

DeZURIK UNIVAL PORTED GATE VALVES

Technologically Superior Design

DeZURIK's Unival incorporates a technologically innovative sealing mechanism with features that surpass any other ported gate valve. Unival has undergone extensive field testing in abrasive, corrosive and scaling applications in the mining and process industries. The field tests have demonstrated the superiority of this design in terms of quality, extended service life and reliability.

Reduce Downtime, Save Money

All of the features of Unival were designed to reduce downtime and save money. The improved packing sealing system and the pressure-assisted seat were engineered to provide trouble-free operation and extend the service life of the valve.

Streamlined Flow Passage

Unival Valves feature a full-port design. The valve does not intrude into the flow path, thereby reducing turbulence, abrasive wear and premature valve failure. Because there are no intrusions into the flow path or irregular geometry, head loss is minimal.

Standard Face-to-Face Dimensions

Unival Ported Gate Valves feature standard MSS SP-81 face-to-face dimensions on 2-24" (50-600mm) valves. No piping changes are required to change from competitive gate valves to Unival.

International Flange Drillings

In addition to ASME 150 wafer drillings, Unival Ported Gate Valves are also available with other international flange drillings, including DIN, BS, AS and JIS.

Dry Service Applications

Unique design allows Unival to be used on dry service applications including, but not limited to, powders, plastic pellets, fly ash, Kaolin, lime and sand.

Bi-Directional Shut-Off

Unival Ported Gate Valves provide bi-directional shut-off and are rated to accept a 150 psi (1,000 kPa) pressure drop.

Application Flexibility

Sleeve material options include a variety of corrosion- and abrasion-resistant materials. These materials have been field tested and provide the required protection where corrosion or abrasion pose a problem.

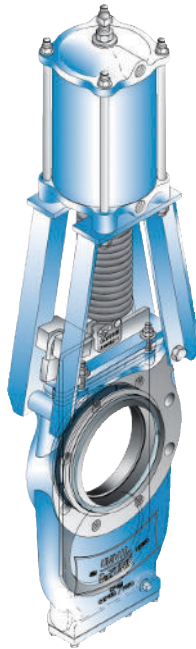


Ease of Maintenance

When required, the sleeves can easily be replaced by simply removing the mating flange. Changing the sleeves does not require disassembly of the valve or actuator. This greatly simplifies maintenance and means there are fewer parts to stock.

Adjustable Packing

The standard packing is a multistage adaptive system that forms the secondary atmospheric seal. This exclusive packing system provides excellent wear resistance and overcomes traditional cold flow problems and strength issues.



Quick, Easy Actuator Conversion

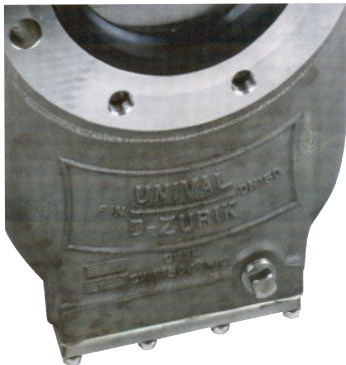
One common mounting pad allows quick and easy conversion from manual to powered actuators with no major changes in parts or valve construction. All that's required is removal of six bolts.

Lower-Body Seal

The valve can be ordered without the lower-body seal. The lower-body cover can also be removed for easy inspection and clean-out when the valve isn't under pressure.

Purge Ports

Positive pressure applied to the purge ports prevents build-up of material in the lower body. Chest-area purge ports are provided on valves for dry services, and available as an option on wet-service valves.



Rounded Gate Edges

To increase packing life and provide a superior seal, the gate edges are rounded. The rounded edges reduce packing stress and operating forces and provide longer packing life.

Stainless Steel Fasteners and Superstructure

As standard corrosion protection, fasteners are 316 stainless steel. The superstructure is carbon steel and available in 304 and 316 stainless steel.



Stem Protection

One hundred percent stem protection is provided, as standard, on all valves.

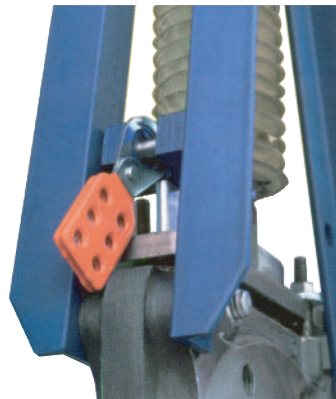
Corrosion/Abrasion Resistant Gates

The standard gate material is 316 stainless steel. To meet more demanding corrosive and abrasive applications, DeZURIK offers a variety of gate materials, including 317 stainless steel, titanium, Alloy 20, Hastelloy or any available alloy or plate material.



