EliteValve

elitevalve.com

E5100
Light Process
Knife Gate Valve

Technical Brochure

Customized valve solutions
for the toughest applications.

Introduction

E5100 Knife Gate Valve

About Elite Valve

Elite Valve is a Canadian valve manufacturer, recognized for delivering engineered valve solutions to process industries worldwide. With decades of experience, Elite Valve has built a reputation for providing exceptional quality and reliable products.

We specialize in offering engineered solutions to address the critical needs of specific applications. This helps ensure long lasting, reliable operation which increases productivity, and profitability, by reducing maintenance and downtime. Our sales personnel, engineers and trained staff will collaborate with you to identify and design the best solutions for your process applications.

Elite Valve is an ISO 9001 registered company, and we strive to deliver world-class support by providing excellent customer service with fast response times for quote requests, application support and technical inquiries. We are also a member of AWWA and coauthor of the AWWA Manual of Water Supply Practices, M72, for the selection and operation of knife gate valves.

We maintain high stock levels for fast deliveries with over 190,000 sq ft of warehouse space in North America, and offer a convenient online resource for standard, ready-to-ship products.

We Provide Engineered Solutions

Elite Valve specializes in providing customized solutions for corrosive, high pressure, and demanding process applications that help our customers improve their process reliability and productivity.

We are committed to pursuing innovation and engineering excellence by pushing the boundaries of valve technology and developing cutting-edge solutions for challenging applications.

Different applications require different types of valves. Elite Valve offers a diverse range of valve products to provide the most appropriate valve solution for reliable operation. We can also customise our products to suit specific process requirements by using alternate materials or applying coatings and treatments to ensure reliability and compatibility.

Elite Valve provides complete valve assemblies that include actuators, sensors, positioners, guarding, and extensions, fully tested prior to delivery.

Sometimes the best solution has not even been designed yet! Utilising our extensive knowledge and experience of valve design, we can even deliver one-off and custom valves to solve unique and challenging applications.

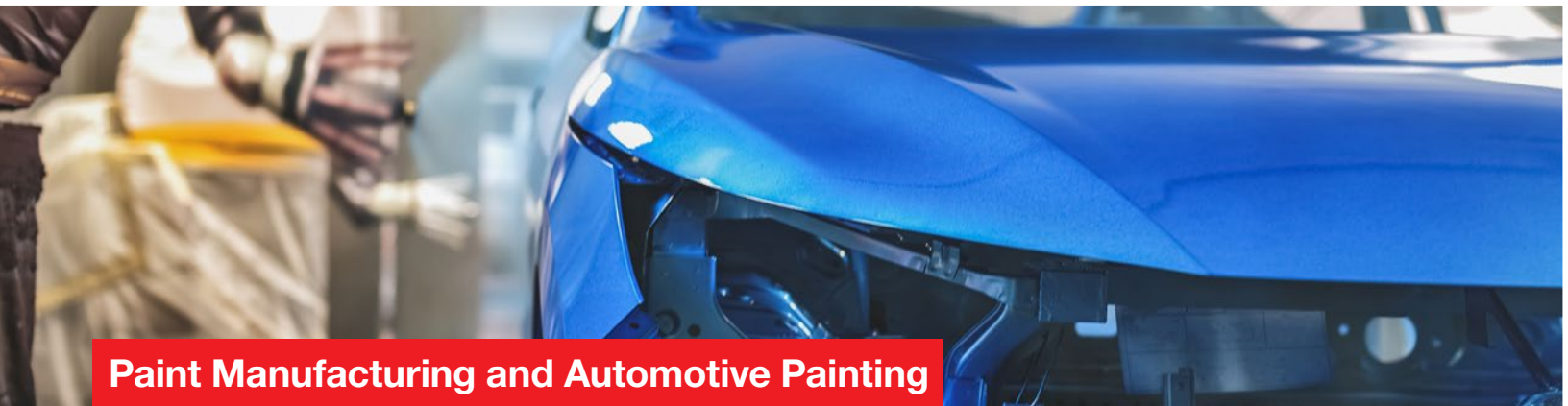
For all our engineered solutions we offer certified drawings, 3D models, full submittal packages as well as copies of any applicable material test reports and certifications. We can also offer leak test and hydro test certificates, certificates of conformance, and AIS compliance certificates on request.

Industries Served

For over 25 years, Elite Valve has committed its efforts to the design and manufacturing of valves for critical and aggressive applications.

We specialize in providing solutions for demanding services in these industries:

- Pulp & Paper
- Mining
- Water & Wastewater
- Steel Manufacturing
- Biofuel
- Chemical
- Oil Sands
- Power Generation
- Oil & Gas
- Paint Manufacturing




Mining & Mineral Processing


Steel Manufacturing


Biofuel


Power Generation


Oil Sands

E5100
Light Process
Knife Gate Valve

The E5100 knife gate valve is designed for light process industrial use as well as the municipal water & wastewater industry. The perimeter seat and optional transverse seal design ensures reliability and durability in various applications for fluids and light solids. The E5100 is suitable for bidirectional shut-off or dead-end service applications.

Sizes Available

2" to 24"
(50mm to 600mm)
(larger sizes available on request)

Standard Design and Construction

(See page 12 for options)

- CF8 or CF8M Body
- Steel reinforced Viton® perimeter seat
- Braided PTFE packing or Viton® transverse seals
- RTFE anti-extrusion wipers
- Polished 316SS or 304SS gate
- 304SS stem
- 304SS stem and yoke with provision for lockout pin and position sensors

Pressure Rating

150psi max

Temperature Rating (max)

Viton® Seat
-40°F to 392°F (-40°C to 200°C)

