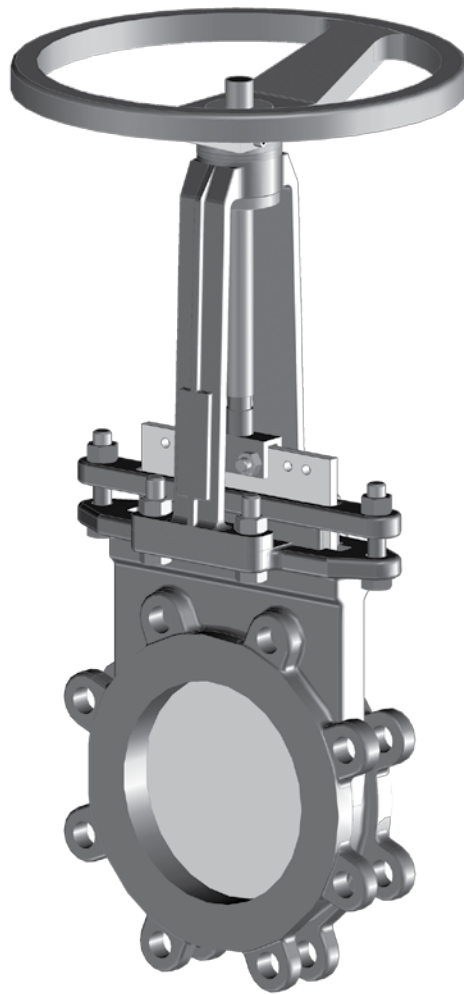




## **KCB BI-DIRECTIONAL KNIFE GATE VALVES**



## Design and Construction

The DeZURIK Bi-Directional Knife Gate Valve provides a perimeter seat allowing bubble tight shutoff in either direction, even on dead end service.

The valve is designed for isolation and on/off applications in the paper, chemical and power industries. It is designed to handle clean, dirty, viscous and corrosive liquids, sludge, fibrous slurries, clean and corrosive gases and dry materials.

### Perimeter Seat Seal

The flat bottom gate provides full perimeter seating against the seat, eliminating pocket in the bottom of the seat that can trap process media and prevent the valve from fully closing. The perimeter seat design gives bubble tight shutoff in either direction.

### Maximum Flow Capacity

The full round port area provides maximum flow capacity and minimum head loss.

### Seat Locked in Valve Body

The perimeter seat is locked into the body dove tail groove and is further retained by a metal wire insert.

### Choice of Materials

The heavy duty cast body is available in 304, 316 or 317 stainless steel (other alloy on application). The finish ground gate is also stainless steel. Three options for resilient seat materials (EPDM, NBR and FKM) and two packing options are available. The standard super structure is 304 stainless. Corrosion resistant cylinder construction is also available as an option.

### Choice of Actuator and Accessories

DeZURIK Bi-Directional Knife Gate Valves may be equipped with handwheel, chainwheel, bevel gear, cylinder (pneumatic and hydraulic) or electric motor actuator. A full compliment of accessories is available.

## Bi-Directional Shutoff

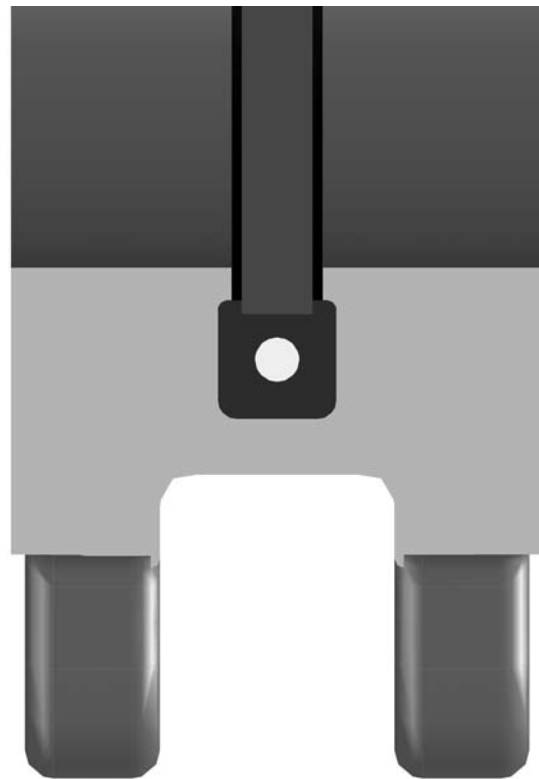
The Bi-Directional Knife Gate Valve provides bubble tight shutoff in both directions up to the full rating of the valve. There is no recommended flow direction—and it does not require line pressure to seal. The interference fit between the gate and seat provides bubble tight shutoff even under the lowest pressure. The valve can be used in either direction on dead end service.

## Size Range and Pressure

The DeZURIK Bi-Directional Knife Gate Valve comes in sizes 2" - 36" (50mm—900mm).

2" - 24" (50mm—600mm) 150 psig CWP (1035 kPa)

30" - 36" (750mm—900mm) 100 psig CWP (690 kPa)