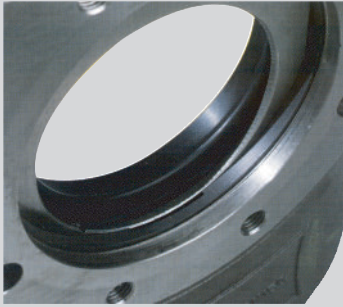
Lock Device Standard

As standard, a closed-position lockout device is supplied on all Unival Valves. It conforms to OSHA lockout/tag-out requirement 29 CFR 1910.14]. A quick disconnect may also be specified with the lockout when required.



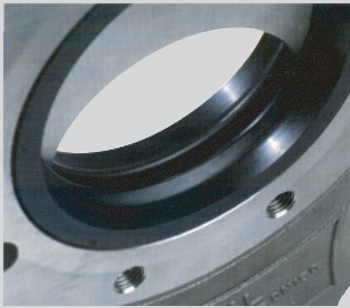
Innovative Sealing Method

Unival Ported Gate Valves feature a unique pressure-assisted sealing system. This patented design utilizes elastomer sleeves with radial support rings and gate-thrust support rings. The seats rely on line pressure, rather than compression, to assist the sealing process. The upstream pressure on the seat provides the primary seal. This innovative new pressure-assisted sealing system provides longer seal life.



Unique, Pressure-Assisted Seat

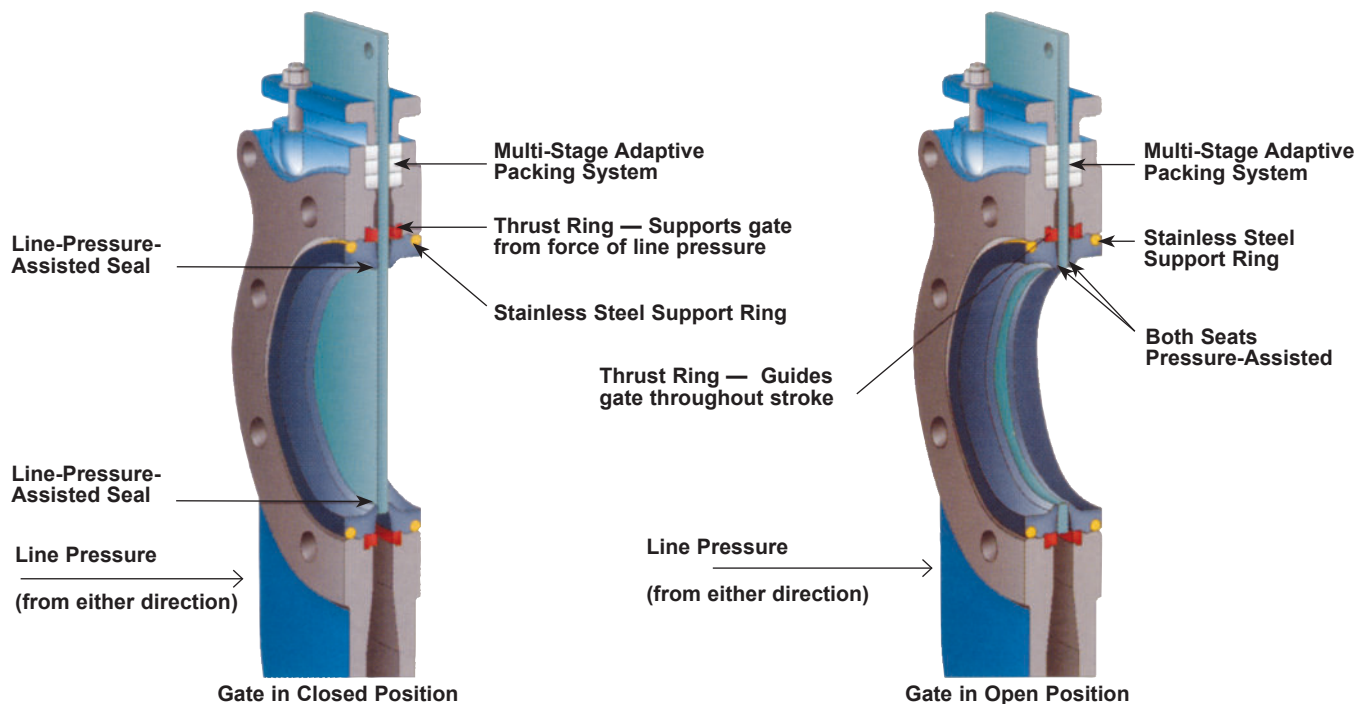
Unival Ported Gate Valves provide bubble-tight, bi-directional shut-off. In the open position, both seats provide a pressure-assisted seal. In the closed position, the upstream seal is line-pressure assisted.



