



A PROVEN SOLUTION TO YOUR WORST PROCESS VALVE PROBLEMS



- VALVES THAT ARE STIFF AND DIFFICULT TO OPERATE
- VALVES THAT DO NOT HOLD TIGHT WHEN CLOSED



NO DOWNTIME TO REPACK
 INLINE INJECTION PACKING PORTS ALLOW
 THIS VALVE TO BE REPACKED IN-LINE WITHOUT
 SHUTTING DOWN PROCESS PUMPS



ALMOST NEVER GETS STIFF OR
 DIFFICULT TO OPERATE



VISA
 MASTERCARD
 AMERICAN EXPRESS



**BI-DIRECTIONAL
 BUBBLE-TIGHT SHUTOFF**



SQUARE-GATE



**RESILIENT-SEATED HIGH-PERFORMANCE
 KNIFE GATE VALVES**



From

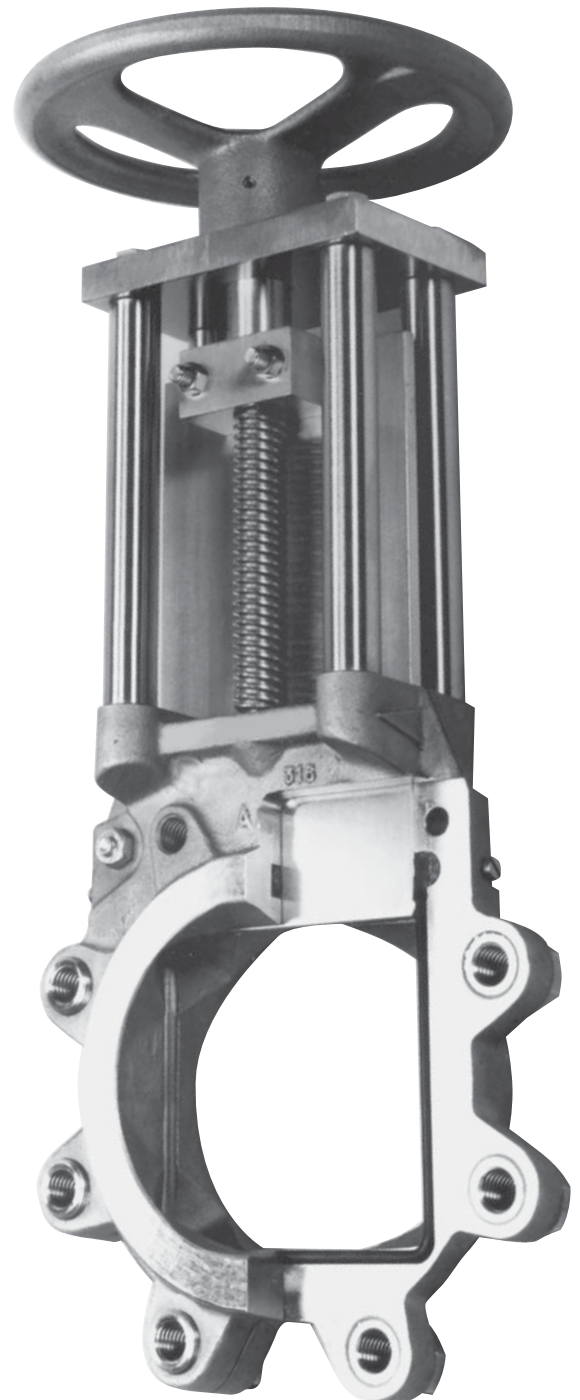
GREAT LAKES INDUSTRIAL CONTROLS

Tel: 1-800-546-0705 Fax: 1-866-766-8658 E-Mail: glic@cogeco.net



UNIQUE HIGH-PERFORMANCE VALVE PRODUCTS THAT IMPROVE YOUR “BOTTOM-LINE” BY ELIMINATING EXPENSIVE PROCESS DOWNTIME

- ALMOST NEVER BECOMES STIFF OR DIFFICULT TO OPERATE
- ULTRA-TIGHT SHUTOFF IN BOTH DIRECTIONS OF FLOW



**SHUTS OFF TIGHT
ON YOUR WORST
APPLICATIONS**

NO DOWNTIME TO REPACK
*INLINE INJECTION PACKING PORTS ALLOW THIS
VALVE TO BE REPACKED IN-LINE WITHOUT
SHUTTING DOWN PROCESS PUMPS*

SQUARE-GATE

RESILIENT-SEATED KNIFE-GATE VALVES

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***“SETTING A NEW WORLD STANDARD
IN PROCESS VALVE PERFORMANCE ”***

WHEN YOU CAN'T AFFORD LESS THAN THE BEST

The "SQUARE-GATE" VALVE combines rugged construction with time-tested design refinements found in no other knife gate valve. If you are plagued with knife gate failures, try a precision-built "SQUARE-GATE" valve. You'll wish all your knife gate valves were "SQUARE-GATE" valves.

