

DeZURIK PTW/PFW 3-WAY & 4-WAY PLUG VALVES



Design & Construction

DeZURIK 3- and 4-Way valves are designed for throttling and diversion of clean, dirty, viscous and corrosive liquids; sludge, abrasive and fibrous slurries; and clean, dirty and corrosive gases.

They feature single and double tapered plug styles, which can be arranged into a variety of flow combinations. Resilient seated plugs are available for dead-tight shutoff with lever and double handwheel actuators only. All metal plugs are available for high temperature applications but will not provide dead-tight shut off. Single handwheel and powered actuators are available for throttling and diversion applications and do not provide dead-tight shut-off.

DeZURIK 3- and 4-Way valves are ideally suited for refiner bypass and refiner isolation applications. Properly applied, the valves eliminate dead spots and reverse pressure problems typically associated with other valve styles.

Tapered Plug Design

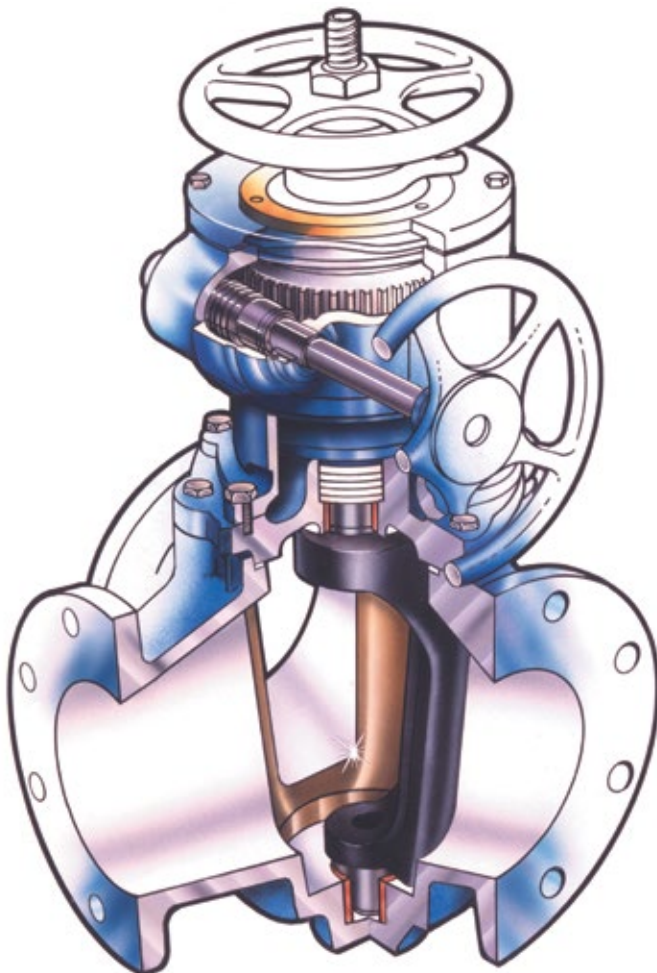
The DeZURIK tapered plug design meets the requirements of all 3- and 4-Way valve applications. Lift, turn, reseal operation combined with resilient plug facings provide dead-tight shutoff on valves with lever or double handwheel actuators. On metal seated and hard rubber lined valves, a clearance between the plug and seat assures smooth and easy valve operation.

Corrosion-Resistant Bearings

Heavy-duty bearings resist corrosion to prevent binding and assure lasting easy valve operation without lubrication. The machined bearings of 316 stainless steel are furnished in the body and bonnet. Hard rubber bearings are furnished in hard rubber lined valves.

Long-Life Stem Seal

The packing and packing gland are accessible without disassembly of the valve. Multiple V-ring packing provides a reliable seal that rarely requires adjustment or replacement, even when the valve is operated continuously. If required, the packing gland permits easy adjustment.



All-Metal Plugs

All-metal plugs are available for high temperature or throttling applications. Metal plugs are furnished in the same material as the valve body, except cast iron valves which feature stainless steel plugs. All-metal plugs can be used with manual and powered actuators where dead-tight shutoff is not required.