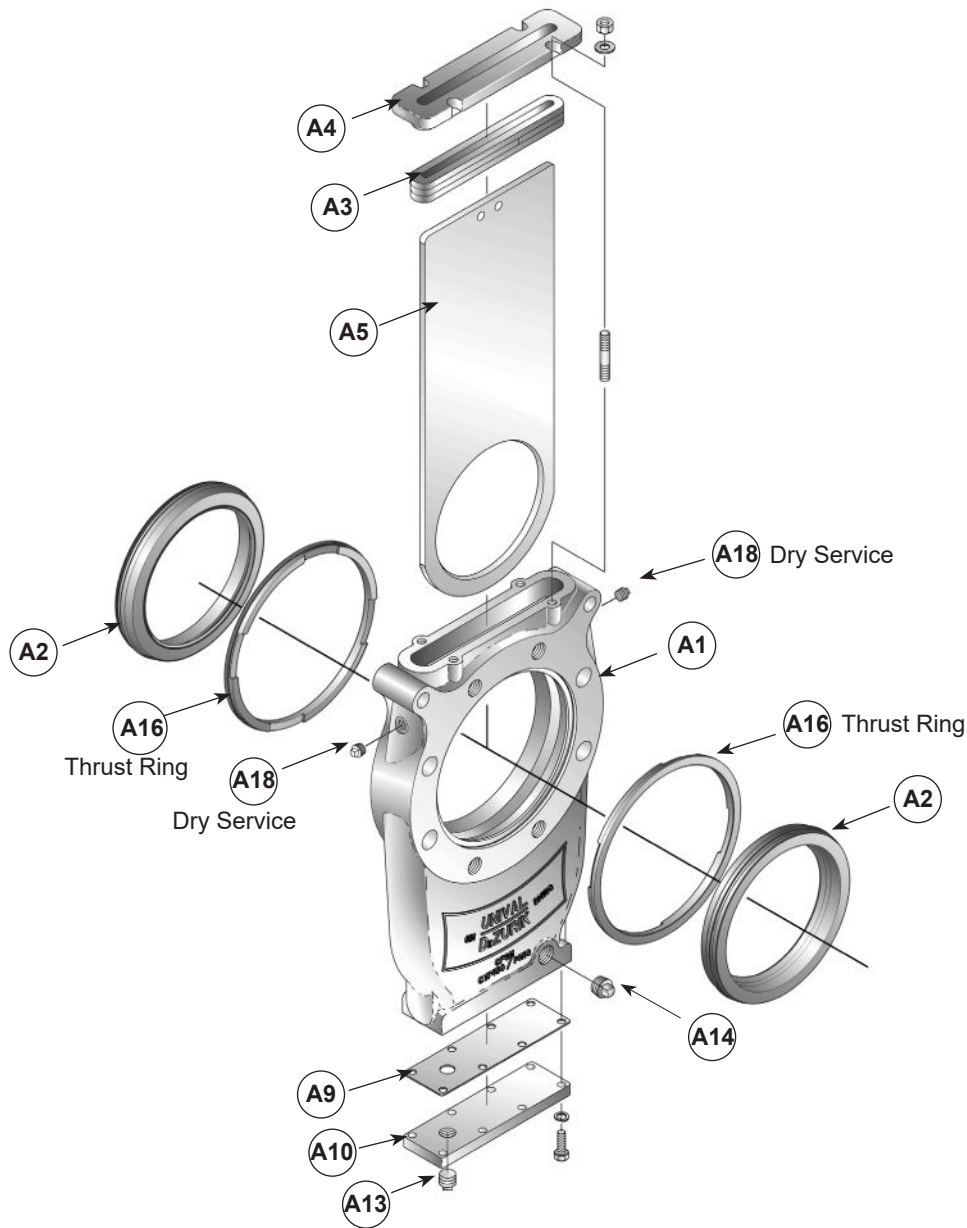
Improved Packing Sealing System

This innovative design includes thrust rings to support the full load of the gate. The thrust rings absorb the stress of gate movement throughout the valve stroke, keeping the gate centered in the body and packing chamber.