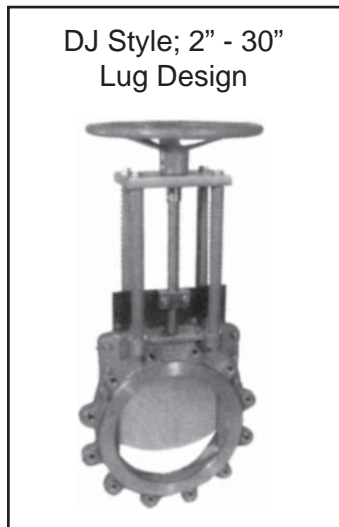
COMPARE THESE UNIQUE FEATURES

- **Unique** transverse seal eliminates stuffing box and permits repacking under full pressure and without system shut-down. Available in a variety of special scraper seal configurations for tough applications.
- **Unique** mechanically retained resilient seat provides dual metal-to-metal and resilient seating for bi-directional bubble-tight shut-off; 28" vacuum, to full differential pressure rating.
- **Unique** bi-directional design. Gate is guided and supported for smooth full pressure differential operation throughout entire stroke with flow in both directions.
- **Unique** contoured interior body design promotes flushing action to prevent buildup of deposits in seating area.
- **Unique** solid steel or stainless steel topworks provide maximum strength to prevent damage due to operator abuse or vibrating conditions.
- **Unique** non-rising stem design saves space and reduces stem nut repair problems.

316 st. stl. gate, hard chrome plated. Ground on 4 sides (optional 317 st. stl. & AVESTA® 254SMO)

Gate guided for full length of stroke for bi-directional shut-off

Self-cleaning Sawtooth Gate Guides (Not shown but are standard)



DJ Style; 2" - 30" Lug Design

Bronze Thrust Bearing

4-Post Heavy Duty Solid Steel Topworks (316 st.stl. optional)

Raised Face Tappi & MSS-SP81 Face-to-Face

Contours insure flushing action to prevent jamming

Threaded lug design. ANSI 150 bolt pattern

Bi-directional shut-off. Pressure or vacuum (0 cc/min. = Zero Leakage)

No cavity in bottom seat area (seat mechanically retained)

MAXIMUM WORKING PRESSURE - 150 psig.
MAXIMUM WORKING TEMPERATURE - 600 F



High-strength bronze stem connector for long life & operating ease

Precision machined chrome steel stem

Unique transverse seal eliminates stuffing box and compensates for wear. Repackable under pressure & without valve assembly.

Reduced chest cavity helps prevent solids build-up in chest area.

Solid cast 316 st. stl. body (optional 317 st. stl. & AVESTA® 24SMO)

Option for Erosive Applications

Sacrificial Ni-Hard Wear Ring
 REPLACEABLE Ni-hard ring is available for abrasive applications.

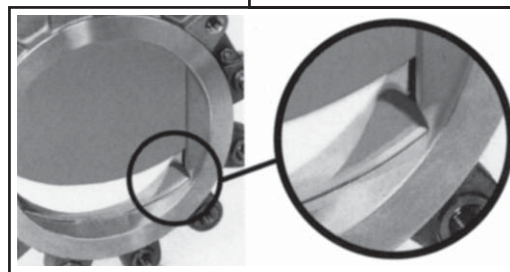
Section of transverse seal illustrating how sealing compound is inserted into seal chamber to repack valve while valve is in service.

Resilient Transverse Seal
 Various elastomeric seal materials. Includes compression loaded scraper blades to wipe gate clean and protect seal. Repackable in service and under pressure/vacuum.

Polymeric Transverse Seal
 Various polymers available (i.e., TFE, PFE, etc.) Includes compression loaded scraper blades to wipe gate clean and protect seal. Repackable in service and under pressure/vacuum.

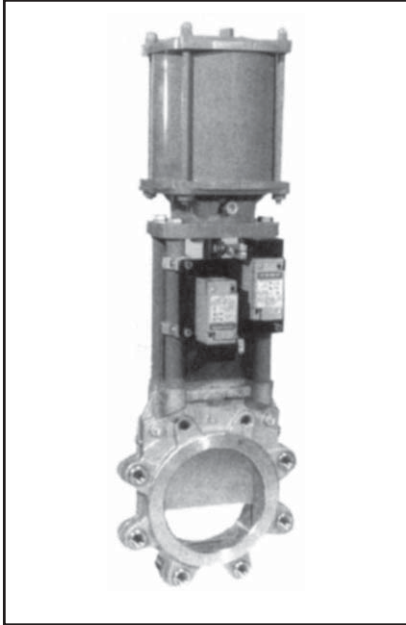
Section view - bottom of valve. Mechanically retained resilient seal insures bubble-tight shut-off with pressure on either side of gate. Seal will not pull out of specially machined groove.