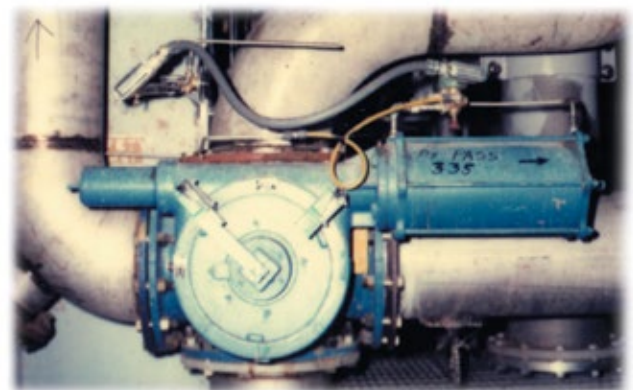
Choice of Body Materials

The DeZURIK multiport line offers a variety of materials to meet the requirements of even the most difficult applications. Standard materials include cast iron, aluminum, carbon steel, and 316 stainless steel. Cast iron valves are available with a hard rubber lining on the flange faces and all internal surfaces to provide resistance to chlorine and corrosives. High alloys are available on application.

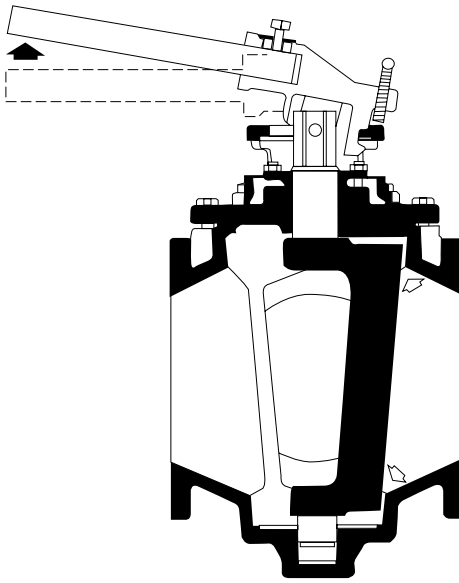


Resilient Plug Facings

Valves with resilient plug facings provide dead-tight shutoff without the use of sealing lubricants when furnished with lift, turn, reseal levers or handwheel actuators. Even if small solids are trapped between the plug and seat, the resilient facing provides tight shutoff and prevents seat damage. Hard natural rubber plug facings can be furnished with a soft rubber overlay to provide dead-tight shutoff in certain applications.



Lift, Turn, Reset Operation



Lift, Turn, Reset Operation

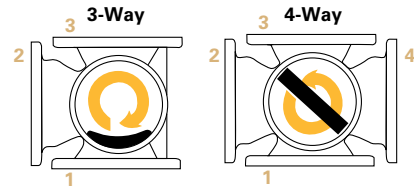
Lever and double handwheel actuators provide lift, turn and reset operation. The lever or top handwheel is used to lift the tapered plug away from the seat to provide clearance for easy operation. With the plug unseated, there is no binding or scraping between the plug and seat. At the desired flow position, the plug is reset.

Wide Line of Actuators

DeZURIK 3- and 4-Way valves are available with levers, single or double handwheels, chainwheels, electric motor, and cylinder actuators. All actuators provide external indication of plug position and flow through the valve.

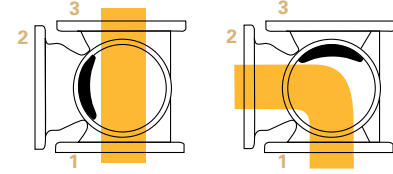
Flow Combinations

Combination 0



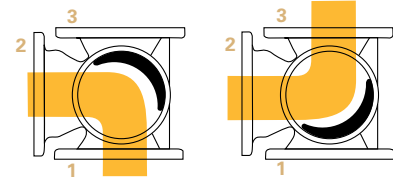
Combination 1

For tight shutoff, it is recommended that the flow be against the back side of the plug.



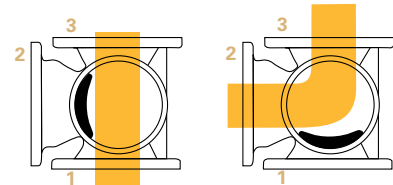
Combination 2

For tight shutoff, it is recommended that the flow be against the back side of the plug.



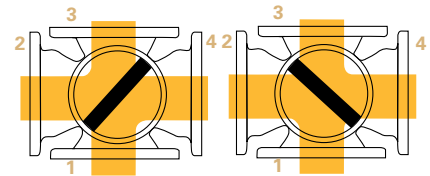
Combination 3

For tight shutoff, it is recommended that the flow be against the back side of the plug.



Combination 4

For tight shutoff, it is recommended that the flow be from port flange number 1.



Combination Number

| Combination Number | Port Open | Plug Style | Plug Rotation | Travel Stop |
|--------------------|-----------|------------|---------------|-------------|
| 0 | — | All | 360° | No |
| 1 | 1 | Single | 90° | Yes |
| 2 | 2 | Double | 90° | Yes |
| 3 | 3 | Single | 90° | Yes |
| 4 | — | Transfer | 90° | Yes |

General Specifications

Style:

3- and 4-Way Tapered Plug Valves.