Closed and Open Gate Position



Materials of Construction



Item	Description	Ductile Iron Body 2-24" (50-600mm)	316 Stainless Steel Body 2-24" (50-600mm)
A1	Body	Ductile iron, ASTM A536 65-45-12	316 stainless steel, ASTM A351 CF8M
A5	Gate	316 stainless steel, ASTM A240 T316	316 stainless steel, ASTM A240 T316
A4	Gland	Ductile iron, ASTM A536 65-45-12	316 stainless steel, ASTM A351 CF8M
A10	Bottom Cover	Carbon steel, ASTM A36	316 stainless steel, ASTM A240 T316
	Fasteners	316 stainless steel	316 stainless steel
A2	Rubber Seat	See seat chart page 3	See seat chart page 3
A3	Packing	See packing chart page 3	See packing chart page 3
A9	Gasket	Synthetic fiber nitrile binder	Synthetic fiber nitrile binder
A13 & A14	Plug	Carbon steel, ASTM A36	316 stainless steel, ASTM A240 T316
A16	Thrust Ring	PPS/PTFE	PPS/PTFE
A18	Dry Service Plugs	Carbon steel, ASTM A36	316 stainless steel, ASTM A240 T316

Ordering

Valve Style

Give body code as follows:

PGV = Unival Ported Gate Valve, 2–24" (50–600mm)
150 psi C.W.P. (1034 kPa).

Valve Size

Give size code as follows:

2	=	2"	(50mm)
3	=	3"	(80mm)
4	=	4"	(100mm)
6	=	6"	(150mm)
8	=	8"	(200mm)
10	=	10"	(250mm)
12	=	12"	(300mm)
14	=	14"	(350mm)
16	=	16"	(400mm)
18	=	18"	(450mm)
20	=	20"	(500mm)
24	=	24"	(600mm)

End Style

Give end style code as follows:

W1	=	ASME 150 wafer
W110	=	DIN 10 or BS 4504/10 drilling
W1J1	=	JIS 10 drilling
W116	=	DIN 16 or BS 4504/16 drilling
W1D	=	B.S. Table D
W1E	=	B.S. Table E
W1CA	=	AS2129 Table C
W1DA	=	AS2129 Table D
W1EA	=	AS2129 Table E

Consult factory for optional flange drillings.

Body Material

Give body material code as follows:

DI	=	Ductile Iron
S2	=	316 stainless steel
CS	=	Carbon steel
S3	=	317 stainless steel
TN	=	Titanium
AA	=	Alloy 20
HC	=	Hastelloy C

Additional material options available on request.

Packing Material

Give packing material code as follows:

T	=	Square braid, solid PTFE to 500°F (260°C) (contains lubricant). Recommended for all liquid or slurry applications except molten alkalai metals.
ZJ	=	Square braided PTFE impregnated synthetic fiber with one ring PTFE rubber cord to 500°F (260°C) (contains no lubricant). Recommended for all dry service applications.
ESP	=	Multi lock braided TFE with one ring EPDM rubber cord and Teflon Glass filled Anti-Extrusion Ring to 300°F (150°C) (contains no lubricants).

Gate Material

Give gate material code as follows:

S2	=	316 stainless steel
S3	=	317 stainless steel
TN	=	Titanium
AA	=	Alloy 20
HC	=	Hastelloy C
S5	=	17-4 PH stainless steel hardened (RC43)

Wear resistant thermal spray matrix of metals, ceramics, polymers and dry lubricants coating or hardened nickel-based non-stick coating available.

Trim Combination

Resilient Seat Material

Give resilient seat material code as follows:

FKM	=	Fluoro-rubber Viton to 350°F (177°C)
EPDM	=	Terpolymer of ethylene, propylene and a diene to 250°F (121°C)
CIIR	=	Chloro-isobutene-isoprene to 250°F (121°C)
CR	=	Chloroprene (Neoprene) to 180°F (82°C)
NBR	=	Acrylonitrile-butadiene (Nitrile) to 180°F (82°C)
NAR	=	Natural (gum) rubber to 180°F (82°C)
NBRW	=	White food grade nitrile to 180°F (82°C)
AF	=	Aflas 350°F (177°C)
GF	=	Viton 350°F (177°C)

Refer to options for mold clean up options for NBRW resilient seat and all food grade applications

Thrust Ring

Give thrust ring material code as follows:

PT	=	PPS/PTFE 250°F (121°C)
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Options

Give option code as follows, separate with dash if both are specified:

LC	=	Less lower body cover
DS	=	Dry service
CMC	=	Certificate of Material Conformance
DTR	=	DeZURIK Standard Certified Production Hydrostatic Shell and Seat Test Report

Accessories

Flange seal gasket (PTFE Encapsulated) with carbon steel rings

Required only if valve is installed in non-standard ASME or international flanges. 2-12" flange seals are supplied with the valve; 14-24" order as a separate item only. Part number is for one set or two flange seals.