Section view - sides of valve. Gate is guided in machined groove with large diameter seal mechanically retained to seal gate edge. This design provides dual metal/resilient seating and gate support with pressure from either side of gate.



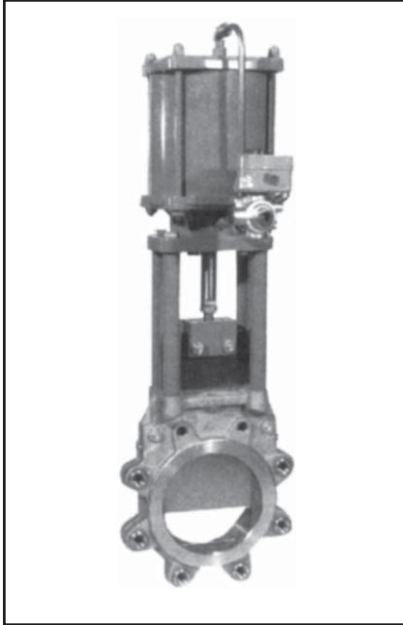
Contoured seat flushes out solids which are pushed ahead of the gate in the seat groove during closing cycle.

Accessories



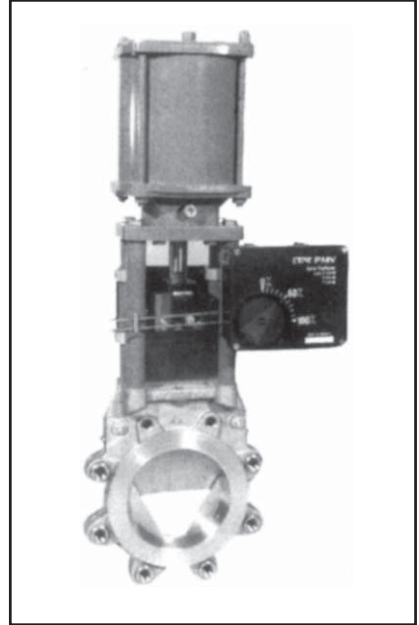
Limit Switches

- Totally enclosed (SPDT)
- NEMA 4 or NEMA 7
- Optional proximity switches available.



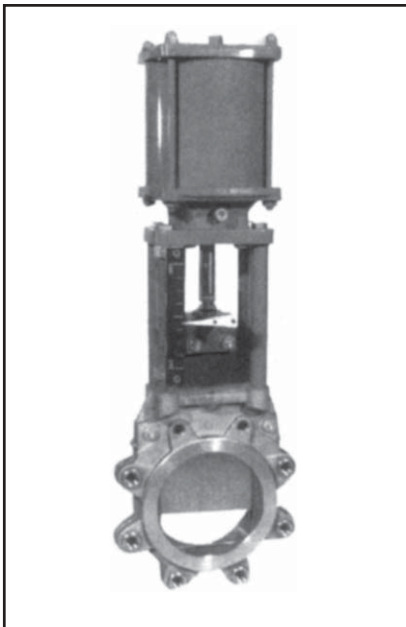
Solenoid Valve

- NEMA 4 or NEMA 7 (single coil, 120V)
- 3-Way or 4-Way
- Rigid copper tubing (standard)
- Rigid st. stl. tubing (optional)
- Note: Specify valve to open or valve to close when solenoid is energized.



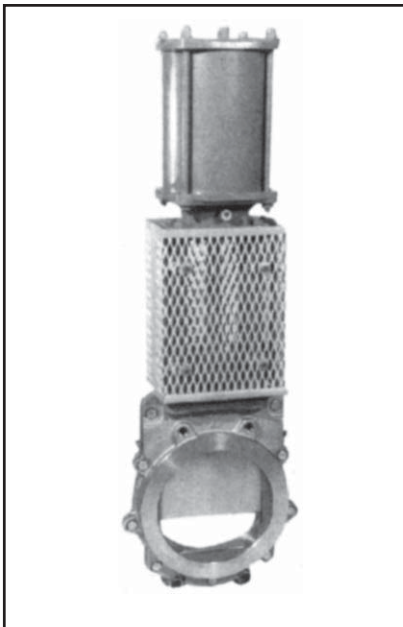
Positioner

- 3-15 p.s.i. or 4-20MA
- Note: Specify valve to open or valve to close on increasing signal.
- Note: Valve shown with optional V-Port insert.



Position Indicator Scale

Valve furnished with graduated indicator scale and "safety orange" pointer.