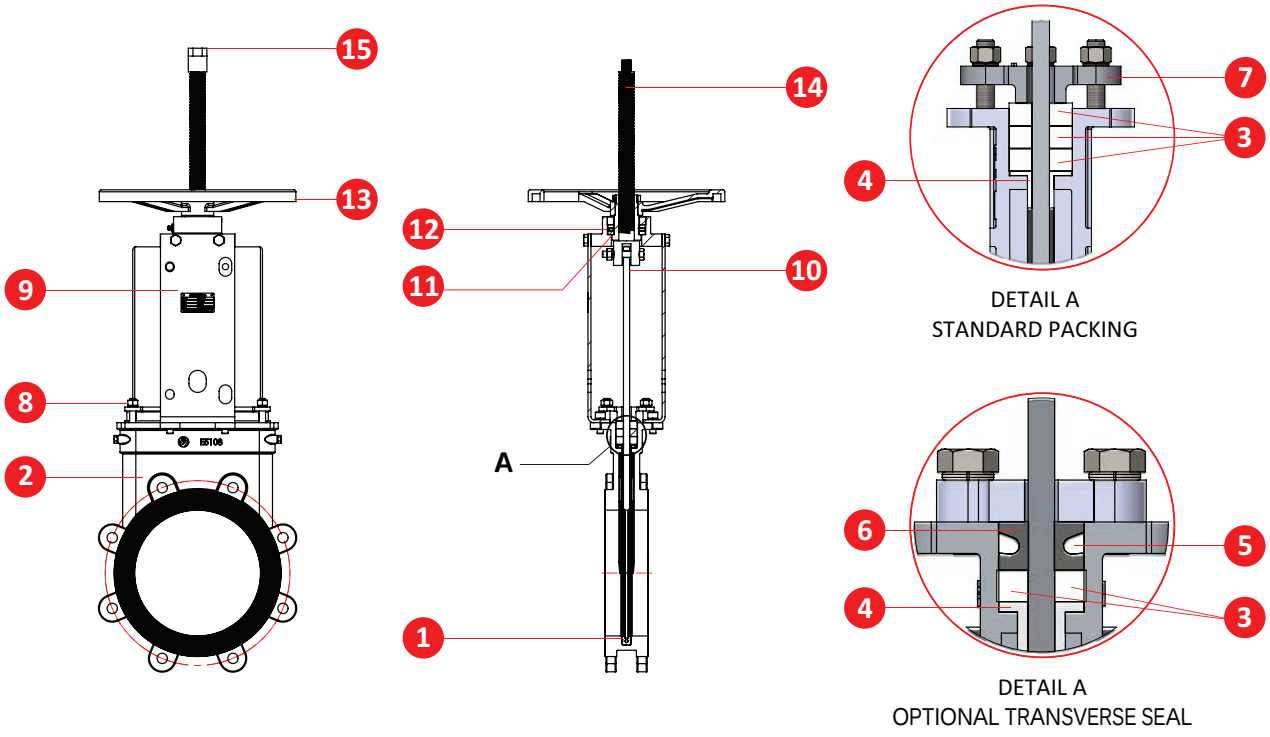
Standards and Approvals

Design:	AWWA C520, ASME B16.34, MSS SP-81, TAPPI-TIS 405
Flanges:	ASME B16.5
Testing:	API 598
Markings:	MSS SP-25
Quality:	MSS SP-55, ISO 9001:2015
Registration:	CRN

Key Features and Benefits

- Perimeter style seat provides reliable, bidirectional flow/shutoff
- Steel reinforced, replaceable seat ensures zero downstream leakage
- Full port opening allows maximum throughput and minimizes pressure drop
- Lockout pin provision ensures operator and maintenance safety
- High visibility clevis provides easy identification of valve position
- ISO 5211 mounting pattern allows direct mounting of various actuation options
- Grease fitting on handwheel bearing reduces operating torques

E5100: Standard Material Specification



Material Specification		
#	**Part**	**Material**
1	Seat	Viton® (Steel Reinforced)
2	Body	A351 CF8 or CF8M
3	Braided Rope Packing	PTFE
4	Anti-Extrusion Wiper	RTFE
5	Packing	PTFE
6	Transverse Seal	Viton®
7	Packing Gland	Body Material
8	Hardware	18-8 SS
9	Yoke	304 SS
10	Gate	304 SS or 316 SS
11	Bushing	Aluminum-Bronze
12	Thrust Bearing	Stainless Steel
13	Handwheel	Ductile Iron
14	Stem	304 SS
15	Positive Gate Stop	304 SS

E5100: Features and Benefits

1. Positive gate stop ensures seat integrity is maintained.

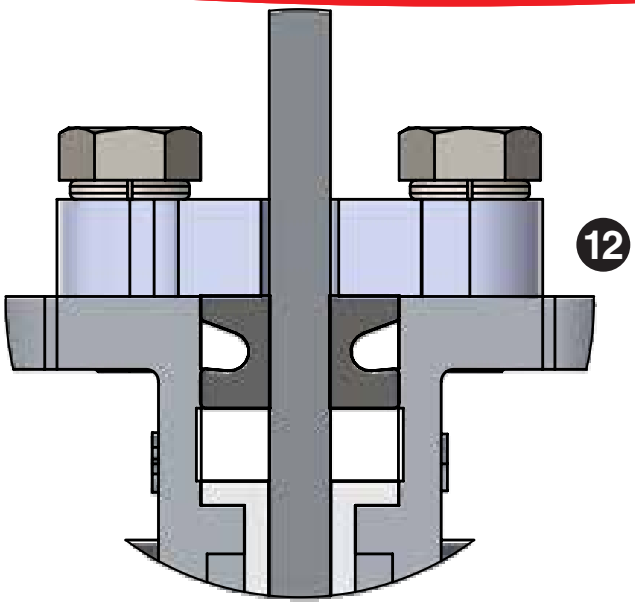
2. Grease fitting on handwheel bearing reduces operating torques.

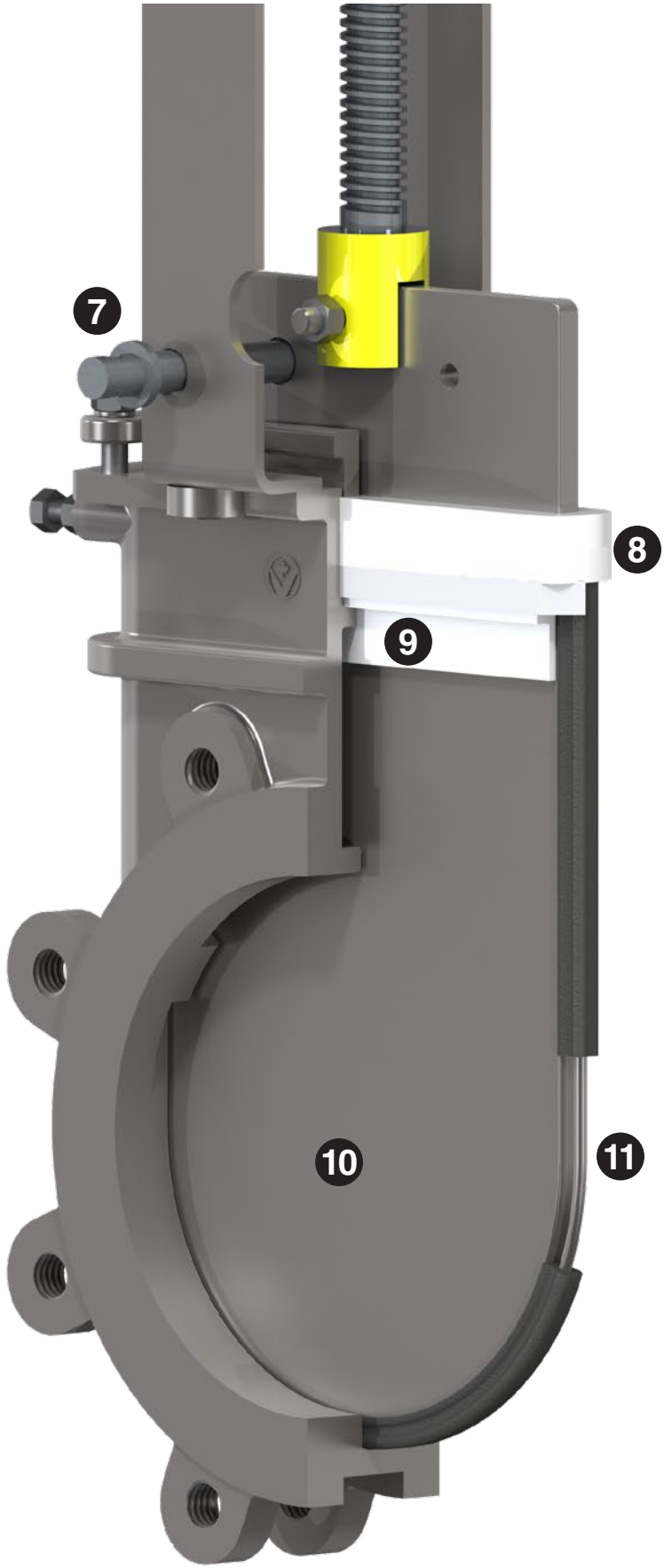
3. ISO 5211 mounting pattern allows direct mounting of various actuation options.