Materials:

Cast Iron, ASTM A126, Class B
Aluminum, ASTM B26, Alloy 713.0
Carbon Steel, ASTM A216, Grade WCB
316 Stainless Steel, ASTM A351, CF8M
Cast Iron body with hard natural rubber lining.
Flange faces and all internal surfaces are lined.

Sizes:

3–16" (80–400mm)

End Connections:

ANSI Class 150 flanged
Flanged with BS4504 and DIN, PN 10 drilling
Flanged with BS4504 and DIN, PN 16 drilling
Flanged, Class 150 BS Table D
Flanged, Class 150 BS Table E
Flanged, Class 150, JIS 10

Body Rating:

125 psi (861 kPa) C.W.P. non-shock working pressure rating.

Packing:

Acrylonitrile Butadiene,
to -20° to 250°F (-29 to 121°C)
PTFE, -50° to +450°F (-46° to 232°C)
Non-Asbestos Square Braided Fiberglass,
to 1000°F (538°C)

Plug Styles:

Single Style Plug

Standard in all 3-Way valves to provide straight through and 90° flow combinations.

Double Style Plug

Available in all 3-Way valves to provide 90° flow combinations.

Transfer Style Plug

Standard in all 4-Way valves to provide 90° flow combinations.

Plug Facings:

Metal plug, furnished in the same material as the valve body, except cast iron which has a stainless steel plug.

Chloroprene (CR), generally recommended for alkaline services to 180°F (82°C).

Acrylonitrile Butadiene (NBR), generally recommended for temperatures to 180°F (82°C).

Hard Natural Rubber (NRH), generally recommended for chlorine services.

Chloro-Isobutene-Isoprene (CIIR), generally recommended for temperatures to 250°F (121°C).

Fluoro Rubber (FKM), recommended for general chemical service at elevated temperatures.

Hard Natural Rubber (NRCR) with soft rubber chloroprene plug overlay (CR) for dead-tight shutoff with lever or double handwheel actuators.

Shutoff:

Resilient plug facings provide dead-tight shutoff when used with lift, turn, reseal levers or handwheel actuators.

Valves with all-metal or hard rubber plugs do not provide drip-tight shutoff. A soft rubber overlay can be furnished on hard rubber plugs to provide dead-tight shutoff in valves with lever or lift, turn, reseal double handwheel actuators.

Bearings:

Hard rubber lined valves are furnished with hard rubber bearings; all other valves are furnished with 316 stainless steel bearings.

Options:

316 Stainless Steel Plug, ASTM A743, CF8M

Valve Selection

Cv/Kv Values

| Valve Size | Straight Through Flow Cv/Kv | 90° Flow* Cv/Kv |
|--------------|-----------------------------|-----------------|
| 3" 80mm | 240 208 | 195 169 |
| 4" 100mm | 390 337 | 316 273 |
| 5" 125mm | 900 780 | 730 630 |
| 6" 150mm | 900 780 | 730 630 |
| 8" 200mm | 1550 1340 | 1255 1090 |
| 10" 250mm | 2550 2210 | 2065 1790 |
| 12" 300mm | 3600 3110 | 2915 2520 |
| 14" 350mm | 4100 3550 | 3320 2870 |
| 16" 400mm | 6250 5410 | 5065 4380 |

Cv values = flow in GPM of water at 1 psi pressure drop, in 3-Way valves with flow between ports one and three.

Kv values = flow in m³/hr. of water at 100 kPa pressure drop.

* Cv/Kv value in 3- or 4-Way valves when flow turns 90° in the valve (flow through adjacent ports).

Pressure Ratings

CWP non-shock working pressure rating of all 3- and 4-Way valves is 125 psi (861 kPa). The maximum shutoff pressure differential must not exceed the units shown for each actuator type.

| Actuator Type | Max. Shutoff Pressure Differential | | |
|------------------------------------|------------------------------------|--------------------|-------------------|
| | Size | 3-Way | 4-Way |
| Lever | 3-6" | 125 psi | 35 psi |
| | 80-150mm | 861 kPa | 241 kPa |
| Single Handwheel/Chainwheel | 8 & 10" 200 & 250mm | 100 psi 689 kPa | 35 psi 241 kPa |
| | 3-16" 80-400mm | 35 psi* 241 kPa | 35 psi 241 kPa |
| Double Handwheel/Chainwheel | 3-16" 80-400mm | 125 psi 861 kPa | 35 psi 241 kPa |
| | 3-16" 80-400mm | 35 psi* 241 kPa | 35 psi 241 kPa |
| Cylinder | 3-16" 80-400mm | 35 psi* 241 kPa | 35 psi 241 kPa |
| | 3-16" 80-400mm | 35 psi* 241 kPa | 35 psi 241 kPa |

Note: Cylinders are sized for full 125 CWP rating.