OSHA Guard

Protects plant personnel from moving parts on valve.



Unique Safety Gate Lock-Down

Provides gate lock-out in any position from fully closed to open. Assures bubble-tight shut-off in handwheel closed position for personnel safety. Neither yoke nor handwheel can be removed when lock-out is in place.

Note: for additional options and accessories contact factory.

Actuator Options



Cylinder Actuator

Double acting or spring-return cylinders. Specify shut-off pressure differential, air cylinder supply pressure and flowing media. (Optional protective piston rod boot.)



Bevel Gear Actuator

Recommended for valve sizes 16" and larger. Standard gear ratio is 4:1. Optional gear ratios available depending on valve size and application.



Chainwheel Actuator

Available in various diameters and attaches to standard handwheel. Furnished with 20' chain as standard. Specify longer chain lengths if required.



Motor Actuator

Various brands, sizes, and electrical specs available. Request SQUARE GATE Valve Electric Motor Application Data Sheet for actuator sizing and price quotation.

Specifications

Materials:	GJ Styles	Options
Body	Cast 316 st. stl.	Cast 317 st. stl. AVESTA® 254 SMO
Gate	316 st. stl. (hard chrome plated)	317 st. stl. (hard chrome plated) AVESTA® 254 SMO, hardened st. stl.
Stem	Chrome Steel	
Stem Gate Connector	High Strength Brass	Cast Iron, 316 st. stl.
Resilient Seat	(See Options)	See note at right
Top Transverse Seal	(See Options)	See note at right
Packing Compound	KEVLAR ³ Fiber	TFE Fiber Compound
Scraper Blades	UHMW Polyethylene	Glass-Filled Phenolic, Brass, 316 st. stl.
Top Thrust Bearing	Bronze	
Topworks	Carbon Steel	316 st. stl.
Bolts/Nuts	Galv. Steel	st. stl.
Handwheel	Formed Steel	Nickel or Chrome Plated
Cylinder	Aluminum (Closing Stroke Cushioned)	Steel (Non-Cushioned)
Paint (Topworks Only)	Vinyl Chloride	Per Customer Specification
Design:		
Flange Bolt Pattern (ANSI 150)	Lug Body (Chrome Steel Inserts)	
GJ Style (2" - 30")		
Handwheel	Non-Rising Stem	High strength rising stem
Performance:		
Working Pressure	150 psig	200 psig
Shut-off Pressure	2" - 12" (150 psig)	2" - 12" (200 psig)
	14" - 16" (90 psig)	200 psig
	18" - 30" (90 psig)	200 psig
Vacuum Shut-off	28" Hg (24 Hg with TFE seals)	
Seat Leakage	Zero cc/min. (see leakage statement at right)	

Seat Material Options

Standard Viton³ (Optional) Nitrile (Buna-N), EPDM, TFE, AFLAS⁴, HYPALON³, Polyurethane, Food-Grade EPDM, White Buna-N, FEP, TEFLON³

Top Transverse Seal Options:

Standard VITON³ (Optional) Nitrile (Buna-N), EPDM, AFLAS⁴, TFE, FEP

Leakage Statement

SQUARE GATE Knife Gate Valves provide better shut-off than called for by ANSI Class VI. All valves are shut-off pressure tested at the factory to **zero** leakage at the shut-off differential ratings noted at left per valve size.

Notes:

- All SQUARE GATE model GJ valves are to TAPPI (SS-SP81) face-to-face.
- Bevel gear actuators are recommended for manually actuated valve sizes 16" and larger.
- VITON, KEVLAR, TEFLON, & HYPALON are products of the DuPont Company.
- AFLAS is a product of the 3M Company.
- AVESTA[®] is a product of Avesta Sheffield Ab, Avesta, Sweden.