4. Provision for position sensors and targets with pre-drilled installation slots/holes in yoke and gate.

5. 304 SS yoke for corrosion resistance.

6. High visibility clevis provides easy identification of valve position.





7 Lockout pin provision ensures operator and maintenance safety.

8 Standard multi-layer PTFE packing with optional energizer provides excellent sealing and low maintenance.

9 Anti-extrusion guides also function as a scraper to remove material buildup on the gate and protect the packing.

10 Full port opening allows maximum throughout and minimizes pressure drop.

11 Steel reinforced, mechanically retained perimeter style Viton™ seat provides reliable shutoff and ensures zero downstream leakage.

12 Upgradable transverse seal design provides superior sealing in light solids applications.

E5100: Part Number Reference

E51	Body Material	Gate Material	Seat Material	Top Works	Packing	Operator or Actuator	-	Size	-	Additional Option	Additional Option	Additional Option	Additional Option
E51	2	2	V	Y	T	W	-	06	-				

Body Materials

Code	Common Name	Cast	Wrought
✓ 1	304 SS	A351 CF8	A240
✓ 2	316 SS	A351 CF8M	A240

Gate Materials

Code	Common Name	Wrought
✓ 1	304/304L SS	A240
✓ 2	316/316L SS	A240

Seat Materials

Code	
✓ V	**Viton® GFLT** **-40°F to 392°F (-40°C to 200°C)**
B	Buna-N (NBR) –22°F to 212°F (–30°C to 100°C)
E	EPDM –22°F to 300°F (–30°C to 150°C)

Top Works

Code	
✓ Y	304 SS Yoke

Packing Materials

Code	
✓ T	**PTFE** **-328°F to 536°F (-200°C to 280°C)**

Sizes

Code	NPS (inch)	DN (mm)
✓ 02	2"	50
✓ 03	3"	80
✓ 04	4"	100
✓ 06	6"	150
✓ 08	8"	200
✓ 10	10"	250
✓ 12	12"	300
✓ 14	14"	350
✓ 16	16"	400
18	18"	450
20	20"	500
24	24"	600

✓ **Standard**

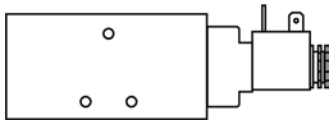
Operator & Actuators

Code	
✓ **W**	**Handwheel**
B	Bare Stem
C	Chainwheel
C(N)	Chainwheel + Nut
E	Electric On/Off
E(M)	Electric Modulating
G	Gearbox
G(N)	Gearbox + Nut
G(L)	Gearbox (Inline)
G(S)	Gearbox (Spur)
H	Hydraulic (Cylinder)
N	2” Drive Nut
P	Pneumatic (GP Cylinder)
R	Pneumatic (GP Cyl)- Spring Closed (FC)
S	Pneumatic (GP Cyl)- Spring Open (FO)
W(N)	Handwheel + Nut
X	No Stem (Clevis Only)

Options & Accessories

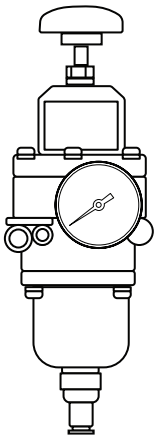
Code	
✓	**None**
1	Xylan 1070 Coated Gate
2	Xylan 1070 Coated Body & Gate
3	Chrome Coated Gate
7	Silicone Free
B	Stainless Steel Yoke Covers
E	Stem Extension
F	Air Filter / Regulator
N	Non-rising Stem
Q	Junction Box Kit
S	Solenoid Valve
T	Positioner (4-20mA)
V	V-Port
X	Position Sensors (open/closed)
Y	Bellows Stem Protector
Z	Special (Consult Factory)

E5100: Options & Accessories



Solenoid Valve

Solenoid valves are used to control the opening and closing of pneumatically actuated valves. NAMUR style valves are typically used for quarter-turn actuators, and inline valves are used for pneumatic cylinders. Both are available with AC or DC coil voltages and with approvals for use in hazardous areas.

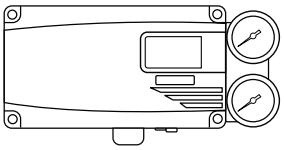


Filter/Regulator

A regulator controls the air pressure used to operate a pneumatically actuated valve. Combined with an air filter and auto-drain to remove any particulate and condensation in the air line, a filter/regulator also provides protection of downstream pneumatic components and improves system reliability.

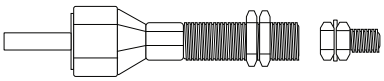
Stem Guide

Stem guides support and stabilize long extension stems connected to buried or remote valves and prevent deflection or bending during operation. They ensure smooth torque transmission and enhance operational reliability extending the service life of both the stem and valve.



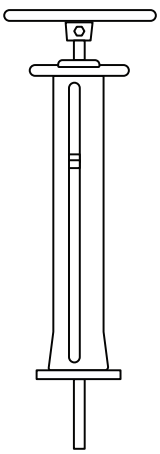
Positioner

Positioners are used in conjunction with pneumatically actuated valves to allow variable opening and closing for flow control based on process conditions. They ensure accurate valve movement to improve efficiency and stability. Hazardous area versions are available, as well as stainless steel enclosures for corrosive environments.



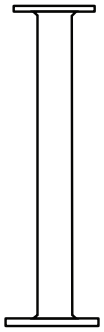
Position Sensors

Position sensors utilize proximity probes and a magnetic target to detect the valve position and provide reliable feedback to a control system. They mount directly to the yoke and detect the position of the gate providing a more reliable solution than cylinder mounted switches. Hazardous area versions are also available.



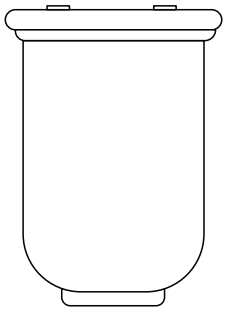
Floor Stand

Floor stands are used for below-grade valves by extending access to ground or floor level via an extension stem, enabling safe and convenient operation. They provide improved accessibility and operator safety, especially in pits, vaults, or other confined underground installations.



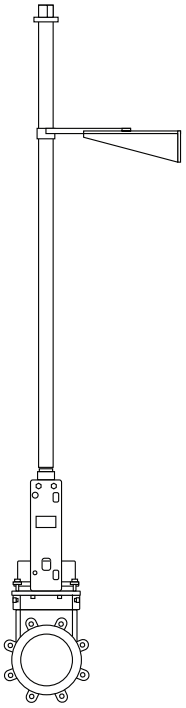
Pedestal

Valve pedestals support and stabilize extension stems for gearboxes or electric actuators operating below-grade valves from ground or floor level. They ensure secure alignment and reliable torque transmission, enhancing operational safety and durability.



Floor Box

Floor boxes provide protected surface access to valve operators, such as 2” drive nuts or extension stems. Installed flush with pavement or flooring, they shield components from debris and tampering while providing durable, low-profile access.



Stem Extension

Stem extensions are used for below-grade valves to facilitate safe and convenient operation at ground or floor level. Elite Valve stem extensions stems are a non-rising stem design and manufactured from stainless steel. They are suitable for use with pedestals, floor stands, and floor boxes.

