºF through an appropriate formulation to ensure the interface of the materials being processed. The intrinsic properties of HT-65 is it's relatively low coefficient of friction as well as the degree of lubricity in both the dry state as well as under lubrication. This highly lubricious process prevents stainless materials from galling and once HT-65 is applied the surface becomes Rockwell 70 in hardness on the "C" scale.

Description

The HT-65 layer is highly resistant to wear, seizure and corrosion. It is durable practically up to the temperature at which it was generated. Typically, HT-65 penetrates the ferrous matrix to depth of 0.020" to 0.040" to form the diffusion zone, austenitic steels develop an extremely hard and complex compound zone distinctive from all other ferrous metals, typically 0.0007" to 0.0009" thick, and a diffusion zone approximately 0.003" deep.

General Applications

HT-65 may be applied to i.e. valve parts, ball seats, knife gates, sleeve bearings, impellers and all metal parts to prevent premature wear from friction and galling from thermal expansion in high temperature applications.

Benefits

HT-65 components have excellent sliding and running properties. A very low coefficient of friction minimizes the incidence of abrasion due to wear and galling (i.e. metal to metal welding). The scuff load depending on the material pairing is 2-5 times better.

HT2200

HARDNESS FROM 1700 VICKER
~2200 VICKER or 2200 KNOOP (no S)-
TEMPERATURE RANGE: 1600°F or 872°C

General Features:

HT2200 gives valve components a considerably longer service life that the traditional processes used to date. The improvements in wear resistance, which are achievable with surface treatment techniques, such a case hardening, nitriding or armouring are often inadequate for modern manufacturing methods and their products. The development of the HT2200 process to render it applicable on a commercial scale has filled a gap in the range of techniques available for the heat treatment of metal surfaces.

HT2200 is a process during which diffuses into the metal surface , particular characteristics of the iron HT2200 are the extreme hardness, approx. HV=2000. HT2200 is carried out at a temperature of 800°C to 1000°C.

Hardness is frequently also regarded as an indication of high wear resistance. Apart from the hardness however, there are a number of factors such as the surface finish, tendency to cold welding and nature of the loading, which are also decisive in judging the wear properties, the optimum feature of HT2200 is the extreme hardness, HV=1700-250.

As in the case with all diffusion processes, an increase in volume is to be expected during the formation of HT2200 layers. Dimensional changes are mainly determined by the case depth obtained and the material used. The increase in volume generally about 20 to 25% of the case depth. On high alloyed material it is much greater and can be up to 80% of the case depth. As heating up and cooling down are slow procedures, changes in the shape of the HT2200 parts are usually only slight. An almost distortion free treatment is possible even with long slim parts.

The corrosion resistance of low alloyed and unalloyed steels is improved by HT2200. If they are immersed in hot 18% hydrochloric acid it is possible to completely dissolve the matrix beneath the HT2200 layer, the layer itself remaining intact. On the other hand, the resistance to oxidizing acids such as nitric acid (HNO_3) is poorer.

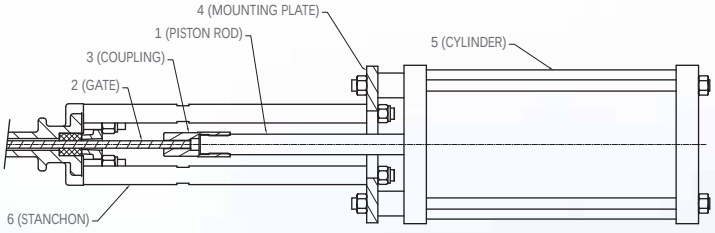
Installation Procedure for Knife Gate in Horizontal Position

All valves with a cylinder larger than 6" bore must be supported. It's preferable, if possible, to support the cylinder (item 5) on the base where the adapter plate (item 4) is installed & where the stanchions (item 6) mount to the cylinder.

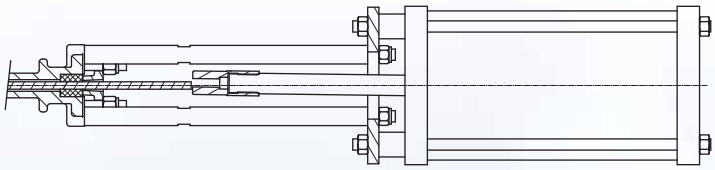
Step 1
When supporting the cylinder, disconnect the piston rod (item 1) from the gate (item 2).