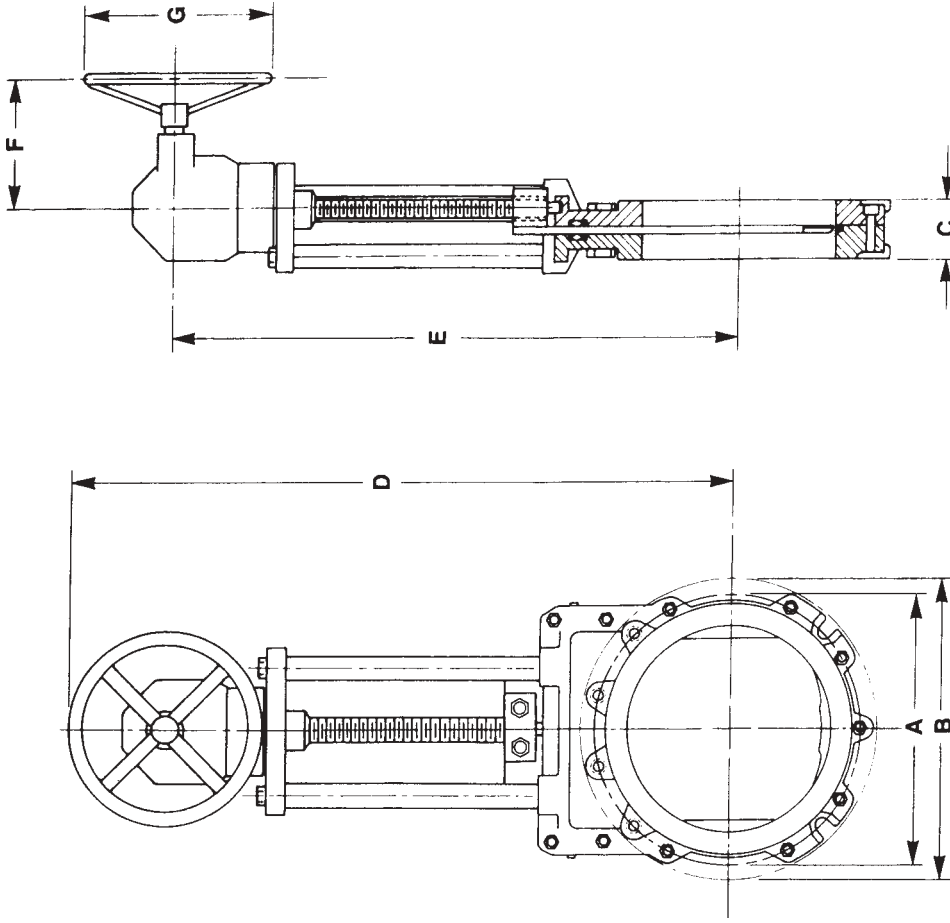
Port Area & Flow Coefficients

Valve Size	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"
Port Area (sq. in.)	2.8	7.2	11.7	29.5	53.5	72.1	105.3	149.4	188.8	241.6	299.5	433.7	668.0
Flow Coefficient (Cv)	257	748	1250	3610	6414	10012	14428	19626	22547	28860	35163	53972	82215

DIMENSIONS FOR MANUAL VALVES 2" - 24"