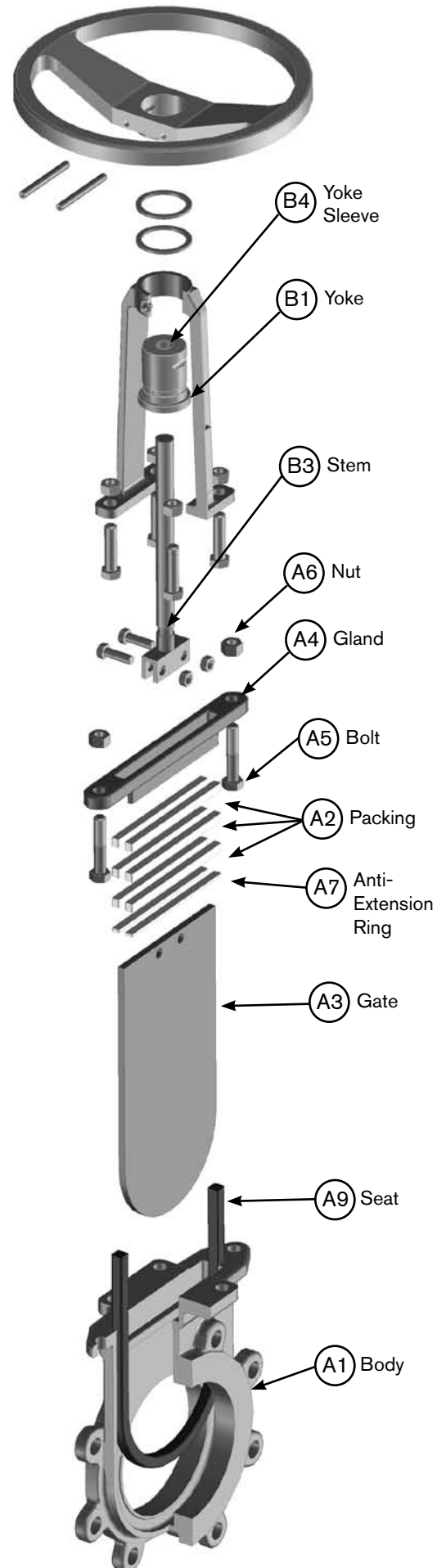
## Materials of Construction

| Item | Description          | Material  |
|------|----------------------|---|
| A1   | Body                 | 304 Stainless Steel ASTM A351 CF8                                   |
|      |                      | 304 Stainless Steel ASTM A351 CF8                                   |
|      |                      | 316 Stainless Steel ASTM A351 CF8M                                  |
|      |                      | 317 Stainless Steel ASTM A351 CG8M                                  |
| A2   | Packing              | Teflon w/ PTFE anti-extrusion plate 500°F (260°C)                   |
|      |                      | Dry Service-Dry Teflon with PTFE anti-extrusion plate 500°F (260°C) |
| A3   | Gate                 | 304 Stainless Steel ASTM A240                                       |
|      |                      | 316 Stainless Steel ASTM A240                                       |
|      |                      | 317 Stainless Steel ASTM A240                                       |
|      |                      | 254 Alloy 20  |
|      |                      | Hastelloy C 17-4 Stainless Steel Hardened                           |
|      |                      | 420 Stainless Steel Hardened  |
| A4   | Gland                | 304 Stainless Steel ASTM A351 CF8                                   |
|      |                      | 316 Stainless Steel ASTM A351 CF8M                                  |
| A5   | Bolt                 | 18-8 Stainless Steel  |
| A6   | Nut                  | 18-8 Stainless Steel  |
| A7   | Anti-Extrusion Plate | Glass-filled PTFE   |
| A9   | Seat                 | Chloroprene   |
|      |                      | Acrylonitrile Butadiene   |
|      |                      | Terpolymer of Ethylene Propylene and a Diene                        |
|      |                      | Flouro Rubber   |
| B1   | Yoke                 | 304 Stainless Steel CF8   |
| B3   | Stem                 | 304 Stainless Steel ASTM A276                                       |
|      |                      | 17-4 Stainless Steel ASTM A630 on 14" & 16" Valve with 16" Cyl      |
| B4   | Yoke Sleeve          | Aluminum Bronze   |

## Applicable Standards

DeZURIK KCB Knife Gate Valves are designed and/or tested to meet the following standards:

|                                 |   |
|---------------------------------|---|
| TAPPI TIS 405-8                 | Recommendations for Stainless Steel, Bonnetless, Flanged, Water and Knife Gate Valves                               |
| MSS SP-81                       | Stainless Steel, Bonnetless, Flanged Knife Gate Valves  |
| ANSI B16.5- 2-24" (50-60mm)     | Carbon Steel Flanges and Flanged Fittings, ANSI 150. conforms to related drilling dimensions.                       |
| ANSI 16.47- 30-36" (750-1200mm) | Large diameter Steel Flanges. Series A. Conforms to related dimensions  |
| International Standards         | Conforms to flanged bolt guides and pressure ratings- DIN 10 and ISO 7005-1PN/10; BS 4504/PN10 and AS 2129 Table D. |
|                                 | Conforms to flanged bolt guides DIN 16; ISO 7005-2 PN/16; BS 4504/PN16 and AS 2129 Table E.                         |



# Valve Selections

## Cv/Kv Values, K Factors, Area of Opening

| Valve Size          | Cv* Kv*<br>100% Open  | K Factor ** | Area of<br>Opening<br>(in <sup>2</sup> /cm <sup>2</sup> ) |
|---------------------|-----------------------|-------------|---|
| <u>2"</u><br>50mm   | <u>300</u><br>259     | 0.20        | <u>3.1</u><br>20  |
| <u>3"</u><br>80mm   | <u>675</u><br>584     | 0.18        | <u>7.1</u><br>46  |
| <u>4"</u><br>100mm  | <u>1200</u><br>1038   | 0.17        | <u>12.6</u><br>81   |
| <u>5"</u><br>125mm  | <u>1875</u><br>1622   | 0.16        | <u>19.6</u><br>127  |
| <u>6"</u><br>150mm  | <u>2700</u><br>2336   | 0.15        | <u>28.3</u><br>183  |
| <u>8"</u><br>200mm  | <u>4795</u><br>4148   | 0.14        | <u>50.3</u><br>325  |
| <u>10"</u><br>250mm | <u>7494</u><br>6479   | 0.13        | <u>78.5</u><br>506  |
| <u>12"</u><br>300mm | <u>10790</u><br>9334  | 0.13        | <u>113.1</u><br>730                                       |
| <u>14"</u><br>350mm | <u>13150</u><br>11375 | 0.13        | <u>137.9</u><br>890                                       |
| <u>16"</u><br>400mm | <u>17420</u><br>15069 | 0.12        | <u>182.7</u><br>1179                                      |
| <u>18"</u><br>450mm | <u>22290</u><br>19282 | 0.12        | <u>261.6</u><br>1688                                      |
| <u>20"</u><br>500mm | <u>27760</u><br>24014 | 0.12        | <u>291.0</u><br>1878                                      |
| <u>24"</u><br>600mm | <u>40495</u><br>35030 | 0.11        | <u>424.6</u><br>2740                                      |
| <u>30"</u><br>750mm | <u>64090</u><br>55441 | 0.11        | <u>672.0</u><br>4336                                      |
| <u>36"</u><br>900mm | 93080<br>80519        | 0.10        | <u>975.9</u><br>6297                                      |

\*Cv = Flow in GPM of water at 1 psi pressure drop.

Kv = Flow in m<sup>3</sup>/hr. of water at 100 kPa pressure drop.

\*\*The equivalent length of pipe may be calculated according to the following formula:

$L = \frac{K \times D}{f}$  Where  
 L = Equivalent length of pipe in feet  
 K = K factor - Resistance coefficient of valve  
 D = Pipe diameter in feet  
 f = Friction factor, relating to type of pipe