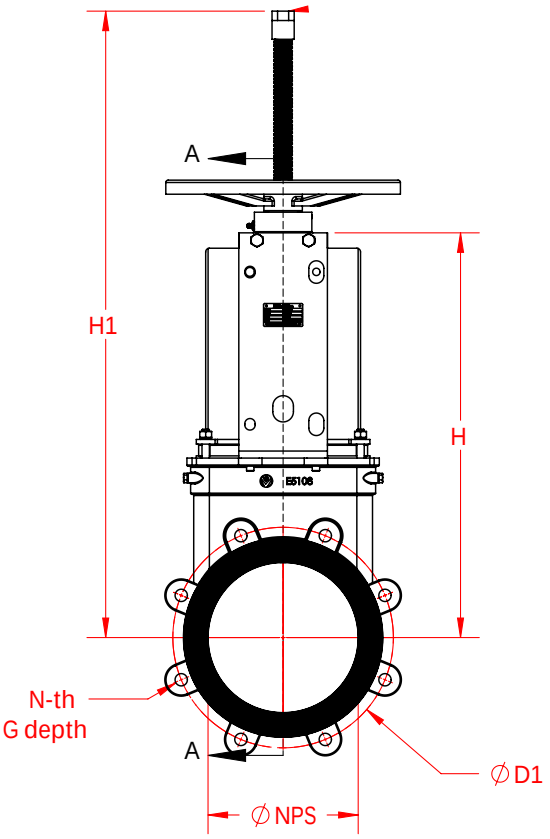
Optional Materials

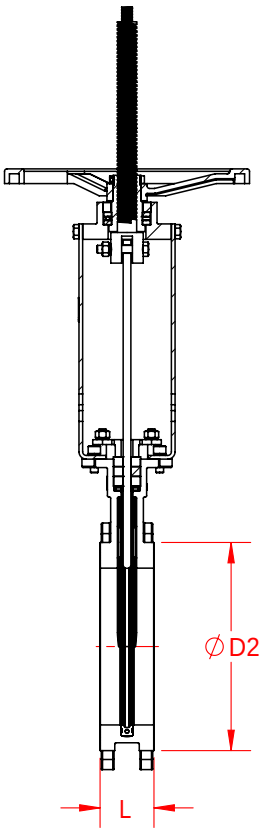
Chrome Coated Gate

Chroming (hard chrome or electroplated chromium) is a metallic surface treatment that enhances wear resistance, reduces friction, and improves corrosion protection.

Nedox® Coated Gate

Nedox® is a nickel-based surface applied to gates when surface hardness, non-stick properties, and protection against chemical attack are required.





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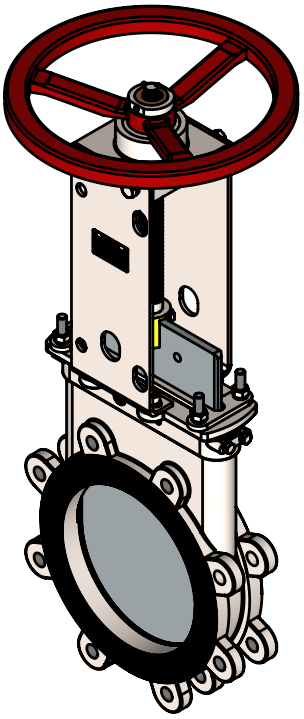
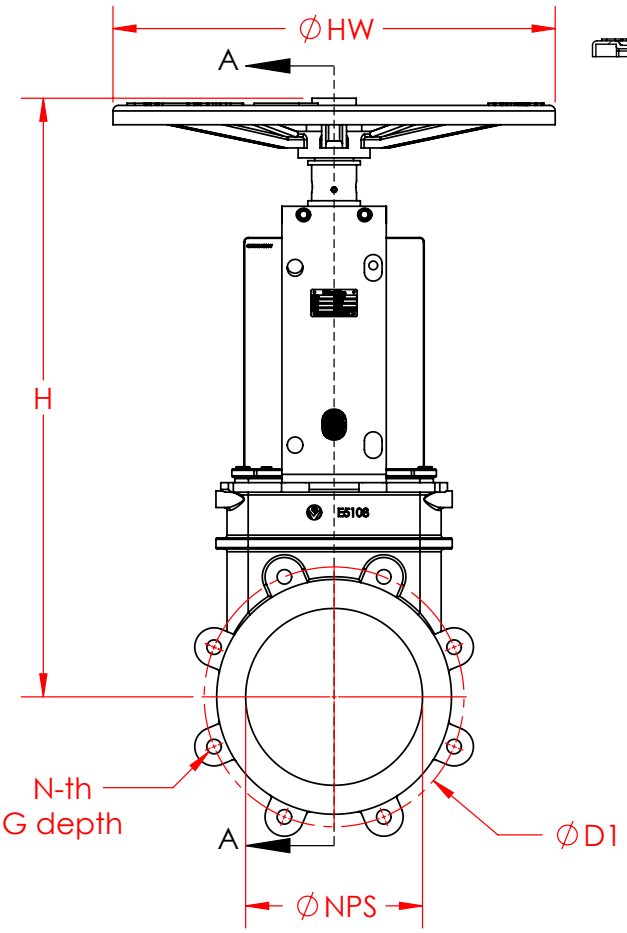


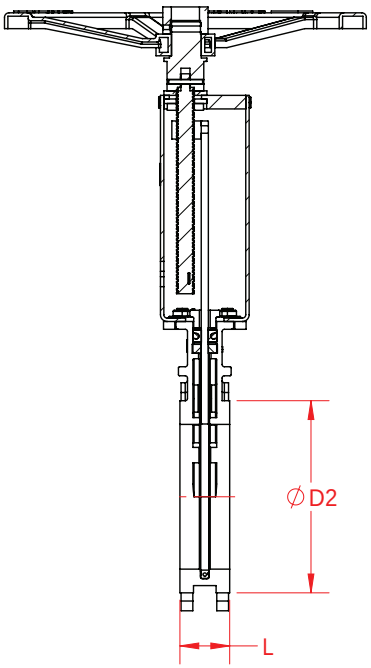
E5100: Handwheel

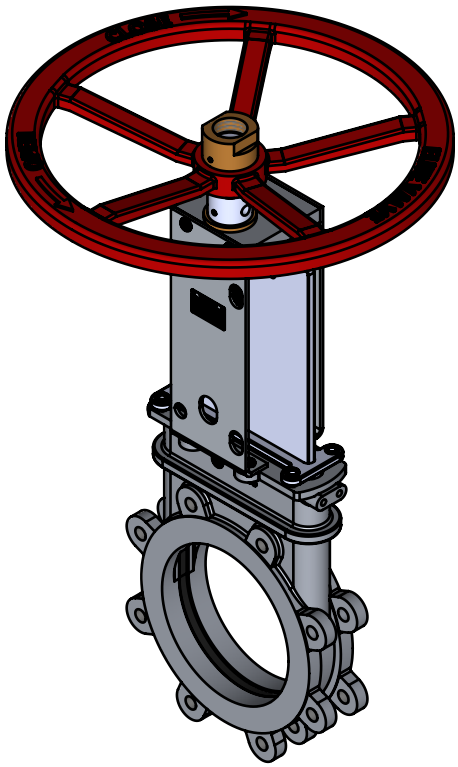
- Standard on sizes up to 12”
- Stainless steel thrust bearing
- Grease fitting standard on sizes 8” and larger
- Non-rising stem version available

Dimensions									
NPS	L	D	D1	D2	n-Th	G	H	H1	Weight
	inch	inch	inch	inch	inch	inch	inch	inch	lbs
2	1.88	4.75	4.75	3.6	4 x 5/8” - 11	0.39	12.7	17.7	18
3	2.00	6.00	6.00	5.0	4 x 5/8” - 11	0.39	15.6	21.6	23
4	2.00	7.50	7.50	6.2	8 x 5/8” - 11	0.47	17.4	24.4	37
6	2.25	9.50	9.50	8.5	8 x 3/4” - 10	0.55	21.9	30.9	65
8	2.75	11.75	11.75	10.6	8 x 3/4” - 10	0.63	24.9	35.9	88
10	2.75	14.25	14.25	12.8	12 x 7/8” - 9	0.67	27.8	40.8	135
12	3.00	17.00	17.00	15.0	12 x 7/8” - 9	0.67	31.8	46.6	168

Consult factory for larger sizes.