GJM MODEL MANUAL KNIFE GATE VALVE

SIZES 14" - 24" WITH BEVEL GEAR

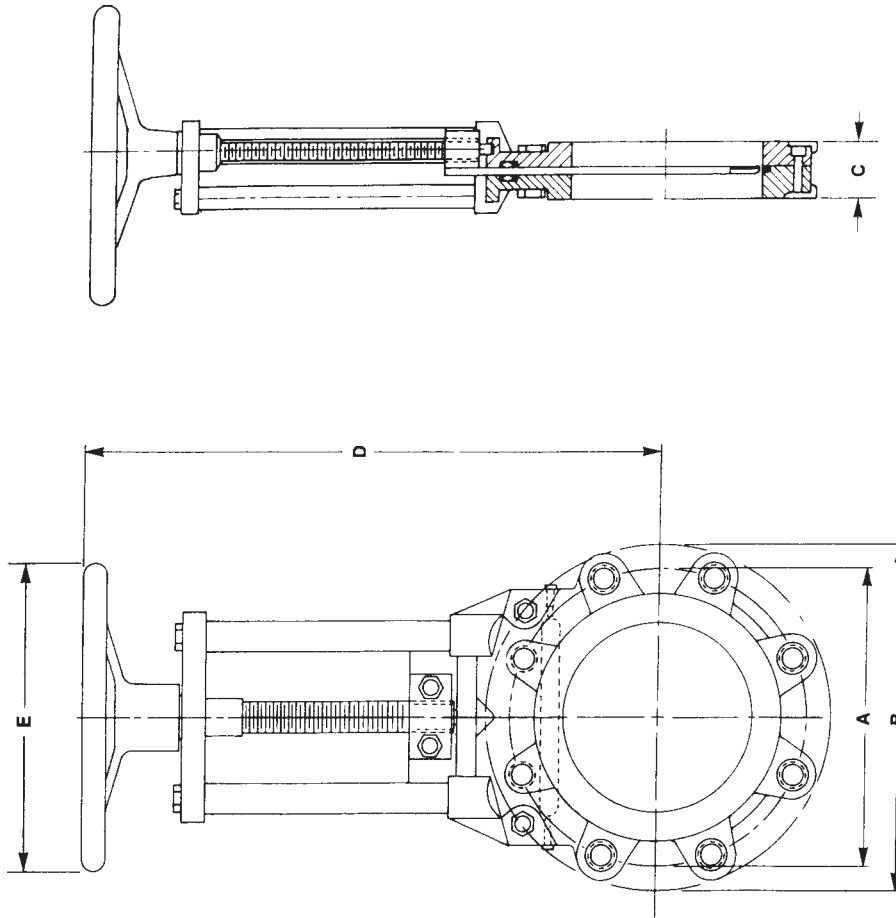


VALVE SIZE	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
14"	18.75	21.0	3.00	43.5	34.5	12	18	6, 1"-8, 7/8"
16"	21.25	23.5	3.50	47.5	38.5	12	18	6, 1"-8, 7/8"
18"	22.75	25.0	3.50	51.5	42.5	12	18	8, 1 1/8" - 7, 7/8"
20"	25.00	27.5	4.50	54.5	45.5	12	18	10, 1 1/8" - 7, 1"
24"	29.50	32.0	4.50	65.5	53.5	13	24	12, 1 1/4" - 7, 1 1/8"

NOTE: Dimension "H" applies to top blind flange bolt holes in chest area of valve (Qty., Thread, Depth)
Important Notice: Dimensions above are for reference only. For critical applications request certified drawings.

GJM MODEL MANUAL KNIFE GATE VALVE

SIZES 2" - 12" WITH HANDWHEEL



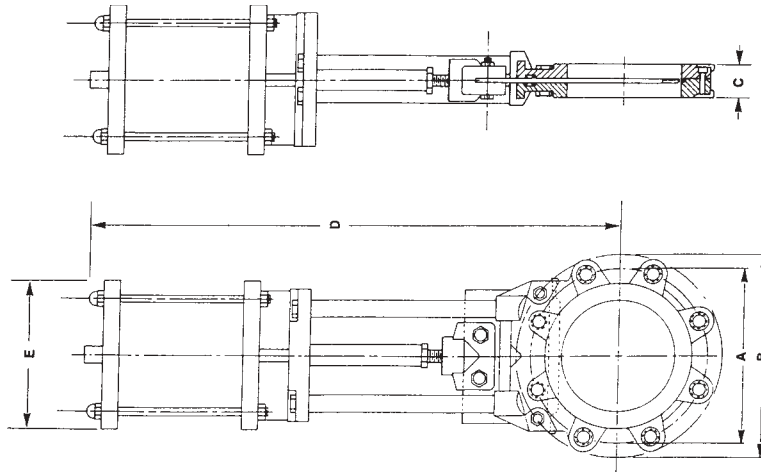
VALVE SIZE	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
2"	4.75	6.0	1.875	10.75	7.87	N.A.
3"	6.00	7.5	2.000	12.48	7.87	N.A.
4"	7.50	9.0	2.000	14.37	7.87	2, 5/8" - 11, 5/8"
6"	9.50	11.0	2.250	18.70	9.84	2, 3/4" - 10, 3/4"
8"	11.75	13.5	2.750	22.44	11.81	2, 3/4" - 10, 3/4"
10"	14.25	16.0	2.750	25.98	11.81	4, 7/8" - 9, 3/4"
12"	17.00	19.0	3.000	30.19	15.74	4, 7/8" - 9, 7/8"

NOTE: Dimension "F" applies to top blind flange bolt holes in chest area of valve (Qty., Thread, Depth)
Important Notice: Dimensions above are for reference only. For critical applications request certified drawings.

DIMENSIONS FOR AUTOMATED VALVES 2" - 24"

GJA MODEL AUTOMATED KNIFE GATE VALVE

SIZES 2" - 12" WITH CYLINDER



VALVE SIZE	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
2"	4.75	6.0	1.875	15.25	3	N.A.
3"	6.00	7.5	2.000	17.80	3	N.A.
4"	7.50	9.0	2.000	20.75	4	2.5/8" - 11, 5/8"
6"	9.50	11.0	2.250	27.28	6	2.3/4" - 10, 3/4"
8"	11.75	13.5	2.750	32.40	6	2.3/4" - 10, 3/4"
10"	14.25	16.0	2.750	38.90	8	4, 7/8" - 9, 3/4"
12"	17.00	19.0	3.000	44.21	8	4, 7/8" - 9, 7/8"

NOTE: Dimension "F" applies to top blind flange bolt holes in chest area of valve (Qty., Thread, Depth)
Important Notice: Dimensions above are for reference only. For critical applications request certified drawings.