# Valve Selections

## Valve & Actuator Weights

Pounds.  
Kilograms

| Valve Size          | Basic Valve          | Add for Handwheel   | Add for Chainwheel | Add for Bevel Gear w/ Handwheel* | Add for Cylinder   |
|---------------------|----------------------|---------------------|--------------------|----------------------------------|--|
| <b>2"</b><br>50mm   | $\frac{9}{4.1}$      | $\frac{20}{9}$      | $\frac{32}{14.5}$  | -                                | 4" = $\frac{29}{13}$   |
| <b>3"</b><br>80mm   | $\frac{13}{6}$       | $\frac{27}{12}$     | $\frac{39}{18}$    | $\frac{88}{40}$                  | 4" = $\frac{37}{17}$   |
| <b>4"</b><br>100mm  | $\frac{20}{9.1}$     | $\frac{36}{16}$     | $\frac{48}{22}$    | $\frac{96}{43.5}$                | 4" = $\frac{45}{20}$<br>6" = $\frac{63}{29}$   |
| <b>5"</b><br>125mm  | $\frac{26}{11.8}$    | $\frac{51}{23}$     | $\frac{66}{30}$    | $\frac{108}{49}$                 | 4" = $\frac{58}{26}$<br>6" = $\frac{76}{35}$<br>8" = $\frac{88}{40}$   |
| <b>6"</b><br>150mm  | $\frac{31}{14.1}$    | $\frac{57}{26}$     | $\frac{75}{34}$    | $\frac{113}{51}$                 | 4" = $\frac{63}{29}$<br>6" = $\frac{81}{37}$<br>8" = $\frac{93}{42}$   |
| <b>8"</b><br>200mm  | $\frac{53}{24.1}$    | $\frac{86}{39}$     | $\frac{101}{46}$   | $\frac{144}{65}$                 | 6" = $\frac{112}{51}$<br>8" = $\frac{124}{56}$   |
| <b>10"</b><br>250mm | $\frac{86}{39.1}$    | $\frac{141}{64}$    | $\frac{179}{81}$   | $\frac{191}{87}$                 | 8" = $\frac{174}{79}$<br>10" = $\frac{220}{100}$<br>12" = $\frac{258}{117}$  |
| <b>12"</b><br>300mm | $\frac{125}{56.8}$   | $\frac{187}{85}$    | $\frac{227}{103}$  | $\frac{241}{109.5}$              | 8" = $\frac{225}{102}$<br>10" = $\frac{270}{123}$<br>12" = $\frac{309}{140}$   |
| <b>14"</b><br>350mm | $\frac{141}{64.1}$   | $\frac{265}{120}$   | $\frac{284}{129}$  | $\frac{303}{138}$                | 10" = $\frac{332}{151}$<br>12" = $\frac{372}{169}$   |
| <b>16"</b><br>400mm | $\frac{227}{103.2}$  | $\frac{341}{155}$   | $\frac{358}{163}$  | $\frac{380}{173}$                | 10" = $\frac{409}{186}$<br>12" = $\frac{449}{204}$<br>14" = $\frac{495}{225}$  |
| <b>18"</b><br>450mm | $\frac{294}{133.6}$  | $\frac{433}{197}$   | $\frac{449}{204}$  | $\frac{473}{215}$                | 12" = $\frac{551}{250}$<br>14" = $\frac{602}{274}$<br>16" = $\frac{813}{370}$  |
| <b>20"</b><br>500mm | $\frac{428}{194.5}$  | $\frac{593}{269.5}$ | $\frac{653}{297}$  | $\frac{637}{289.5}$              | 12" = $\frac{712}{323.5}$<br>14" = $\frac{760}{345}$<br>16" = $\frac{982}{446}$  |
| <b>24"</b><br>600mm | $\frac{561}{255}$    | $\frac{803}{365}$   | -                  | $\frac{882}{401}$                | 12" = $\frac{947}{430}$<br>14" = $\frac{1001}{455}$<br>16" = $\frac{1219}{554}$<br>18" = $\frac{1262}{574}$                                |
| <b>30"</b><br>750mm | $\frac{1143}{519.5}$ | -                   | -                  | $\frac{1595}{725}$               | 12" = $\frac{1692}{769}$<br>14" = $\frac{1768}{804}$<br>16" = $\frac{1985}{802}$<br>18" = $\frac{2205}{1002}$<br>20" = $\frac{2365}{1075}$ |
| <b>36"</b><br>900mm | $\frac{1676}{761.8}$ | -                   | -                  | $\frac{2366}{1075}$              | 14" = $\frac{2541}{1155}$<br>16" = $\frac{2755}{1252}$<br>18" = $\frac{2987}{1358}$<br>20" = $\frac{3150}{1432}$                           |

Note: Weights are approximate and do not include crating.

For Bevel Gear with Chainwheel, add the following weight to the bevel gear with handwheel weight:

2-18" add 7 lbs. (3kg)

20" & 24" add 26 lbs. (12kg)

30" add 74 lbs. (34kg)

36" add 74 lbs. (34kg)

## Ordering

To order, simply complete the valve order code from information shown. An ordering example is shown for your reference.

### Valve Style

Give valve style code as follows:  
KCB = Cast Knife Gate Valve

### Valve Size

Give size code as follows:

|                  |                  |
|------------------|------------------|
| 2 = 2" (50mm)    | 12 = 12" (300mm) |
| 3 = 3" (80mm)    | 14 = 14" (350mm) |
| 4 = 4" (100mm)   | 18 = 18" (450mm) |
| 5 = 5" (125mm)   | 20 = 20" (500mm) |
| 6 = 6" (150mm)   | 24 = 24" (600mm) |
| 8 = 8" (200mm)   | 30 = 30" (750mm) |
| 10 = 10" (250mm) | 36 = 36" (900mm) |

### End Connection

Give end connection code as follows:

Standard ANSI Drilling

F1 = ANSI

Optional

F1T = ANSI Through Bolting

International Drilling

F110 = ISO 7005/PN10 Drilling

F116 = ISO 7005/PN16 Drilling

F1DA = AS2129, Table D Drilling

F1EA = AS2129, Table E Drilling

### Body Material

Give body material code as follows:

S1 = 304 Stainless Steel

S2 = 316 Stainless Steel

Non Standard

S3 = 317 Stainless Steel

S6 = 254 Stainless Steel

AA = Alloy 20

HC = Hastelloy C 276

### Packing Material

Give packing material code as follows:

TBP = Teflon Cord w/RTFE Anti-Extrusion ring for service up to 500°F (260°C) and pH range 0-14

TDP = Dry Service, un-lubricated Teflon Cord w/ RTFE Anti-extrusion ring for service up to 500°F (260°C) and pH range 0-14

### Gate Material

Give gate material code as follows:

S1 = 304 Stainless Steel ( Standard for GV & MV models and S1 body)

S2 = 316 Stainless Steel ( Standard for GV & MV models and S2 body)

Non Standard

S3 = 317 Stainless Steel (Standard for GV models with S3 body)

S6 = 254 SMO Stainless Steel (SV model and S6 body only)

AA = Alloy 20 (SV models and AA body only)

HC = Hastelloy C 276 (SV model and HC body only)

S5 = Hardened 17-4PH Stainless Steel

S8 = 420 Series Stainless Steel

Note: The limiting factor in valve selection is the lowest temperature of the packing or seat.

### Seat Material

Give seat material code as follows:

Standard

CR = Chloroprene

NBR = Acrylonitrile Butadiene

EPDM = Terpolymer of Ethylene and a Diene

FKM = Fluoro Rubber

### Standard Options

Give options code as follows:

CRT = Certified Physical and Chemical Test Report per QY00006

### Ordering Example:

KCB, 6, F1, S1, TBP, S1-M\*Actuator

KCB, 6, F116, S1, TBP, S1-M\*Actuator

## Manual Actuators

### Handwheel & Chainwheel Actuators

All 2–24" (50–600mm) valves can be furnished with handwheel actuators, and 2–20" (50–500mm) with chainwheel actuators. Bevel gear actuators are available on 3–36" (75–900mm) valves with handwheel or chainwheel actuators.