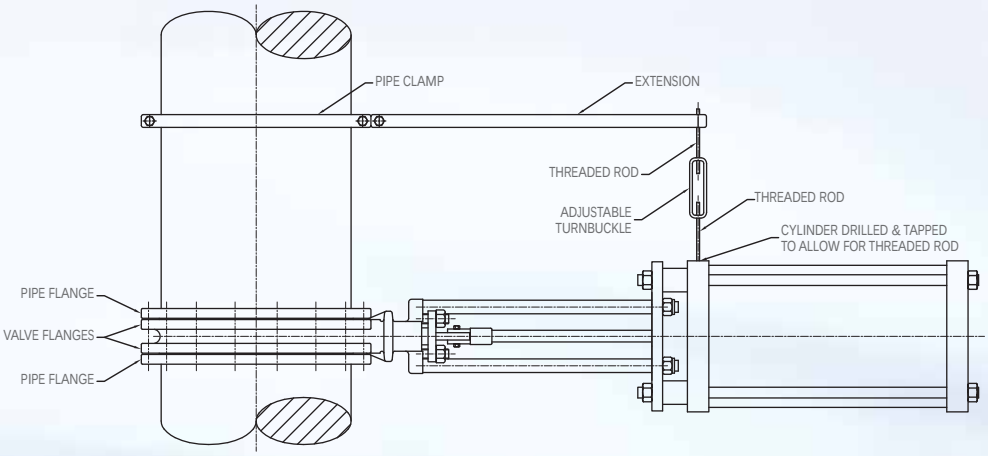
Step 2
Make sure your cylinder support has an up & down adjustment of about 2" either way (a turnbuckle [adjustable] with a cable is probably the best device to use).

Step 3
Apply air pressure at the top of the cylinder allowing the piston rod & coupling (item 3) to move towards the gate. Disconnect the air pressure as the coupling approaches the gate and see if the coupling will fit directly onto the gate. If it does not, use the adjustable support either up or down to ensure the alignment. Do not force the coupling onto the gate. If you require further adjustment, you can do so with the adapter plate. First loosen all four nuts on the plate. This will give you additional adjustment. Once the coupling is aligned, proceed to tighten all nuts.



CORRECT PROCEDURE (GATE & COUPLING ALIGN)


INCORRECT PROCEDURE (GATE & COUPLING DO NOT ALIGN)



IMPORTANT NOTES:

- It's recommended that the gate be treated with HT65
- Do not over torque the flange bolts (refer to the torque chart on the next page)

Recommended Installation Stud or Bolt Torques for Knife Gate Valves

Important! Must be read prior to installation.