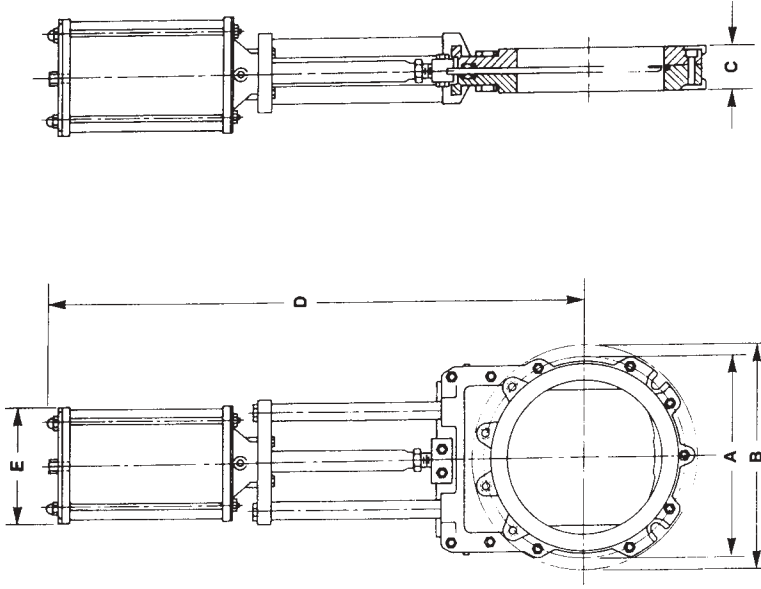
VALVE SIZE		Actual Cylinder Bore		Actual Outside Dimension	
2"	3"	4"	4"	6"	8"
2.5"	3.75"	4.5"	6"	8.5"	10"
3"	4"	6"	6"	8.5"	10"
3.75"	4.5"	6.5"	8"	8.5"	10"
4"	4.5"	6.5"	8.5"	8.5"	10"
4.5"	6.5"	8.5"	10"	10.62	12"
6"	8"	10.62	12"	12.75	14"
8"	10"	12.75	14.75	16"	17.0
10"	12.75	14.75	17.0	17.0	17.0

* NOTE: "E" dimension noted above is standard stock cylinder bore dimension. For optional cylinder sizes and actual outside dimensions consult chart at left.

Example: _____
 Actual Cylinder Bore
 Actual Outside Dimension

GJA MODEL AUTOMATED KNIFE GATE VALVE

SIZES 14" - 24" WITH CYLINDER ACTUATOR



VALVE SIZE	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
14"	18.75	21.0	3.00	54.25	10	6, 1" - 8, 7/8"
16"	21.25	23.5	3.50	61.50	12	6, 1" - 8, 7/8"
18"	22.75	25.0	3.50	67.50	12	8, 1 1/8" - 7, 7/8"
20"	25.00	27.5	4.50	74.25	14	10, 1 1/8" - 7, 1"
24"	29.50	32.0	4.50	86.25	16	12, 1 1/4" - 7, 1 1/8"

NOTE: Dimension "F" applies to top blind flange bolt holes in chest area of valve (Qty., Thread, Depth)
Important Notice: Dimensions above are for reference only. For critical applications request certified drawings.

VALVE SIZE		Actual Cylinder Bore		Actual Outside Dimension	
14"	16"	18"	20"	24"	
8"	10"	10"	12"	12"	
8.5"	10.62	10.62	12.75	12.75	
10"	12"	12"	12"	14"	
10.625	12.75	12.75	14.75	14.75	
12"	14"	14"	16"	16"	
12.75	14.75	14.75	17.0	17.0	
14.75	17.0	17.0	17.0	17.0	
16"	17.0	17.0	17.0	17.0	

* NOTE: "E" dimension noted above is standard stock cylinder bore dimension. For optional cylinder sizes and actual outside dimensions consult chart at left.

Example: _____
 Actual Cylinder Bore
 Actual Outside Dimension

**FOR A PROMPT QUOTATION PLEASE FILL OUT THIS QUESTIONNAIRE SHEET
AND FAX IT TO 1-866-766-8658**

“SQUARE-GATE” VALVE APPLICATION & DESIGN QUESTIONNAIRE

COMPANY: _____ LOCATION: _____
ADDRESS: _____
PHONE: _____ FAX: _____
CONTACT: _____

APPLICATION INFORMATION

VALVE SIZE: _____ VALVE MODEL: _____
FLOWING MEDIA: _____
SOLIDS %: _____ WORKING PRESSURE _____ PSI DELTA-P _____ PSI
MEDIA TEMP _____ °F AIR SUPPLY PRESSURE: _____ PSI
FREQUENCY OF OPERATION _____ NORMALLY OPEN _____ NORMALLY CLOSED _____

MATERIALS OF CONSTRUCTION

BODY: CAST IRON NI-RESIST 316 ST. STL. OTHER _____
GATE: 316 ST. STL. OTHER _____
BODY SEAT/SEAL: VITON EPDM TFE OTHER _____
TRANSVERSE SEAL: VITON EPDM TFE OTHER _____
PACKING: TFE OTHER _____

ACTUATOR TYPE

HANDWHEEL AIR CYLINDER - SPRING RETURN HYDRAULIC CYLINDER
 ELECTRIC AIR CYLINDER - DOUBLE ACTING BEVEL GEAR CHAINWHEEL

- If air or hydraulic, please fill in air supply/hydraulic supply pressure above.
- If electric, please complete, ELECTRIC MOTOR APPLICATION DATA SHEET.
- If application is dry powder, please complete DRY POWDER APPLICATION DATA SHEET.