To order handwheel or chainwheel actuators, add the appropriate order code to the basic valve order code. Refer to information on bevel gear actuators for use on dry solids, paper stock, slurries or when pressure exceeds limits shown. Order chain for chainwheel actuators as a separate item

### Handwheel Actuator Sizing

| Valve Size               | Order Code | Max. Pressure Differential<br>psi/kPa |
|--------------------------|------------|---------------------------------------|
| <u>2-3"</u><br>50-80 mm  | MN-HD8-S1  | <u>150</u><br>1030                    |
| <u>4"</u><br>100mm       | MN-HD10-S1 | <u>150</u><br>1030                    |
| <u>5-6"</u><br>125-150mm | MN-HD12-S1 | <u>150</u><br>1030                    |
| <u>8"</u><br>200mm       | MN-HD14-S1 | <u>75</u><br>579                      |
| <u>10"</u><br>250mm      | MN-HD16-S1 | <u>50</u><br>345                      |
| <u>12"</u><br>300mm      | MN-HD17-S1 | <u>25</u><br>255                      |
| <u>14"</u><br>350mm      | MN-HD18-S1 | <u>25</u><br>172                      |
| <u>16"</u><br>400mm      | MN-HD18-S1 | <u>25</u><br>172                      |
| <u>18"</u><br>450mm      | MN-HD20-S1 | <u>10</u><br>83                       |
| <u>20"</u><br>500mm      | MN-HD20-S1 | <u>10</u><br>69                       |
| <u>24"</u><br>600mm      | MN-HD25-S1 | <u>10</u><br>62                       |

\*Bevel gear actuators are recommended when pressure exceeds limits shown

### Chainwheel Actuator Sizing

| Valve Size               | Order Code | Max. Pressure Differential<br>psi/kPa |
|--------------------------|------------|---------------------------------------|
| <u>2-4"</u><br>50-100mm  | MN-CW8-S1  | <u>150</u><br>1030                    |
| <u>5-6"</u><br>125-150mm | MN-CW12-S1 | <u>150</u><br>1030                    |
| <u>8"</u><br>200mm       | MN-CW12-S1 | <u>50</u><br>448                      |
| <u>10"</u><br>250 mm     | MN-CW20-S1 | <u>50</u><br>469                      |
| <u>14"</u><br>350mm      | MN-CW20-S1 | <u>25</u><br>207                      |
| <u>16"</u><br>400mm      | MN-CW20-S1 | <u>25</u><br>172                      |
| <u>18"</u><br>450mm      | MN-CW20-S1 | <u>10</u><br>83                       |
| <u>20"</u><br>500mm      | MN-CW30-S1 | <u>25</u><br>152                      |

\*Bevel gear actuators are recommended when pressure exceeds limits shown

## Bevel Gear Actuators

Bevel gear actuators provide vertical mounting of the handwheel or chainwheel, or can be used where space limitations prohibit the use of a standard handwheel or chainwheel. A mechanical advantage makes large valve operation easier and faster.

## Actuator Mounting

Bevel gears can be mounted at standard, 90, 180 or 270 degree mounting. To order, use the appropriate order code from the chart for standard or 180 degree mounting, or 90 or 270 degree mounting. Specify which position as second line information.

### Bevel Gear Handwheel Actuator

| Valve Size                 | Order Code        |                 | Max. Pressure Differential psi/kPa |                    |                    |                    |
|----------------------------|-------------------|-----------------|------------------------------------|--------------------|--------------------|--------------------|
|                            | Std./180 Mounting | 90/270 Mounting | BG3                                | BG4                | BG42               | BG44               |
| <b>3-10"</b><br>80-250mm   | MNB-HG3-CS        | MNB-HG3-A-CS    | <u>150</u><br>1030                 | -                  | -                  | -                  |
| <b>12"</b><br>300mm        | MNB-H**-CS        | MNB-H**-A-CS    | <u>75</u><br>515                   | <u>150</u><br>1030 | -                  | -                  |
| <b>14"</b><br>350mm        | MNB-H**-CS        | MNB-H**-A-CS    | <u>25</u><br>172                   | <u>50</u><br>343   | <u>150</u><br>1030 | -                  |
| <b>16"</b><br>400mm        | MNB-H**-CS        | MNB-H**-A-CS    | <u>50</u><br>343                   | <u>100</u><br>687  | <u>150</u><br>1030 | -                  |
| <b>18-20"</b><br>450-500mm | MNB-H**-CS        | MNB-H**-A-CS    | <u>50</u><br>343                   | <u>75</u><br>515   | <u>150</u><br>1030 | -                  |
| <b>24"</b><br>600mm        | MNB-H**-CS        | MNB-H**-A-CS    | <u>25</u><br>172                   | <u>50</u><br>343   | <u>100</u><br>687  | <u>150</u><br>1030 |
| <b>30"</b><br>750mm        | MNB-H**-CS        | MNB-H**-A-CS    | <u>25</u><br>172                   | -                  | <u>75</u><br>515   | -                  |
| <b>36"</b><br>900mm        | MNB-H**-CS        | MNB-H**-A-CS    | -                                  | <u>25</u><br>172   | <u>50</u><br>343   | <u>75</u><br>515   |

#### Ordering Example:

KCB,6,F1,S1,TBPS1-M\*MNB-G3C-A-CS

### Bevel Gear Chainwheel Actuator

| Valve Size               | Order Code        |                 | Max. Pressure Differential psi/kPa |                    |                    |                    |
|--------------------------|-------------------|-----------------|------------------------------------|--------------------|--------------------|--------------------|
|                          | Std./180 Mounting | 90/270 Mounting | BG3                                | BG4                | BG42               | BG44               |
| <b>3-10"</b><br>80-250mm | MNB-CG3-CS        | MNB-CG3-A-CS    | <u>150</u><br>1030                 | -                  | -                  | -                  |
| <b>12"</b><br>300mm      | MNB-C**-CS        | MNB-C**-A-CS    | <u>75</u><br>515                   | <u>150</u><br>1030 | -                  | -                  |
| <b>14"</b><br>350mm      | MNB-C**-CS        | MNB-C**-A-CS    | <u>25</u><br>172                   | <u>50</u><br>343   | <u>150</u><br>1030 | -                  |
| <b>16"</b><br>400mm      | MNB-C**-CS        | MNB-C**-A-CS    | <u>50</u><br>343                   | <u>100</u><br>687  | <u>150</u><br>1030 | -                  |
| <b>18"</b><br>450mm      | MNB-C**-CS        | MNB-C**-A-CS    | <u>75</u><br>515                   | <u>75</u><br>515   | <u>150</u><br>1030 | -                  |
| <b>20"</b><br>500mm      | MNB-C**-CS        | MNB-C**-A-CS    | <u>50</u><br>343                   | <u>75</u><br>515   | <u>150</u><br>1030 | -                  |
| <b>24"</b><br>600mm      | MNB-C**-CS        | MNB-C**-A-CS    | <u>25</u><br>172                   | <u>50</u><br>343   | <u>125</u><br>858  | <u>150</u><br>1030 |
| <b>30"</b><br>750mm      | MNB-C**-CS        | MNB-C**-A-CS    | <u>25</u><br>172                   | -                  | <u>75</u><br>515   | -                  |
| <b>36"</b><br>900mm      | MNB-C**-CS        | MNB-C**-A-CS    | -                                  | <u>25</u><br>172   | <u>50</u><br>343   | <u>75</u><br>515   |

#### Ordering Example:

KCB,6,F1,S1,TBPS1-M\*MNB-CW12-CS

\*\* This section calls out the bevel gear actuator model and handwheel or chainwheel.