*Higher maximum shutoff pressure differential available on application.

Applicable Standards

DeZURIK 3- and 4-Way Plug Valves are designed and/or tested to meet the following standards:

ASME B16.1 Hydrostatic Testing

ASME B16.1 and ANSI B16.5 Flange Connection Drilling

JIS 10; DIN 10,16; BS IO-D,E,F Foreign Standards for flange bolting

ISA-A39.2 Standard Control Valve Capacity Test Procedures for Incompressible Fluids

Weights

Valve for Lever Operation

Add weights of all other actuators as shown below.

| Valve Size | Cast Iron, Carbon Steel and Stainless Steel | | Aluminum | |
|--------------|---|-------------|------------|------------|
| | 3-Way | 4-Way | 3-Way | 4-Way |
| | lbs/kg | | lbs/kg | |
| 3" 80mm | 55 25 | 65 29 | 25 11 | 32 15 |
| 4" 100mm | 105 48 | 125 57 | 50 23 | 60 27 |
| 5" 125mm | 160 73 | 175 79 | 100 45 | 110 50 |
| 6" 150mm | 165 75 | 180 82 | 110 50 | 125 57 |
| 8" 200mm | 250 113 | 275 125 | 125 57 | 135 61 |
| 10" 250mm | 370 168 | 430 195 | 240 109 | 300 136 |
| 12" 300mm | 500 227 | 560 254 | 300 136 | 360 163 |
| 14" 360mm | 650 295 | 715 324 | 360 163 | 425 193 |
| 16" 400mm | 1070 485 | 1120 508 | 650 295 | 700 318 |

Levers

| Valve Size | Weight lbs/kg |
|-------------------------|---------------|
| 3 & 4" 80 & 100mm | 3 1 |
| 5 & 6" 125 & 150mm | 4 2 |
| 8 & 10" 200 & 250mm | 5 2 |
| 12" 300mm | 8 4 |
| 14 & 16" 350 & 400mm | 10 5 |

Actuators

Add valve weights above.

| Valve Size | Single Handwheel | Double Handwheel | Single Chainwheel* | Double Chainwheel* | On-Off Cylinder | Cylinder with Positioner |
|-----------------------|------------------|------------------|--------------------|--------------------|-----------------|--------------------------|
| | lbs/kg | | | | | |
| 3" 80mm | 55 25 | 62 28 | 66 30 | 84 38 | 72 33 | 84 38 |
| 4" 100mm | 58 26 | 75 34 | 69 31 | 97 44 | 93 42 | 105 48 |
| 5 & 6" 125 & 150mm | 58 26 | 75 34 | 69 31 | 97 44 | 115 52 | 127 58 |
| 8" 200mm | 63 29 | 70 32 | 79 36 | 97 44 | 115 52 | 127 58 |
| 10" 250mm | 166 75 | 177 80 | 182 83 | 209 95 | 250 113 | 262 119 |
| 12" 300mm | 183 83 | 194 88 | 220 100 | 247 112 | 250 113 | 262 119 |
| 14" 360mm | 183 83 | 194 88 | 220 100 | 241 109 | 310 141 | 322 146 |
| 16" 400mm | 186 84 | 197 89 | 223 101 | 250 113 | 310 141 | 322 146 |

* Chain for chainwheel actuators — 0.5 lbs (0.2 kg) per foot.

Note: Net weight in pounds (kilograms) — Weights are approximate and do not include crating.

Accessories

Add to valve and actuator weight.