ACCESSORIES

SOLENOID: NEMA RATING _____ VOLTAGE _____
ENERGIZE TO OPEN/CLOSE _____
TUBE FITTINGS: COPPER STAINLESS STEEL OTHER _____
LIMIT SWITCHES: NEMA RATING _____
POSITIONER: 4-20 mA 3-15 psi

ADDITIONAL INFORMATION

1. IF REPLACING EXISTING VALVE PROVIDE FACE-TO-FACE DIMENSION OF YOUR EXISTING VALVE.

2. CYCLE RATE (HOW OFTEN WILL VALVE BE OPENED & CLOSED) _____
3. OTHER _____

SIGNATURE OF CUSTOMER _____ DATE _____
PRINTED NAME OF CUSTOMER _____

DOUBLE-DISC DESIGN OPTION

The unique SQUARE-GATE Model DBB serves as both a Double Block & Bleed valve and a Line Blind. This unique valve concept has two gates operated by one actuator to create a "dead space" between the two gates. Each of the two gates seal against dual combination metal/resilient seats for bi-directional bubble-tight shut-off. The chest and seating areas of the valve are self-cleaning. The unique top transverse seal is re-packable while in service and under pressure. Unlike other styles of knife gate valves, the SQUARE-GATE DBB knife gate valve can be "locked out" with OSHA "crabclaw" to insure zero leakage (liquid or gas) in the closed position. This "zero leakage lock out" feature is available for all actuator styles including cylinders.

Because of its narrow face-to-face, the SQUARE-GATE DBB valve can often be installed in the space of an existing ball or plug valve by using a spacer in conjunction with the DBB valve. This saves time and costs associated with redesigning and repiping existing piping systems.

The SQUARE-GATE DBB valve serves the dual function of both a process operating valve and a line blind. There is no need to shut down the system or piping disassembly to insert a line blind.

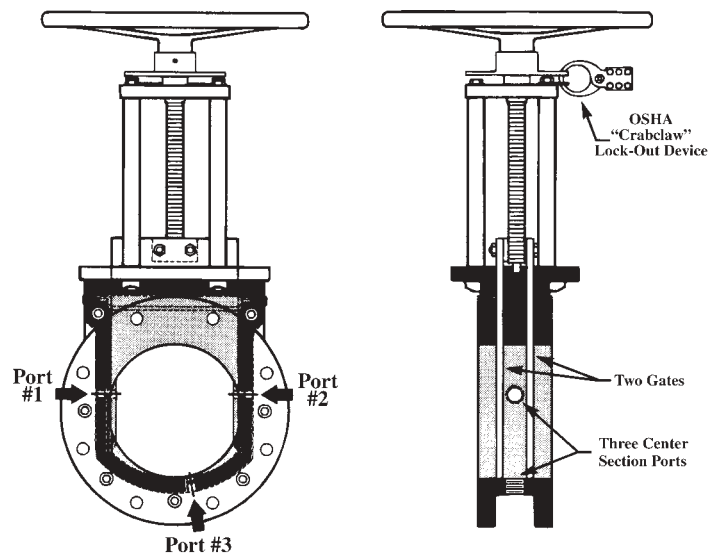
The SQUARE-GATE DBB Knife Gate Valve:

- Protects operating personnel
- Prevents cross-contamination in piping systems
- Serves dual line blind and double block & bleed functions
- Saves cost and time

Three Methods of Protection:

- #1 - Vent center section to atmosphere.
- #2 - Connect center section to flush or purge.
- #3 - Pressurize center section to pressure higher than on either side of valve.

Note: Leak detector ("sniffer") can be used in conjunction with any of the three protection options.



DIMENSIONS

Valve Size	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
Face-to-face	3.6	3.22	3.42	3.94	4.52	4.88	5.17	5.68	6.18	8.37	8.80	9.76
Centerline to Top of Handwheel	10.0	13.5	15.5	20.0	24.0	26.0	30.5	34.0	39.0	43.0	46.5	56.5
Centerline to Top of Cylinder	20.25	25.25	27.00	33.75	36.75	46.75	54.00	59.00	67.00	73.50	79.00	85.00

- NOTE:
- 1) All dimensions in inches.
 - 2) All dimensions subject to change. Contact factory for certified drawings.