- G3H = Handwheel with BG3
- G4H = Handwheel with BG4
- G42H = Handwheel with BG42
- G44H = Handwheel with BG33
- G3C = Chainwheel with BG3
- G4C = Chainwheel with BG4
- G42C = Chainwheel with BG42
- G44C = Chainwheel with BG44

## Accessories-Manual Actuators

### Chain

Chain for use with chainwheel actuators. Order as a separate item by giving code from table and specifying length of chain as second line information. Order as a separate item.

| Chain Type          | Order Code |
|---------------------|------------|
| Standard            | ACC*CN102  |
| Galvanized          | ACC*CN103  |
| 304 Stainless Steel | ACC*CN106  |

**Ordering Example:**

ACC\*CN102

Chain 12 feet long (366cm)

### Handwheel—2” Nut Extension

Provides extension of the handwheel or nut to allow remote operation — normally from above. The extension includes fittings and extension pipe with handwheel or nut mounted. To order, specify description and extension length from center line of valve to top of handwheel or nut.

**Ordering Examples:**

KCB,6,F1,S1,TBP,S1-M\*MN-HD12,ENHD

KCB6,F1,S1,TBA,S1-M\*MN-N,ENTS

Center line of valve to top of handwheel /nut 72” (1829mm).

### Locking Device

Available on 2-36” sizes of handwheel, cylinder and bevel gear handwheel operated valves. To order, add a comma and the order code “LK” after the actuator code.

**Ordering Examples:**

KCB,6,F1,S1,TBP,S1-M\*MN-HD12,-CS, LK

### Floorstand

A floorstand for handwheel actuated valves allows operation from above. Includes floorstand with gate position indicator, handwheel, fittings and extension. To order, specify length from center line of valve to base of floorstand. This dimension must be at least twice the dimension from center line to handwheel. For non-rising stems only. Rising stems on application.

**Ordering Examples:**

KCB,6,F1,S1,TBP,S1-M\*MN-HD12-S1

Except with Floorstand. Center line of valve to base of floorstand 72” (1829mm)

## Cylinder Actuators

### On-Off Cylinder Actuators

DeZURIK cylinder actuators are available with double-acting pneumatic or hydraulic cylinders for on/off or positioning services. Supply pressure is 60 or 80 psi (410 or 550 kPa). To order, add the proper code from the on/off column of the table to the valve order code. Specify hydraulic media if other than oil.

### Actuator Sizing

60 psi (410 kPa) Air Supply

| Valve Size          | Actuator Order Code | Max. Pressure Differential (psi/kPa) |                 |
|---------------------|---------------------|--------------------------------------|-----------------|
|                     |                     | On - Off                             |                 |
|                     |                     | Dry Solids, Slurries, & Paper Stock  | Liquids & Gases |
| <b>2"</b><br>50mm   | CY-PC4              | 50                                   | 150             |
|                     |                     | 340                                  | 1030            |
| <b>3"</b><br>80mm   | CY-PC4              | 25                                   | 75              |
|                     | CY-PC6              | 170                                  | 520             |
| <b>4"</b><br>100mm  | CY-PC4              | 150                                  | 150             |
|                     | CY-PC6              | 1030                                 | 1030            |
| <b>5"</b><br>125 mm | CY-PC4              | -                                    | 25              |
|                     | CY-PC6              | -                                    | 170             |
| <b>6"</b><br>150 mm | CY-PC6              | 125                                  | 150             |
|                     | CY-PC8              | 860                                  | 1030            |
| <b>8"</b><br>200mm  | CY-PC4              | -                                    | 25              |
|                     | CY-PC6              | -                                    | 170             |
| <b>10"</b><br>250mm | CY-PC6              | 50                                   | 75              |
|                     | CY-PC8              | 340                                  | 520             |
| <b>12"</b><br>300mm | CY-PC8              | 100                                  | 150             |
|                     | CY-PC10             | 690                                  | 1030            |
| <b>14"</b><br>350mm | CY-PC6              | -                                    | 25              |
|                     | CY-PC8              | -                                    | 170             |
| <b>16"</b><br>400mm | CY-PC10             | 25                                   | 50              |
|                     | CY-PC12             | 170                                  | 340             |
| <b>18"</b><br>450mm | CY-PC14             | 50                                   | 75              |
|                     | CY-PC16             | 340                                  | 520             |
| <b>20"</b><br>500mm | CY-PC18             | 75                                   | 100             |
|                     | CY-PC20             | 520                                  | 690             |
| <b>24"</b><br>600mm | CY-PC12             | 100                                  | 125             |
|                     | CY-PC16             | 690                                  | 860             |
| <b>30"</b><br>750mm | CY-PC12             | -                                    | 25              |
|                     | CY-PC14             | -                                    | 170             |
| <b>36"</b><br>900mm | CY-PC16             | 25                                   | 50              |
|                     | CY-PC18             | 170                                  | 340             |

### Positioning Cylinder Actuators

DeZURIK cylinder actuators are available with pneumatic or electronic positioners for throttling control. Positioners are enclosed and mounted on the superstructure.

| Valve Size          | Actuator Order Code | Max. Pressure Differential (psi/kPa) |                 |
|---------------------|---------------------|--------------------------------------|-----------------|
|                     |                     | On - Off                             |                 |
|                     |                     | Dry Solids, Slurries, & Paper Stock  | Liquids & Gases |
| <b>16"</b><br>400mm | CY-PC10             | -                                    | 25              |
|                     | CY-PC12             | -                                    | 170             |
|                     | CY-PC14             | 25                                   | 50              |
|                     | CY-PC16             | 170                                  | 340             |
| <b>18"</b><br>450mm | CY-PC14             | 50                                   | 75              |
|                     | CY-PC16             | 340                                  | 520             |
|                     | CY-PC18             | 75                                   | 100             |
|                     | CY-PC20             | 520                                  | 690             |
| <b>20"</b><br>500mm | CY-PC18             | 100                                  | 125             |
|                     | CY-PC20             | 690                                  | 860             |
|                     | CY-PC12             | -                                    | 25              |
|                     | CY-PC14             | -                                    | 170             |
| <b>24"</b><br>600mm | CY-PC16             | 25                                   | 50              |
|                     | CY-PC18             | 170                                  | 340             |
|                     | CY-PC20             | 50                                   | 75              |
|                     | CY-PC12             | -                                    | 25              |
| <b>30"</b><br>750mm | CY-PC14             | -                                    | 170             |
|                     | CY-PC16             | -                                    | 50              |
|                     | CY-PC18             | -                                    | 340             |
|                     | CY-PC20             | 50                                   | 75              |
| <b>36"</b><br>900mm | CY-PC20             | 340                                  | 520             |
|                     | CY-PC14             | -                                    | 25              |
|                     | CY-PC16             | -                                    | 170             |