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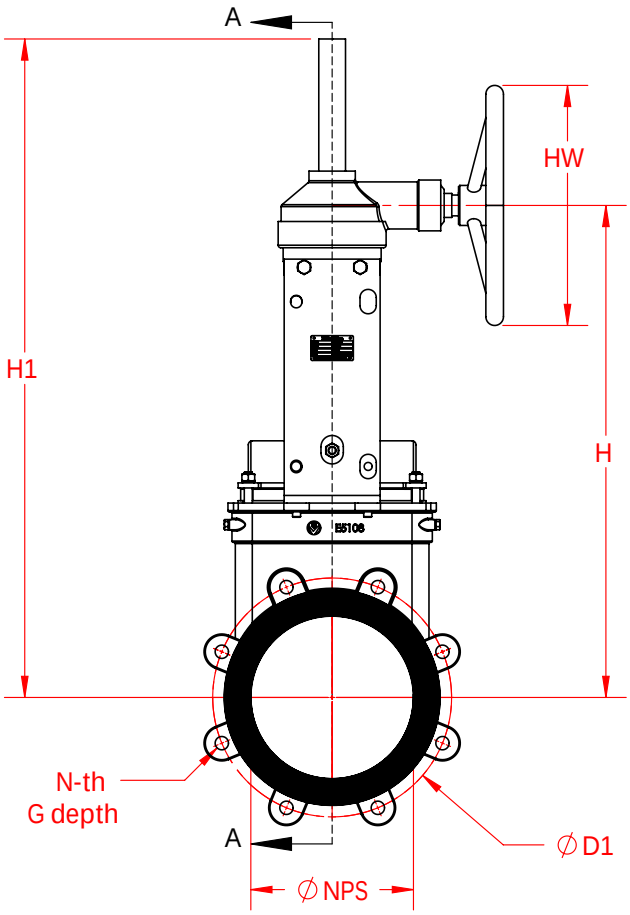
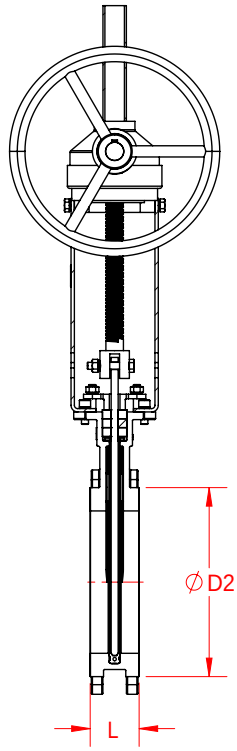
E5100: Non-Rising Stem

- Available on sizes up to 12”
- Bronze thrust bearing and clevis

Dimensions								
NPS	L	D1	D2	n-Th	G	H	HW	Weight
	inch	inch	inch	inch	inch	inch	inch	lbs
2	1.88	4.75	3.6	4 x 5/8” - 11	0.39	7.6	12.0	18
3	2.00	6.00	5.0	4 x 5/8” - 11	0.39	9.9	12.0	23
4	2.00	7.50	6.2	8 x 5/8” - 11	0.47	13.4	12.0	37
6	2.25	9.50	8.5	8 x 3/4” - 10	0.55	17.5	15.0	65
8	2.75	11.75	10.6	8 x 3/4” - 10	0.63	22.2	15.0	88
10	2.75	14.25	12.8	12 x 7/8” - 9	0.67	25.8	15.0	135
12	3.00	17.00	15.0	12 x 7/8” - 9	0.67	30.0	20.0	168

Consult factory for larger sizes.





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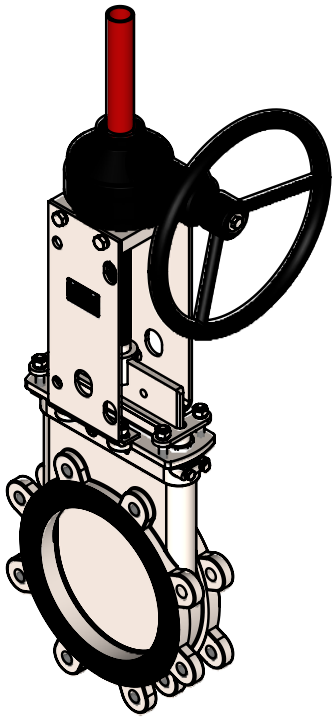
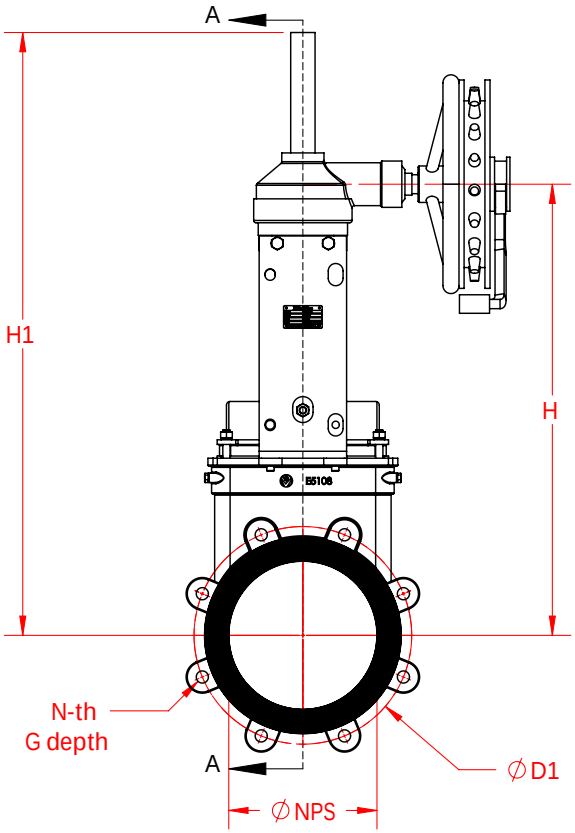


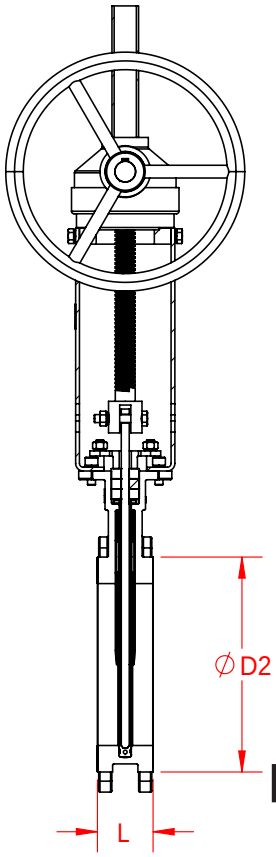
E5100: Bevel Gear

- IP 65 rated WCB enclosure
- Available for all sizes
- Standard on sizes 14” and larger
- See page 21 for orientation options