See Price Sheet 38.10-2 for part numbers

Ordering Example:

PGV,4,W1,S2,S2,T,EPDM-PT*MN-HD12-CS

Rotary Manual Actuators

Valves through 12" (300mm) can be furnished with Handwheel or Chainwheel Actuators. Bevel Gear style Handwheel and Chainwheel Actuators are available on valve sizes 8–24" (200–600mm). Bevel Gear Actuators are available on smaller valve sizes on application. Standard yoke material is carbon steel. Stainless steel yokes are available on request. To order, add the appropriate code from the table to the basic valve order code.

Handwheel/Chainwheel Actuators and Bevel Gear Handwheel/Chainwheel Actuators

Valve Size DN	Order Code				CWP (PN) psi (kPa)
	Handwheel	Chainwheel	Bevel Gear Handwheel	Bevel Gear Chainwheel	
2" 50mm	MN-HD12-CS	MN-CW8-CS	–	–	150 1034
3" 80mm	MN-HD12-CS	MN-CW8-CS	–	–	150 1034
4" 100mm	MN-HD12-CS	MN-CW8-CS	–	–	150 1034
6" 150mm	MN-HD12-CS	MN-CW12-CS	–	–	150 1034
8" 200mm	MN-HD16-CS	MN-CW20-CS	MNB-HD12-CS	MNB-CW12-CS	150 1034
10" 250mm	MN-HD20-CS	MN-CW20-CS	MNB-HD12-CS	MNB-CW12-CS	150 1034
12" 300mm	MN-HD20-CS	MN-CW20-CS	MNB-HD12-CS	MNB-CW12-CS	150 1034
14" 350mm	–	–	MNB-HD16-CS	MNB-CW20-CS	150 1034
16" 400mm	–	–	MNB-HD16-CS	MNB-CW20-CS	150 1034
18" 450mm	–	–	MNB-HD16-CS	MNB-CW20-CS	150 1034
20" 500mm	–	–	MNB-HD30-CS	MNB-CW30-CS	150 1034
24" 600mm	–	–	MNB-HD30-CS	MNB-CW30-CS	150 1034

Ordering Example:

PGV,8,W1,S2,S2,T,CR-PT*MNB-HD12-CS

Cylinder Actuators

DeZURIK Unival Ported Gate Valves are available with Double-Acting Pneumatic or Hydraulic Cylinders. Maximum supply pressure is 100 psi (690 kPa) for Pneumatic Cylinders and 1500 psi (10,342 kPa) for hydraulic. Minimum supply pressure for hydraulic actuators is 1000 psi (6,895 kPa). Corrosion-resistant cylinder coatings are available on application. Consult factory for Spring Return Cylinder sizing information.

To order, add the appropriate code to the basic valve order code.

Ordering Example:

PGV,4,W1,S2,S2,T,CR-PT*CY-PC6-CS

Valve Size DN	Order Code		CWP (PN) psi (kPa)
	Pneumatic 60 psi (414 kPa)	Hydraulic 1000 psi (6,896 kPa)	
2" 50mm	CY-PC6-CS	CY-H1.5-CS	150 1034
3" 80mm	CY-PC6-CS	CY-H2-CS	150 1034
4" 100mm	CY-PC6-CS	CY-H2-CS	150 1034
6" 150mm	CY-PC8-CS	CY-H2-CS	150 1034
8" 200mm	CY-PC8-CS	CY-H2-CS	150 1034
10" 250mm	CY-PC10-CS	CY-H2-CS	150 1034
12" 300mm	CY-PC10-CS	CY-H2.5-CS	150 1034
14" 350mm	CY-PC12-CS	CY-H3.25-CS	150 1034
16" 400mm	CY-PC12-CS	CY-H3.25-CS	150 1034
18" 450mm	CY-PC14-CS	CY-H4-CS	150 1034
20" 500mm	CY-PC14-CS	CY-H4-CS	150 1034
24" 600mm	CY-PC14-CS	CY-H4-CS	150 1034

Accessories

Air Filter Regulator

The DeZURIK Air Filter Regulator is designed to provide clean, accurate air pressure to actuators and positioners.

Four-Way Solenoid Valves

Solenoid valves may be ordered mounted and piped as part of a complete valve/actuator assembly or as a separate item.

Position Indicating Switches

Position Indicating Switches are available for use on double-acting cylinder actuators. Order as part of a complete valve/actuator assembly by adding the appropriate code from the table below to the valve and actuator order code. Two switches will automatically be set to indicate full open and full closed positions.