## Actuator Sizing

80 psi (550 kPa) Air Supply

| Valve Size          | Actuator Order Code | Max. Pressure Differential (psi/kPa) |                 |
|---------------------|---------------------|--------------------------------------|-----------------|
|                     |                     | On - Off                             |                 |
|                     |                     | Dry Solids, Slurries, & Paper Stock  | Liquids & Gases |
| <b>2"</b><br>50mm   | CY-PC4              | 150                                  | 150             |
|                     |                     | 1030                                 | 1030            |
| <b>3"</b><br>80mm   | CY-PC4              | 75                                   | 150             |
|                     |                     | 520                                  | 1030            |
| <b>4"</b><br>100mm  | CY-PC4              | 25                                   | 75              |
|                     |                     | 170                                  | 520             |
| <b>5"</b><br>125 mm | CY-PC6              | 150                                  | 150             |
|                     |                     | 1030                                 | 1030            |
| <b>6"</b><br>150 mm | CY-PC6              | 25                                   | 50              |
|                     |                     | 170                                  | 340             |
|                     |                     | 125                                  | 860             |
| <b>8"</b><br>200mm  | CY-PC6              | 75                                   | 125             |
|                     |                     | 520                                  | 860             |
|                     |                     | 150                                  | 150             |
| <b>10"</b><br>250mm | CY-PC8              | 170                                  | 340             |
|                     |                     | 75                                   | 125             |
|                     |                     | 520                                  | 860             |
| <b>12"</b><br>300mm | CY-PC10             | 125                                  | 150             |
|                     |                     | 860                                  | 1030            |
|                     |                     | 150                                  | -               |
|                     |                     | 1030                                 | -               |
| <b>14"</b><br>350mm | CY-PC10             | 25                                   | 50              |
|                     |                     | 170                                  | 340             |
|                     |                     | 50                                   | 100             |
|                     |                     | 340                                  | 690             |
| <b>16"</b><br>400mm | CY-PC12             | 100                                  | 150             |
|                     |                     | 690                                  | 1030            |
|                     |                     | 125                                  | -               |
|                     |                     | 860                                  | -               |
| <b>18"</b><br>450mm | CY-PC12             | 25                                   | 50              |
|                     |                     | 170                                  | 340             |
|                     |                     | 50                                   | 75              |
|                     |                     | 340                                  | 520             |
| <b>20"</b><br>500mm | CY-PC12             | 75                                   | 100             |
|                     |                     | 520                                  | 690             |
|                     |                     | 125                                  | -               |
|                     |                     | 860                                  | -               |
| <b>24"</b><br>600mm | CY-PC12             | 25                                   | 25              |
|                     |                     | 170                                  | 170             |
|                     |                     | 50                                   | 75              |
|                     |                     | 340                                  | 520             |
| <b>30"</b><br>750mm | CY-PC12             | 100                                  | 125             |
|                     |                     | 690                                  | 860             |
|                     |                     | 75                                   | 100             |
|                     |                     | 520                                  | 690             |
| <b>36"</b><br>900mm | CY-PC12             | 150                                  | 150             |
|                     |                     | 1030                                 | 1030            |
|                     |                     | 25                                   | -               |
|                     |                     | 170                                  | -               |

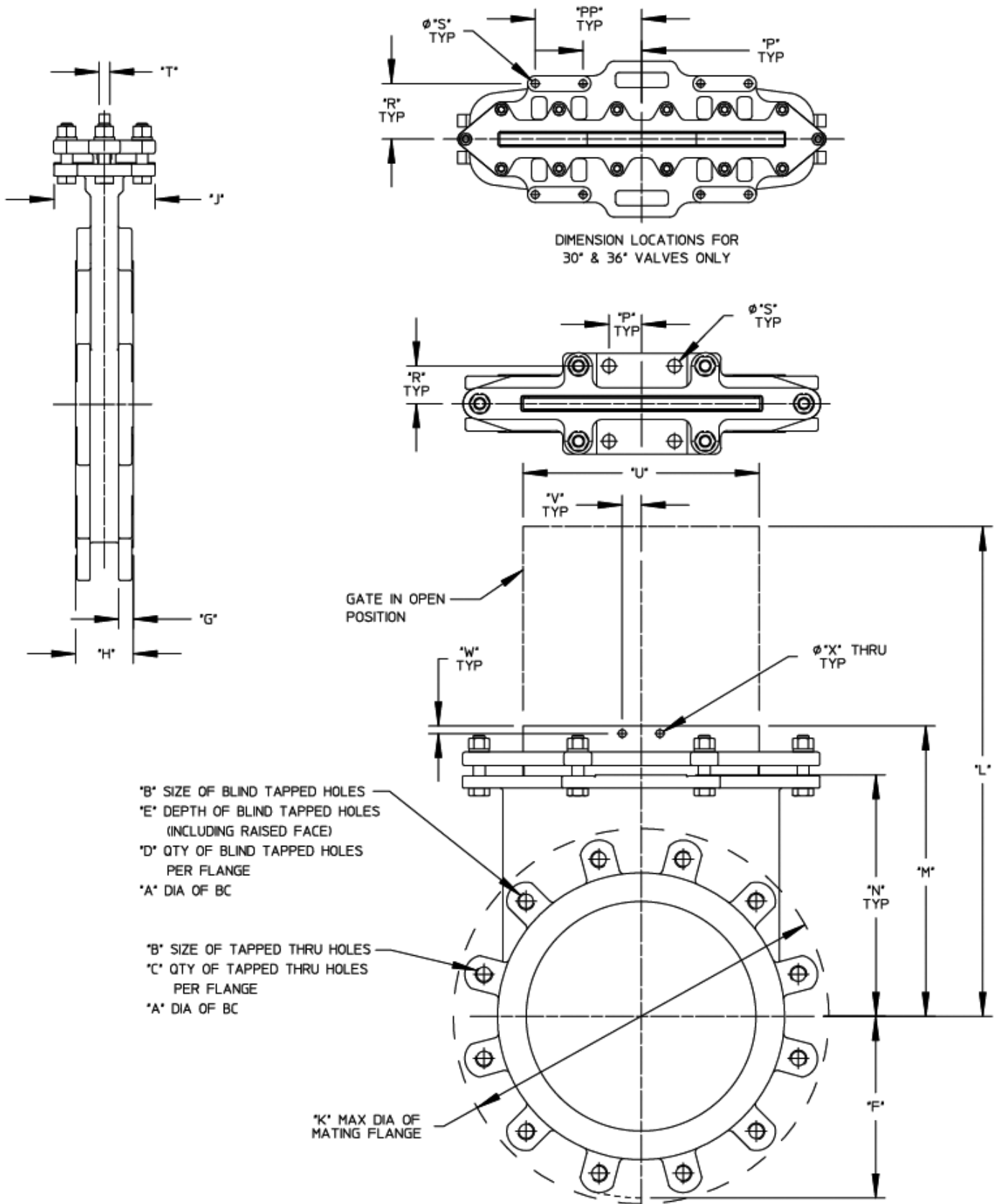
| Valve Size          | Actuator Order Code | Max. Pressure Differential (psi/kPa) |                 |
|---------------------|---------------------|--------------------------------------|-----------------|
|                     |                     | On - Off                             |                 |
|                     |                     | Dry Solids, Slurries, & Paper Stock  | Liquids & Gases |
| <b>16"</b><br>400mm | CY-PC10             | 25                                   | 50              |
|                     | CY-PC12             | 170                                  | 340             |
|                     | CY-PC14             | 50                                   | 75              |
|                     | CY-PC16             | 340                                  | 520             |
| <b>18"</b><br>450mm | CY-PC14             | 75                                   | 100             |
|                     | CY-PC16             | 520                                  | 690             |
|                     | CY-PC18             | 100                                  | 150             |
|                     | CY-PC20             | 690                                  | 1030            |
| <b>20"</b><br>500mm | CY-PC16             | 125                                  | -               |
|                     | CY-PC18             | 860                                  | -               |
|                     | CY-PC12             | 25                                   | 50              |
|                     | CY-PC14             | 170                                  | 340             |
| <b>24"</b><br>600mm | CY-PC14             | -                                    | 75              |
|                     | CY-PC16             | -                                    | 520             |
|                     | CY-PC18             | 50                                   | 125             |
|                     | CY-PC20             | 340                                  | 860             |
| <b>30"</b><br>750mm | CY-PC18             | 75                                   | 150             |
|                     | CY-PC20             | 520                                  | 1030            |
|                     | CY-PC12             | -                                    | 25              |
|                     | CY-PC14             | 170                                  | 50              |
| <b>36"</b><br>900mm | CY-PC16             | 25                                   | 340             |
|                     | CY-PC18             | 170                                  | 520             |
|                     | CY-PC14             | -                                    | -               |
|                     | CY-PC20             | -                                    | -               |