Recommended Minimum & Maximum Bolt Torques

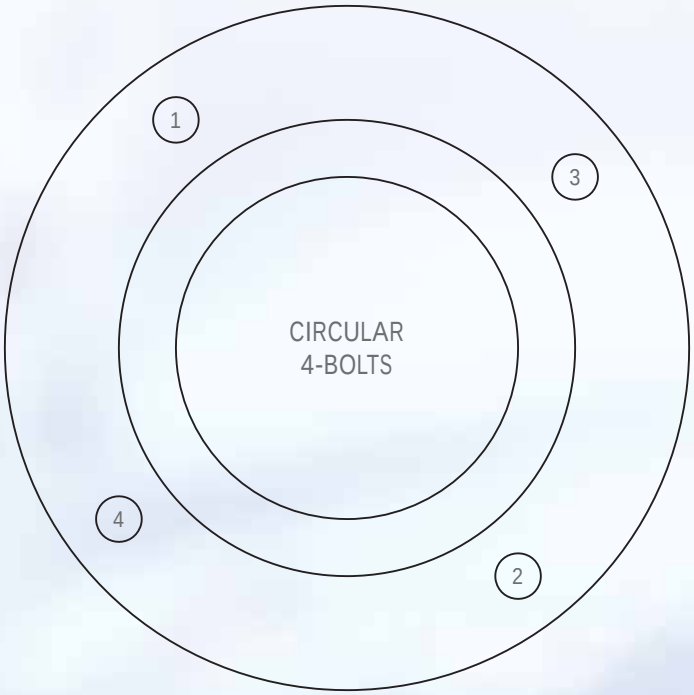
Machined Bolts & Cold Roll Steel Studs

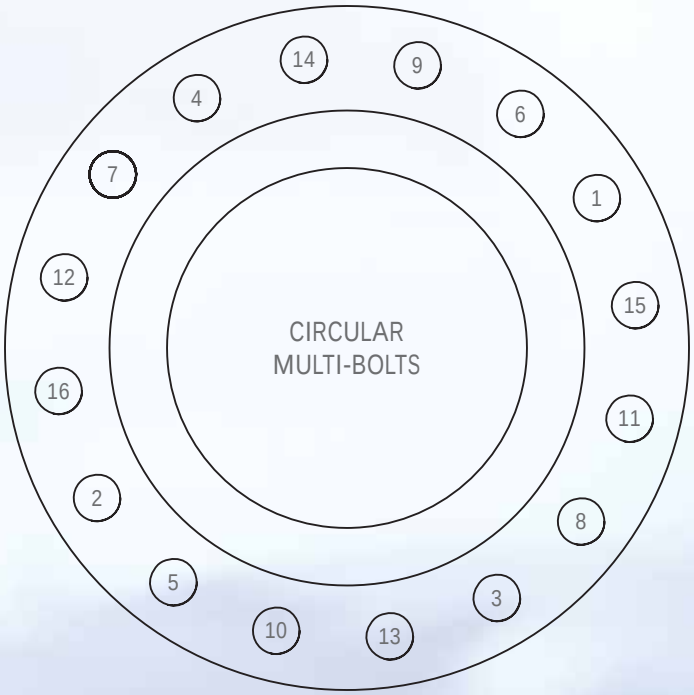
Nominal Size	Stud or Bolt Size	Min. Torque Lubed (ft/lb)	Max. Torque Lubed (ft/lb)
2" ~ 4"	5/8" - 11 UNC	32	38
6" & 8"	3/4" - 10 UNC	56	65
10" & 12"	7/8" - 9 UNC	54	63
14" & 16"	1"- 8 UNC	82	95
18" & 20"	1 1/8" - 7 UNC	117	135
24" & 30"	1 1/4" - 7 UNC	165	190
36" ~ 48"	1 1/2" - 6 UNC	282	325

* For Alloy Steel (B-7) bolts call Trueline Valve Corporation

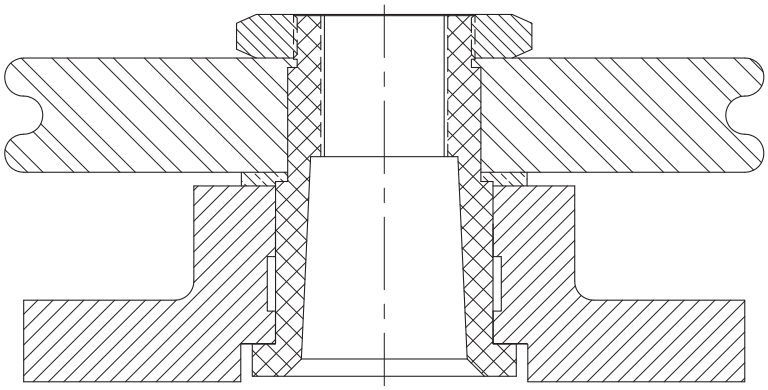
Installation

- Tighten bolts or studs to compress the flange uniformly. This means going from side to side around the flange according to proper bolting patterns (refer to diagram)
- Use a torque wrench and well lubricated fasteners with flat washers to ensure correct initial loading.
- All bolts should be tightened in one-third increments, according to proper bolting patterns (refer to diagram).

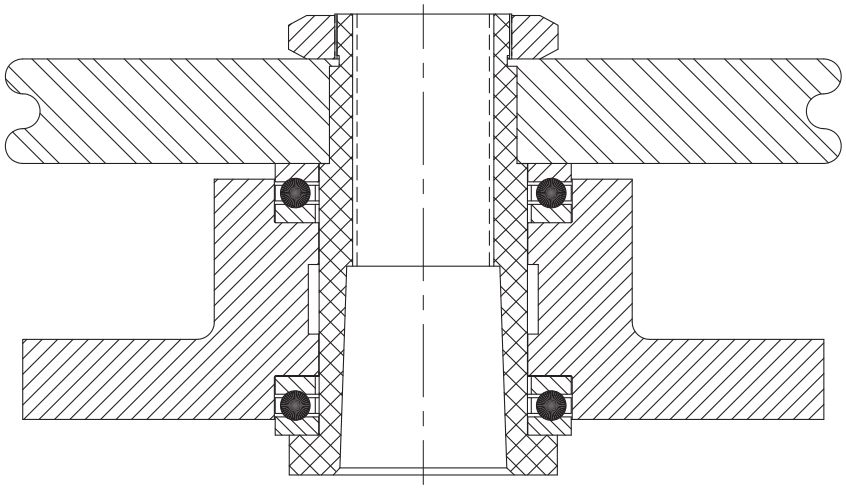




Knife Gate Valve
Top Work Assembly



PARTIAL CROSS-SECTIONAL VIEW
OF THE 2" ~ 12" TOP WORK ASSEMBLY



PARTIAL CROSS-SECTIONAL VIEW
OF THE 14" ~ 48" TOP WORK ASSEMBLY

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