Two Switches — Open/Closed

Description	Switch Type	Rating	Order Code
2 SPDT	Mechanical	Nema 1,3,4,6,13	SE649
2 DPDT	Mechanical	Nema 1,3,4,6,13	SE524
2 SPDT	Mechanical	Nema 1,3,4,6,7,9,13	SEH95
2 DPDT	Mechanical	Nema 1,3,4,6,7,9,13	SEH96
2 SPDT, ST Housing	Proximity	UL, CSA, FA*	SEH94

*Class I, Div. 1, Group A,B,C,D, Class II, Groups E,F,G

One Switch — Open

Description	Switch Type	Rating	Order Code
1 SPDT	Mechanical	Nema 1,3,4,6,13	SEJ40
1 DPDT	Mechanical	Nema 1,3,4,6,13	SEJ42
1 SPDT	Mechanical	Nema 1,3,4,6,7,9,13	SEJ46
1 DPDT	Mechanical	Nema 1,3,4,6,7,9,13	SEJ44
1 SPDT, SST Housing	Proximity	UL, CSA, FA*	SEJ38

One Switch — Closed

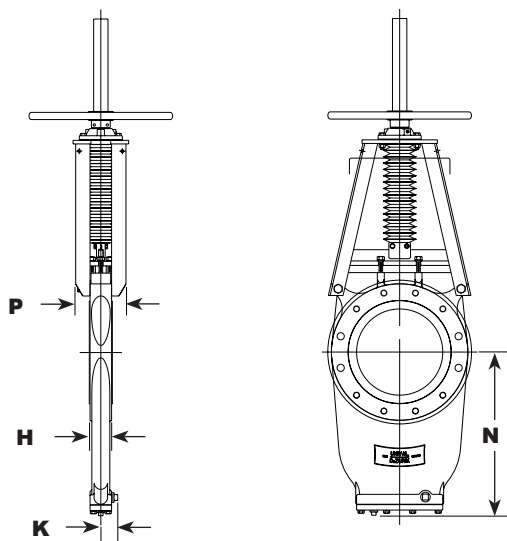
Description	Switch Type	Rating	Order Code
1 SPDT	Mechanical	Nema 1,3,4,6,13	SEJ41
1 DPDT	Mechanical	Nema 1,3,4,6,13	SEJ43
1 SPDT	Mechanical	Nema 1,3,4,6,7,9,13	SEJ47
1 DPDT	Mechanical	Nema 1,3,4,6,7,9,13	SEJ45
1 SPDT, SST Housing	Proximity	UL, CSA, FA*	SEJ39

Ordering Example:

PGV, 4, WI, S2, S2, T, EPDM-PT*CY-PC6-CS*SEH96

Dimensions

Basic Valve 2–24" (50–600mm)



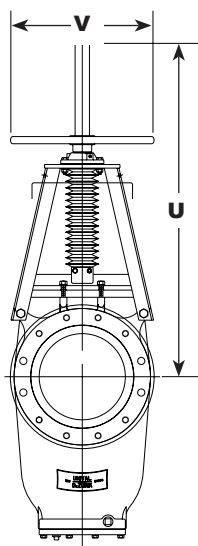
Basic Valve

Valve Size DN	Dimensions				
	H Standard	H Flange Seal	K	N	P
2" 50mm	<u>1.88</u> 48	<u>2.31</u> 59	<u>1.56</u> 40	<u>6.34</u> 161	<u>4.38</u> 111
3" 80mm	<u>2.00</u> 51	<u>2.44</u> 62	<u>1.62</u> 41	<u>7.84</u> 199	<u>5.00</u> 127
4" 100mm	<u>2.00</u> 51	<u>2.44</u> 62	<u>1.72</u> 44	<u>9.63</u> 245	<u>5.00</u> 127
6" 150mm	<u>2.25</u> 57	<u>2.81</u> 71	<u>1.85</u> 47	<u>12.93</u> 328	<u>5.25</u> 133
8" 200mm	<u>2.75</u> 70	<u>3.31</u> 84	<u>2.10</u> 53	<u>16.91</u> 430	<u>6.75</u> 171
10" 250mm	<u>2.75</u> 70	<u>3.31</u> 84	<u>2.23</u> 57	<u>19.66</u> 499	<u>6.75</u> 171
12" 300mm	<u>3.00</u> 76	<u>3.56</u> 90	<u>2.35</u> 60	<u>22.72</u> 577	<u>7.00</u> 178
14" 350mm	<u>3.00</u> 76	<u>3.81</u> 97	<u>2.35</u> 60	<u>24.57</u> 624	<u>7.00</u> 178
16" 400mm	<u>3.50</u> 89	<u>4.31</u> 109	<u>2.60</u> 66	<u>27.69</u> 703	<u>7.50</u> 191
18" 450mm	<u>3.50</u> 89	<u>4.31</u> 109	<u>2.78</u> 71	<u>30.63</u> 778	<u>7.50</u> 191
20" 500mm	<u>4.50</u> 114	<u>5.56</u> 141	<u>3.28</u> 83	<u>34.79</u> 884	<u>8.50</u> 216
24" 600mm	<u>4.50</u> 114	<u>5.56</u> 141	<u>3.28</u> 83	<u>41.01</u> 1042	<u>8.50</u> 216