Dimensions										
NPS	L	D	D1	D2	n-Th	G	H	H1	HW	Weight
	inch	inch	inch	inch	inch	inch	inch	inch	inch	lbs
2	1.88	6.0	4.75	3.6	4 x 5/8” - 11	0.39	12.7	15.7	11.8	41
3	2.00	7.5	6.00	5.0	4 x 5/8” - 11	0.39	15.6	19.6	11.8	46
4	2.00	9.0	7.50	6.2	8 x 5/8” - 11	0.47	17.4	22.4	11.8	54
6	2.25	11.0	9.50	8.5	8 x 3/4” - 10	0.55	21.9	28.9	11.8	75
8	2.75	13.5	11.75	10.6	8 x 3/4” - 10	0.63	24.9	33.9	11.8	104
10	2.75	16.0	14.25	12.8	12 x 7/8” - 9	0.67	37.8	38.8	11.8	131
12	3.00	19.0	17.00	15.0	12 x 7/8” - 9	0.67	31.8	44.6	11.8	164
14	3.00	21.0	18.75	16.3	12 x 1” - 8	0.67	36.8	51.6	11.8	219
16	3.50	23.5	21.25	18.5	16 x 1” - 8	0.79	41.3	58.1	15.8	294
18	3.50	25.0	22.75	21.0	16 x 1-1/8” - 7	0.79	46.6	65.4	15.8	361
20	4.50	27.5	25.00	23.0	20 x 1-1/8” - 7	0.87	50.6	71.1	15.8	472
24	4.50	32.0	29.50	27.3	20 x 1-1/4” - 7	0.87	59.3	83.8	15.8	626

Consult factory for larger sizes.





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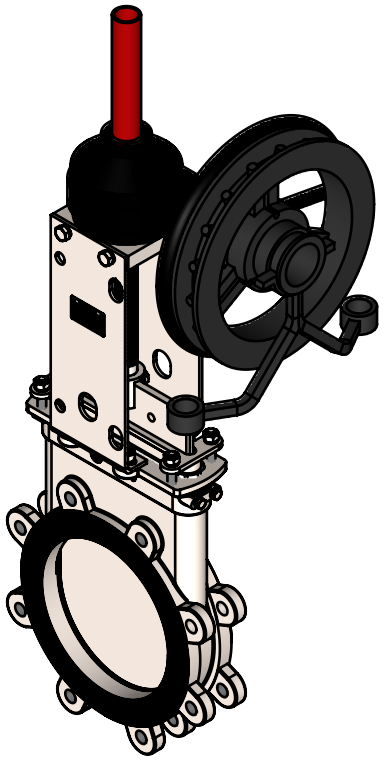
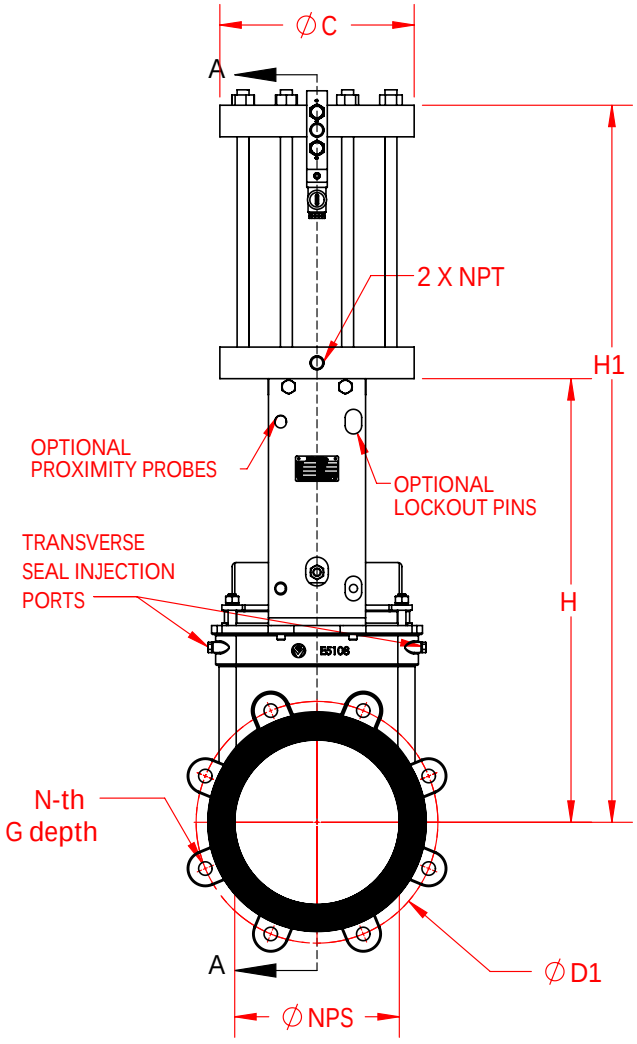


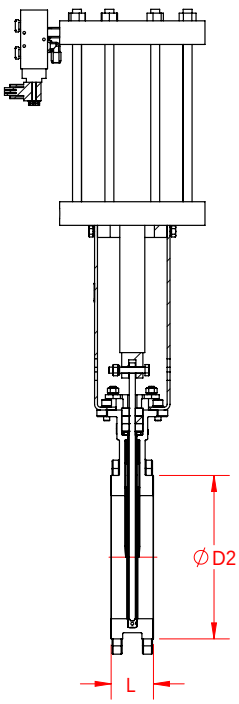
E5100: Chainwheel

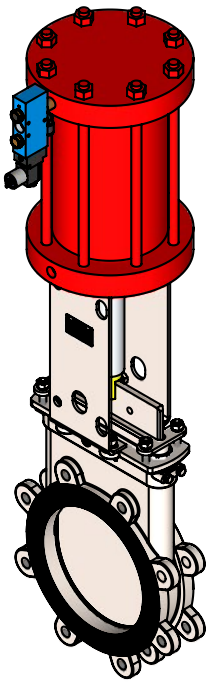
- For manual actuation of overhead valves
- Ductile iron or stainless steel
- Available for all sizes
- See page 21 for orientation options

Dimensions									
NPS	L	D1	D2	n-Th	G	H	H1	HW	Weight
	inch	inch	inch	inch	inch	inch	inch	inch	lbs
2	1.88	4.75	3.6	4 x 5/8” - 11	0.39	12.7	15.7	11.8	56
3	2.00	6.00	5.0	4 x 5/8” - 11	0.39	15.6	19.6	11.8	61
4	2.00	7.50	6.2	8 x 5/8” - 11	0.47	17.4	22.4	11.8	69
6	2.25	9.50	8.5	8 x 3/4” - 10	0.55	21.9	28.9	11.8	90
8	2.75	11.75	10.6	8 x 3/4” - 10	0.63	24.9	33.9	11.8	119
10	2.75	14.25	12.8	12 x 7/8” - 9	0.67	27.8	38.8	11.8	146
12	3.00	17.00	15.0	12 x 7/8” - 9	0.67	31.8	44.6	11.8	179
14	3.00	18.75	16.3	12 x 1” - 8	0.67	36.8	52.6	11.8	234
16	3.50	21.25	18.5	16 x 1” - 8	0.79	41.3	59.1	15.8	319
18	3.50	22.75	21.0	16 x 1-1/8” - 7	0.79	46.6	66.4	15.8	386
20	4.50	25.00	23.0	20 x 1-1/8” - 7	0.87	50.6	72.1	15.8	497
24	4.50	29.50	27.3	20 x 1-1/4” - 7	0.87	59.3	84.8	15.8	651

Consult factory for larger sizes.