## Ordering

When ordering electric motor actuators, specify valve order code, shutoff pressure, service conditions — flowing media and installation direction; type of application — on/off or throttling; speed of operation; NEMA rating — 4, 7, submersible, etc.; electrical characteristics — voltage and phase; actuator accessories and controls as per specification requirements.

### Basic Valve Dimensions

| Valve Size   | Dimensions    |             |    |    |            |              |            |             |              |               |               |               |              |             |              |             |           |            |              |            |            |           |
|--------------|---------------|-------------|----|----|------------|--------------|------------|-------------|--------------|---------------|---------------|---------------|--------------|-------------|--------------|-------------|-----------|------------|--------------|------------|------------|-----------|
|              | Inches        |             |    |    |            |              |            |             |              | Millimeters   |               |               |              |             |              |             |           |            |              |            |            |           |
| A            | B             | C           | D  | E  | F          | G            | H          | J           | K            | L             | M             | N             | P            | PP          | R            | S           | T         | U          | V            | W          | X          |           |
| 2"<br>50mm   | 4.75<br>121   | 5/8-11 UNC  | 2  | 2  | .49<br>11  | 3.00<br>76   | .50<br>13  | 1.88<br>48  | 3.50<br>89   | 6.25<br>159   | 7.65<br>194   | 5.47<br>139   | 3.62<br>92   | 1.32<br>34  | N/A          | 1.32<br>34  | .43<br>11 | .28<br>7   | 2.35<br>60   | .75<br>19  | .39<br>10  | .41<br>11 |
| 3"<br>80mm   | 6.00<br>152   | 5/8-11 UNC  | 2  | 2  | .49<br>12  | 3.75<br>95   | .50<br>13  | 2.00<br>51  | 3.50<br>89   | 7.75<br>197   | 9.64<br>245   | 6.46<br>164   | 4.47<br>114  | 1.32<br>34  | N/A          | 1.32<br>34  | .43<br>11 | .28<br>7   | 3.35<br>85   | .75<br>19  | .39<br>10  | .41<br>11 |
| 4"<br>100mm  | 7.50<br>191   | 5/8-11 UNC  | 6  | 2  | .49<br>12  | 4.50<br>114  | .50<br>13  | 2.00<br>51  | 3.46<br>88   | 9.00<br>229   | 11.49<br>292  | 7.31<br>186   | 5.26<br>134  | 1.32<br>34  | N/A          | 1.32<br>34  | .43<br>11 | .28<br>7   | 4.35<br>111  | .75<br>19  | .39<br>10  | .41<br>11 |
| 5"<br>125mm  | 8.50<br>216   | 3/4-10 UNC  | 6  | 2  | .63<br>16  | 5.00<br>127  | .63<br>16  | 2.25<br>57  | 4.09<br>104  | 10.88<br>276  | 14.03<br>356  | 8.85<br>225   | 6.34<br>161  | 1.61<br>41  | N/A          | 1.52<br>39  | .57<br>15 | .30<br>8   | 5.35<br>136  | .75<br>19  | .39<br>10  | .41<br>11 |
| 6"<br>150mm  | 9.50<br>241   | 3/4-10 UNC  | 6  | 2  | .63<br>16  | 5.50<br>140  | .63<br>16  | 2.25<br>57  | 4.72<br>120  | 12.13<br>308  | 15.49<br>393  | 9.31<br>236   | 6.65<br>177  | 1.61<br>41  | N/A          | 1.52<br>39  | .57<br>15 | .30<br>8   | 6.35<br>161  | .75<br>19  | .39<br>10  | .41<br>11 |
| 8"<br>200mm  | 11.75<br>298  | 3/4-10 UNC  | 6  | 2  | .63<br>16  | 6.75<br>171  | .63<br>16  | 2.75<br>70  | 4.72<br>120  | 15.38<br>391  | 19.28<br>490  | 11.10<br>282  | 8.79<br>223  | 1.71<br>44  | N/A          | 1.71<br>44  | .69<br>18 | .36<br>9   | 8.33<br>212  | .98<br>25  | .39<br>10  | .41<br>11 |
| 10"<br>250mm | 14.25<br>362  | 7/8-9 UNC   | 8  | 4  | .73<br>19  | 8.00<br>203  | .75<br>19  | 2.75<br>70  | 5.20<br>132  | 18.63<br>473  | 23.19<br>589  | 13.01<br>330  | 10.71<br>272 | 1.71<br>44  | N/A          | 1.89<br>48  | .69<br>18 | .43<br>11  | 10.35<br>263 | .98<br>25  | .39<br>10  | .41<br>11 |
| 12"<br>300mm | 17.00<br>432  | 7/8-9 UNC   | 8  | 4  | .59<br>15  | 9.50<br>241  | .75<br>19  | 3.00<br>76  | 5.28<br>134  | 22.75<br>578  | 27.36<br>695  | 15.18<br>386  | 12.63<br>321 | 1.71<br>44  | N/A          | 1.97<br>50  | .69<br>18 | .55<br>14  | 12.35<br>314 | .98<br>25  | .39<br>10  | .41<br>11 |
| 14"<br>350mm | 18.75<br>476  | 7/8-9 UNC   | 8  | 4  | .73<br>19  | 10.50<br>267 | .87<br>22  | 3.00<br>76  | 5.16<br>131  | 24.00<br>610  | 31.31<br>791  | 17.70<br>450  | 14.98<br>381 | 1.71<br>44  | N/A          | 1.91<br>49  | .69<br>18 | .59<br>15  | 13.61<br>346 | .98<br>25  | .39<br>10  | .41<br>11 |
| 16"<br>400mm | 21.25<br>540  | 1-8 UNC     | 10 | 6  | .82<br>21  | 11.75<br>299 | .94<br>24  | 3.50<br>89  | 5.75<br>146  | 26.00<br>660  | 36.20<br>919  | 20.77<br>528  | 17.38<br>442 | 1.71<br>44  | N/A          | 2.17<br>55  | .69<br>18 | .77<br>20  | 15.41<br>397 | 1.18<br>30 | .55<br>14  | .55<br>14 |
| 18"<br>450mm | 22.75<br>578  | 1-1/8-7 UNC | 10 | 6  | .77<br>20  | 12.50<br>318 | 1.00<br>25 | 3.50<br>89  | 5.75<br>146  | 29.50<br>749  | 40.28<br>1023 | 22.85<br>580  | 19.38<br>492 | 1.71<br>44  | N/A          | 2.17<br>55  | .69<br>18 | .77<br>20  | 17.61<br>447 | 1.18<br>30 | .55<br>14  | .55<br>14 |
| 20"<br>500mm | 25.00<br>635  | 1-1/8-7 UNC | 12 | 8  | 1.00<br>25 | 13.75<br>349 | 1.00<br>25 | 4.50<br>114 | 8.03<br>204  | 28.50<br>724  | 43.98<br>1117 | 24.55<br>624  | 21.38<br>543 | 2.11<br>54  | N/A          | 3.31<br>84  | .69<br>18 | .96<br>25  | 19.61<br>468 | 1.18<br>30 | .55<br>14  | .55<br>14 |
| 24"<br>600mm | 29.50<br>749  | 1-1/4-7 UNC | 12 | 8  | 1.07<br>27 | 16.00<br>406 | 1.06<br>27 | 4.50<br>114 | 13.00<br>330 | 32.50<br>826  | 51.86<br>1317 | 28.43<br>722  | 25.38<br>645 | 2.11<br>54  | N/A          | 4.13<br>105 | .69<br>18 | .96<br>25  | 23.61<br>600 | 1.18<br>30 | .55<br>14  | .55<br>14 |
| 30"<br>750mm | 36.22<br>920  | 1-1/4-7 UNC | 16 | 23 | 1.26<br>32 | 19.37<br>492 | 1.38<br>35 | 5.35<br>136 | 16.30<br>414 | 41.00<br>1041 | 67.82<br>1723 | 38.33<br>674  | 31.57<br>802 | 6.14<br>156 | 11.14<br>283 | 5.81<br>148 | .81<br>21 | 1.18<br>30 | 39.72<br>755 | 1.97<br>50 | 1.44<br>37 | .81<br>21 |
| 36"<br>900mm | 42.75<br>1086 | 1-1/2-6 UNC | 20 | 12 | 1.10<br>28 | 23.00<br>584 | 1.61<br>41 | 6.30<br>160 | 16.30<br>414 | 48.00<br>1219 | 77.86<br>1978 | 41.56<br>1056 | 35.63<br>905 | 6.14<br>156 | 11.14<br>283 | 5.81<br>148 | .81<br>21 | 1.42<br>36 | 35.79<br>909 | 1.97<br>50 | 1.44<br>37 | .81<br>21 |