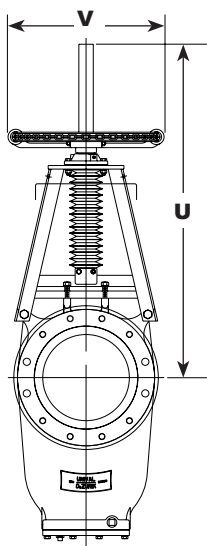
Inches

Millimeters

Handwheel



Chainwheel



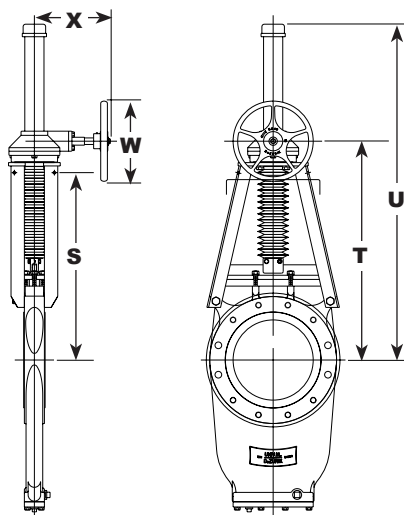
Handwheel/Chainwheel

Valve Size DN	Dimensions				
	H Standard	H Flange Seal	K	N	P
2" 50mm	<u>1.88</u> 48	<u>2.31</u> 59	<u>1.56</u> 40	<u>6.34</u> 161	<u>4.38</u> 111
3" 80mm	<u>2.00</u> 51	<u>2.44</u> 62	<u>1.62</u> 41	<u>7.84</u> 199	<u>5.00</u> 127
4" 100mm	<u>2.00</u> 51	<u>2.44</u> 62	<u>1.72</u> 44	<u>9.63</u> 245	<u>5.00</u> 127
6" 150mm	<u>2.25</u> 57	<u>2.81</u> 71	<u>1.85</u> 47	<u>12.93</u> 328	<u>5.25</u> 133
8" 200mm	<u>2.75</u> 70	<u>3.31</u> 84	<u>2.10</u> 53	<u>16.91</u> 430	<u>6.75</u> 171
10" 250mm	<u>2.75</u> 70	<u>3.31</u> 84	<u>2.23</u> 57	<u>19.66</u> 499	<u>6.75</u> 171
12" 300mm	<u>3.00</u> 76	<u>3.56</u> 90	<u>2.35</u> 60	<u>22.72</u> 577	<u>7.00</u> 178
14" 350mm	<u>3.00</u> 76	<u>3.81</u> 97	<u>2.35</u> 60	<u>24.57</u> 624	<u>7.00</u> 178
16" 400mm	<u>3.50</u> 89	<u>4.31</u> 109	<u>2.60</u> 66	<u>27.69</u> 703	<u>7.50</u> 191
18" 450mm	<u>3.50</u> 89	<u>4.31</u> 109	<u>2.78</u> 71	<u>30.63</u> 778	<u>7.50</u> 191
20" 500mm	<u>4.50</u> 114	<u>5.56</u> 141	<u>3.28</u> 83	<u>34.79</u> 884	<u>8.50</u> 216
24" 600mm	<u>4.50</u> 114	<u>5.56</u> 141	<u>3.28</u> 83	<u>41.01</u> 1042	<u>8.50</u> 216