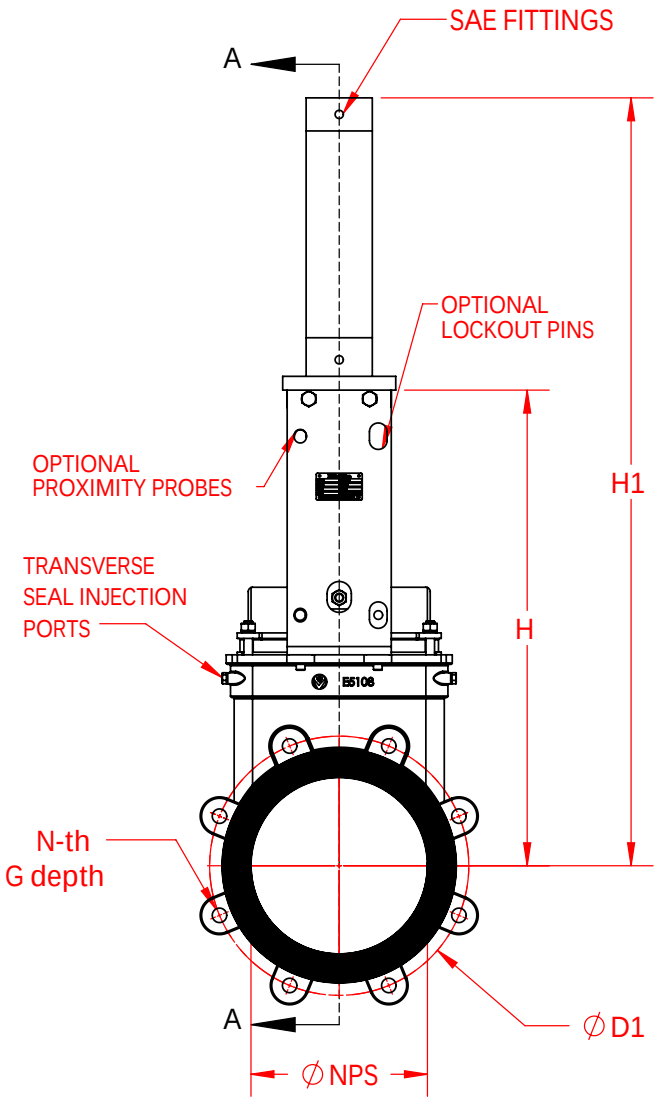


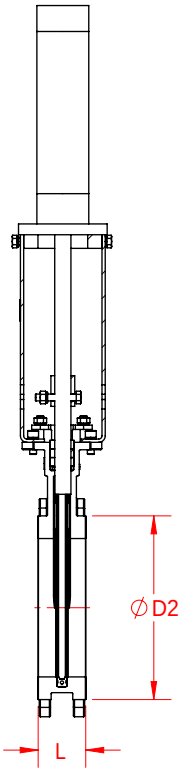
E5100: Pneumatic Cylinder

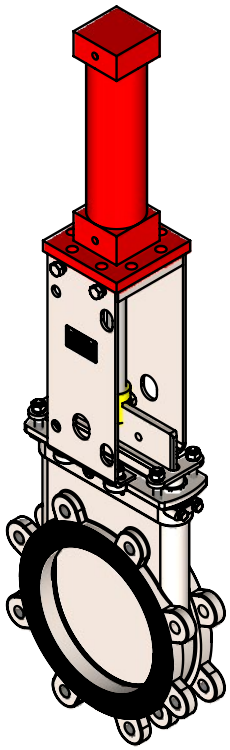
- Aluminum barrel
- Aluminum end caps
- Sized for 80psi (150psi max pressure)
- -30°F to 250°F (-34°C to 120°C)
- Chrome coated, steel connecting rods
- Mounting pattern conforms to ISO 5211
- See page 21 for orientation options

Dimensions										
NPS	L	D1	D2	n-Th	G	H	H1	NPT	C	Weight
	inch	inch	inch	inch	inch	inch	inch	inch	inch	lbs
2	1.88	4.75	3.6	4 x 5/8" - 11	0.39	12.7	17.7	1/4	4.5	23
3	2.00	6.00	5.0	4 x 5/8" - 11	0.39	15.6	21.6	1/4	4.5	28
4	2.00	7.50	6.2	8 x 5/8" - 11	0.47	17.4	24.4	1/4	5.3	44
6	2.25	9.50	8.5	8 x 3/4" - 10	0.55	21.9	30.9	1/4	6.3	81
8	2.75	11.75	10.6	8 x 3/4" - 10	0.63	24.9	35.9	3/8	8.2	111
10	2.75	14.25	12.8	12 x 7/8" - 9	0.67	27.8	40.8	3/8	8.2	160
12	3.00	17.00	15.0	12 x 7/8" - 9	0.67	31.8	46.6	3/8	9.8	203
14	3.00	18.75	16.3	12 x 1" - 8	0.67	36.8	53.6	1/2	9.8	224
16	3.50	21.25	18.5	16 x 1" - 8	0.79	41.3	60.1	1/2	12.1	328
18	3.50	22.75	21.0	16 x 1-1/8" - 7	0.79	46.6	67.4	1/2	12.1	405
20	4.50	25.00	23.0	20 x 1-1/8" - 7	0.87	50.6	73.1	1/2	12.1	534
24	4.50	29.50	27.3	20 x 1-1/4" - 7	0.87	59.3	85.8	1/2	12.1	751

Consult factory for larger sizes.