Note:

1. Valve is shown in the closed position.
2. Valve ordered with thru bolting have all holes, except those that are blind tapped. Drilled to ANSI standards Class 125 & 150.
3. Drawing shows flange drillings for use with ANSI flanges, for use with other than ANSI flanges, see DeZURIK drawing A-64605.
4. Vee Orifice option is shown on drawing with phantom lines. Flow must be from side opposite the seat.
5. Install the valve with the higher pressure against the side opposite the seat when the valve is closed. Flow may be in either direction.

## Accessories

### Positioners

DeZURIK cylinder actuators are available with pneumatic or electro-pneumatic or digital positioners for throttling control. Positioners are enclosed and mounted on the yoke.

### Air Filter Regulator

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

#### Ordering Example:

ACC\*CNP025

### Manual Loading Station Control Panel

For all positioning pneumatic actuators. Output is 0–15 psi (0–100 kPa). It includes signal output gauge and pressure reducing valve. Order as a separate item by giving code ACC\*CNP025.

### Four-Way Manual Control Valves

Four-Way Manual Control Valves are for all pneumatic or hydraulic double-acting cylinder actuators. They are available mounted or as a separate item. To order mounted as part of a complete valve and actuator assembly, add code from table below to valve and actuator order code. To order separately, enter code ACC\* followed by code from table below.

| Valve Size         | NPT Size (Inches) | Code  |
|--------------------|-------------------|-------|
| 2–36" (50–900mm)   | 1/4"              | CV201 |
| 2–10" (50–250mm)   | 3/8"              | CV202 |
| 12–36" (300–900mm) | 1/2"              | CV203 |

#### Ordering Example:

KCS,6,F1,S2,TBP,S2-M\*CY-PC6,CV201

#### Ordering Example (Separate Item):

ACC\*CV201

### 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.

### Speed Control Valves

Speed Control Valves are available for controlling valve opening or closing speed with pneumatic actuators. The speed of operation is adjustable. To order mounted, add the appropriate code to the valve and actuator order code.

| Speed Control        | Order Code |
|----------------------|------------|
| Two speed controls   | SP         |
| One control to close | SPC        |
| One control to open  | SPO        |

#### Ordering Example:

KCS,6,F1,S2,TBP,S2-M\*CY-PC6, CS,SP

## Accessories

### 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, Brass Housing | Proximity   | No Approval         | SEH93      |
| 2 SPDT, SST Housing   | Proximity   | UL, CSA, FA*        | SEH94      |

\* Class I, Div. I, 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, Brass Housing | Proximity   | No Approval         | SEJ36      |
| 1 SPDT, SST Housing   | Proximity   | UL, CSA, FA*        | SEJ38      |

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

#### 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, Brass Housing | Proximity   | No Approval         | SEJ37      |
| 1 SPDT, SST Housing   | Proximity   | UL, CSA, FA*        | SEJ39      |

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

## **Sales and Service**

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

Web Site: [www.dezurik.com](http://www.dezurik.com) E-Mail: [info@dezurik.com](mailto:info@dezurik.com)



250 Riverside Ave. N. Sartell, Minnesota 56377 • Phone: 320-259-2000 • Fax: 320-259-2227

*DeZURIK 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. Certified drawings are available upon request.*