Inches

Millimeters

Bevel Gear — Handwheel



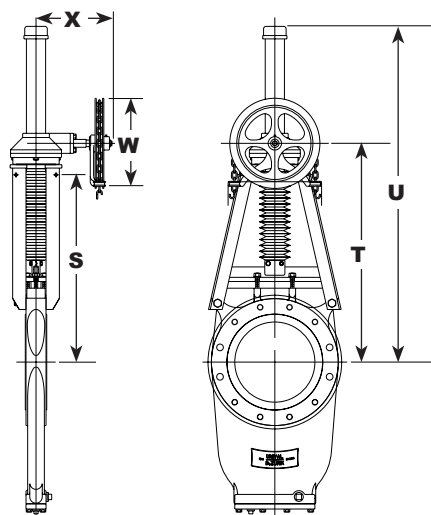
Bevel Gear — Handwheel and Chainwheel

Valve Size DN	Dimensions					X
	S	T	U	W		
				Handwheel	Chain-wheel	
8" 200mm	<u>19.06</u> 484	<u>23.88</u> 607	<u>35.44</u> 900	<u>12.00</u> 305	<u>12.75</u> 324	<u>11.38</u> 289
10" 250mm	<u>23.11</u> 587	<u>28.00</u> 711	<u>41.56</u> 1056	<u>12.00</u> 305	<u>12.75</u> 324	<u>11.38</u> 289
12" 300mm	<u>27.68</u> 703	<u>32.75</u> 832	<u>50.31</u> 1278	<u>12.00</u> 305	<u>12.75</u> 324	<u>11.38</u> 289
14" 350mm	<u>30.57</u> 776	<u>35.62</u> 905	<u>53.12</u> 1349	<u>16.00</u> 305	<u>20.06</u> 510	<u>11.38</u> 289
16" 400mm	<u>33.75</u> 857	<u>38.81</u> 986	<u>56.34</u> 1431	<u>16.00</u> 305	<u>20.06</u> 510	<u>11.38</u> 289
18" 450mm	<u>37.88</u> 962	<u>43.38</u> 1102	<u>65.88</u> 1673	<u>16.00</u> 305	<u>20.06</u> 510	<u>11.38</u> 289
20" 500mm	<u>41.66</u> 1058	<u>47.25</u> 1200	<u>69.75</u> 1772	<u>30.00</u> 610	<u>29.75</u> 756	<u>11.38*</u> 289
24" 600mm	<u>48.15</u> 1223	<u>53.75</u> 1365	<u>82.28</u> 2090	<u>30.00</u> 610	<u>29.75</u> 756	<u>11.38*</u> 289

Inches
Millimeters

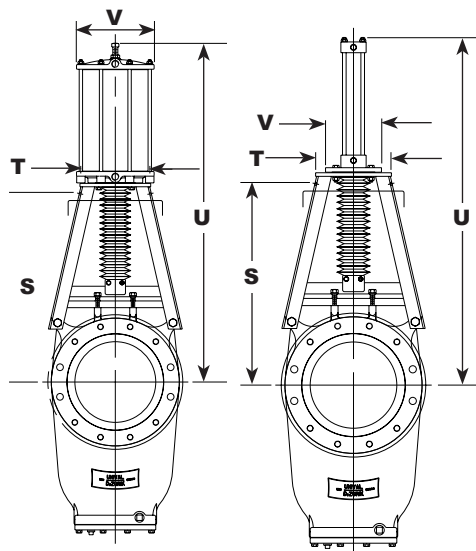
*X dimension is 14.88" (378mm) on Handwheel Bevel Gear Actuators.

Bevel Gear — Chainwheel



Cylinder — Pneumatic

Hydraulic



Cylinder — Pneumatic and Hydraulic

Valve Size DN	Dimensions					
	S	T	U		W	
			Pneumatic	Hydraulic	Pneumatic	Hydraulic
2" 50mm	—	7.00 178	23.12 587	19.84 504	7.88 200	6.12 155
3" 80mm	—	7.00 178	23.31 592	22.03 560	7.88 200	6.12 155
4" 100mm	—	7.00 178	26.00 660	24.72 628	7.88 200	6.12 155
6" 150mm	—	7.00 178	31.62 803	30.22 768	10.25 260	6.12 155
8" 200mm	19.06 484	10.50 267	37.50 953	35.41 899	10.25 260	7.50 191
10" 250mm	23.11 587	10.50 267	43.50 1105	43.56 1106	12.31 313	7.50 191
12" 300mm	27.68 703	10.50 267	50.81 1291	48.38 1229	12.31 313	7.75 197
14" 350mm	30.57 776	10.50 267	57.19 1453	52.88 1343	17.00 432	7.75 197
16" 400mm	33.75 857	10.50 267	62.44 1586	58.09 1475	17.00 432	7.75 197
18" 450mm	37.88 962	13.75 349	69.75 1772	65.62 1667	17.00 432	9.00 229
20" 500mm	41.66 1058	13.75 349	76.00 1930	71.88 1826	17.00 432	9.00 229
24" 600mm	48.15 1223	13.75 349	86.56 2199	82.41 2093	17.00 432	9.00 229

Inches
Millimeters

Sales and Service

For information about our worldwide locations, approvals, certifications and local representative:

Web Site: DeZURIK.com **E-Mail:** info@DeZURIK.com



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DeZURIK, Inc. reserves the right to incorporate our latest design and material changes without notice or obligation. Design features, materials of construction and dimensional data, as described in this bulletin, are provided for your information only and should not be relied upon unless confirmed in writing by DeZURIK, Inc. Certified drawings are available upon request.