E5100: Hydraulic Cylinder

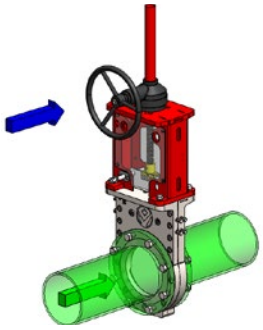
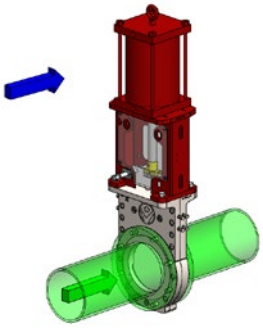
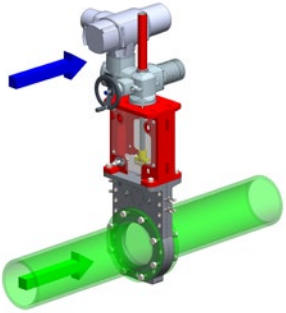
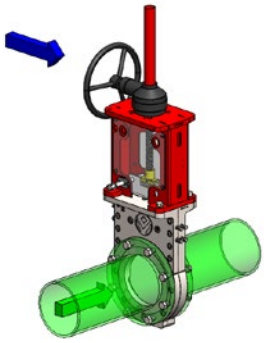
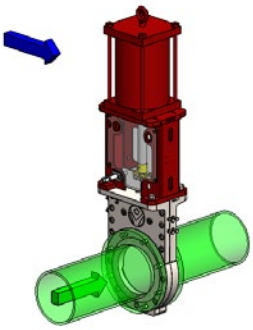
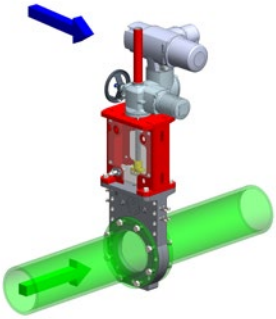
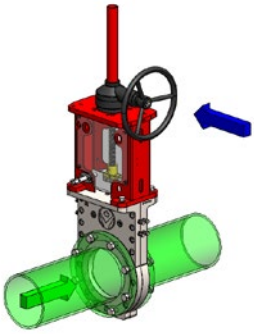
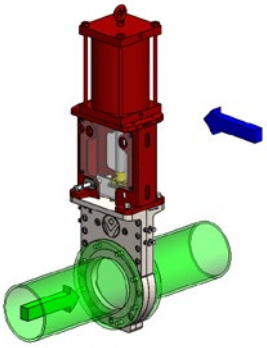
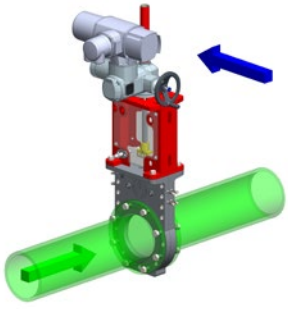
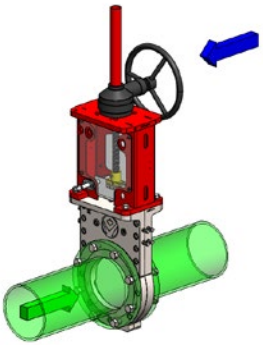
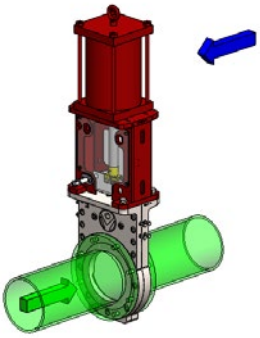
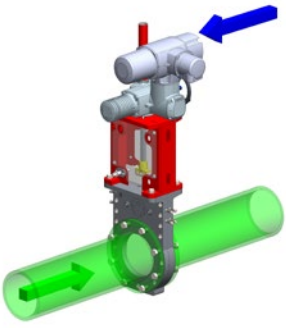
- Heavy duty, internally polished steel barrel
- Heavy duty rod wiper and seal
- Cylinder sized for 1500psi (standard)
- Cylinder rated for 3000psi
- High and low temperature versions available
- Quick-connect fittings available
- See page 21 for orientation options

Dimensions									
NPS	L	D1	D2	n-Th	G	H	H1	SAE	Weight
	inch	inch	inch	inch	inch	inch	inch	inch	lbs
2	1.88	4.75	3.6	4 x 5/8" - 11	0.39	12.7	17.7	SAE-10	27
3	2.00	6.00	5.0	4 x 5/8" - 11	0.39	15.6	21.6	SAE-10	33
4	2.00	7.50	6.2	8 x 5/8" - 11	0.47	17.4	24.4	SAE-10	52
6	2.25	9.50	8.5	8 x 3/4" - 10	0.55	21.9	30.9	SAE-10	96
8	2.75	11.75	10.6	8 x 3/4" - 10	0.63	24.9	35.9	SAE-10	131
10	2.75	14.25	12.8	12 x 7/8" - 9	0.67	27.8	40.8	SAE-10	189
12	3.00	17.00	15.0	12 x 7/8" - 9	0.67	31.8	46.6	SAE-10	240
14	3.00	18.75	16.3	12 x 1" - 8	0.67	36.8	53.6	SAE-10	264
16	3.50	21.25	18.5	16 x 1" - 8	0.79	41.3	60.1	SAE-12	387
18	3.50	22.75	21.0	16 x 1-1/8" - 7	0.79	46.6	67.4	SAE-12	478
20	4.50	25.00	23.0	20 x 1-1/8" - 7	0.87	50.6	73.1	SAE-12	630
24	4.50	29.50	27.3	20 x 1-1/4" - 7	0.87	59.3	85.8	SAE-12	886

Consult factory for larger sizes.

KGV Actuator Orientation

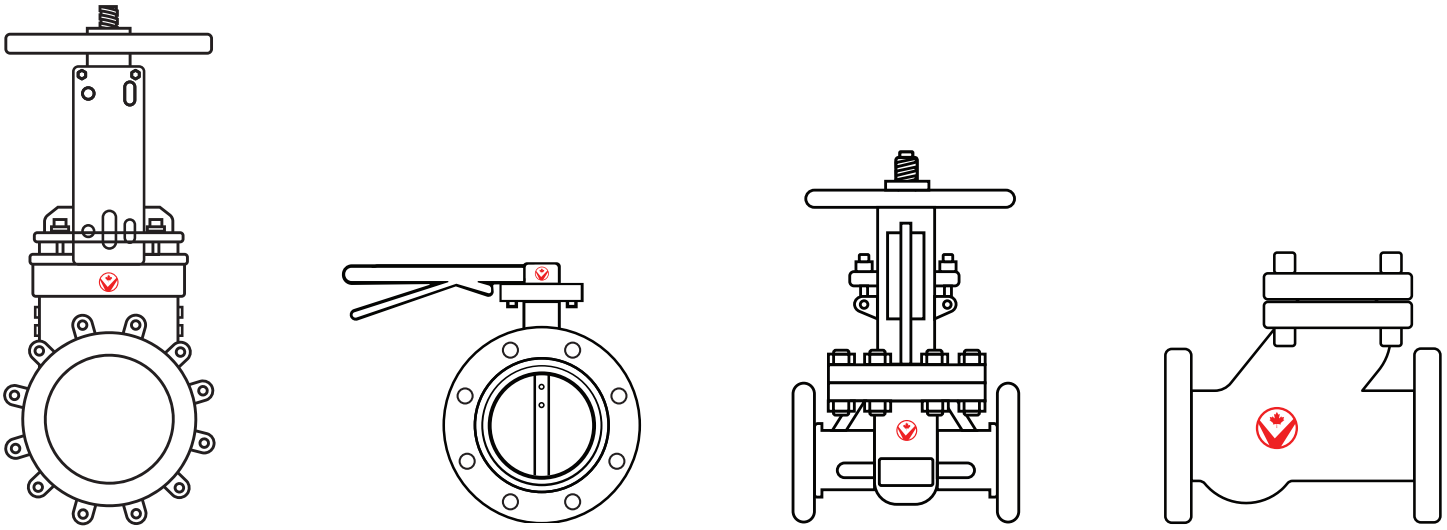
Valve assemblies will be manufactured using Orientation 'A' (Standard) unless otherwise specified on the purchase order.

	Bevel Gear Box (Operator Access) Elite Valve OPG Bevel Gear operator shown for reference.	Pneumatic/Hydraulic Cylinder (Port Access) Elite Valve OPCYL-PDA DA pneumatic cylinder shown for reference.	Electric Actuator (Operator Access) AUMA SA actuator with controller shown for reference.
A **Standard**			
B			
C			
D			

E5600 KGV shown for reference

Notes

Elite Valve is a proud member of the Manufacturers Standardization Society of the Valve and Fitting Industry Inc.



EliteValve

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Our North American manufacturing and testing facility is located in Oakville, Ontario and houses over 190,000 sq ft of inventory.

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