Extension Fittings for Lever Actuated Valves (CODE EL)

Fittings Only = 10 lbs (5 kg)

Extension Pipe/Per Foot = 4 lbs (2 kg)

Floorstand for Lever Actuated Valves (CODE FS)

Floorstand Only = 95 lbs (43 kg)

Extension Pipe/Per Foot = 4 lbs (2 kg)

Floorstand for Handwheel Actuated Valves (CODE FSDI)

Floorstand Only = 95 lbs (43 kg)

Extension Rod (Code ER)/Per Foot = 2 lbs (1 kg)

Solenoid Valve (CODE 4V) = 7 lbs (3 kg)

Position Indicating Switch (CODE SE) = 6 lbs (3kg)

Control Station Pneumatic (CODE CNP) = 8 lbs (4 kg)

Ordering

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

Valve Style

Give valve style code as follows:

PTW = Plug 3-Way
 PFW = Plug 4-Way

Valve Size

Give valve size code as follows:

| | |
|--------------|----------------|
| 3 = 3" 80mm | 10 = 10" 250mm |
| 4 = 4" 100mm | 12 = 12" 300mm |
| 5 = 5" 125mm | 14 = 14" 350mm |
| 6 = 6" 150mm | 16 = 16" 400mm |
| 8 = 8" 200mm | |

End Connection

Give valve size code as follows:

F1 = Flanged, ANSI Class 150
 F110 = Flanged, Class 150, DIN 10 or BS 4504/10
 F116 = Flanged, Class 150, DIN 16 or BS 4504/16
 F1D = Flanged, Class 150, BS Table D
 F1E = Flanged, Class 150, BS Table E
 F1J1 = Flanged, Class 150, JIS 10

Body Material

Give body material code as follows:

CI = Cast Iron
 AL = Aluminum
 CS = Carbon Steel
 S2 = 316 Stainless Steel
 CIH = Cast Iron, Hard Rubber Lined

Note: CIH bodies available with NRH or NRRCR plug facing only.

Packing

Give packing code as follows:

6 = Acrylonitrile-Butadiene -20°F to 250°F (-29°C to 121°C)
 Standard in all valves except cast iron hard rubber lined bodies (CIH)
 7 = PTFE -50° to 450°F (-46° to 233°C)
 8 = Fiberglass, Braided to 1000°F (540°C)

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

Plug Style

Give plug style code as follows:

| | |
|--------------|--------------|
| 3-Way Valves | 4 Way Valves |
| S = Single | T = Transfer |
| D = Double | |

Combination Number

| | |
|--------------------|-------------------|
| 3-Way Valves | 4-Way Valves |
| 0 = Combination 0 | 0 = Combination 0 |
| 1 = Combination 1 | 4 = Combination 4 |
| 2 = Combination 2* | |
| 3 = Combination 3 | |

Note: Combination 0 available with cylinder actuators on application.
 *Combination 2 requires double plug style.

Plug Facing

Give plug facing code as follows:

M = Metal (Same material as body except cast iron which has a stainless steel plug.)
 CR = Chloroprene to -20° to 180°F (-29 to 83°C)
 NRH = Hard Natural Rubber
 Plug facing for Cast Iron Hard Rubber Lined Valves (CIH) to -20° to 180°F (-29° to 83°C)
 CIIR = Chloro-Isobutene-Isoprene to -20° to 250°F (-29° to 121°C)
 NBR = Acrylonitrile-Butadiene to -20° to 180°F (-29° to 83°C)
 FKM = Fluoro Rubber to -20° to 450°F (-29° to 232°C)
 NRRCR = Hard natural rubber with soft Chloroprene overlay (CIH bodies only) to -20° to 180°F (-29° to 83°C)

Note: Cylinder actuators should be used with metal plugs. Cylinders are not recommended for use with resilient faced plugs. GS actuators are not available with resilient faced plugs.

Options

Give options codes as follows:

ARRA = Conform to: American Recovery and Reinvestment Act of 2009, Buy American, Section 1605, Use of American Iron, Steel and Manufactured Goods
 DST = Dry Seat Test
 S2 = 316 Stainless Steel Plug

Actuators & Accessories

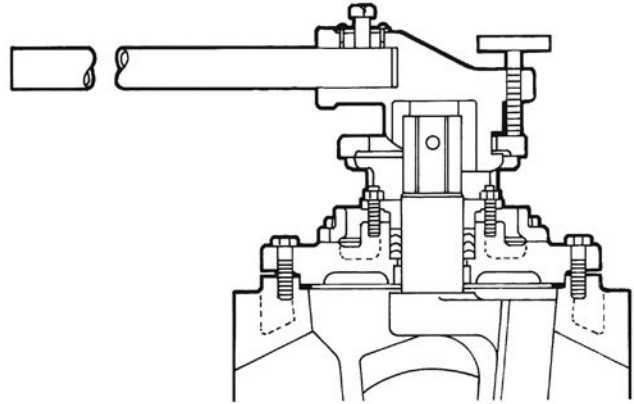
All actuators must be ordered by adding the actuator code to the basic valve order code. Refer to the following pages for descriptions and ordering information.

Ordering Example:

PTW,4,F1,CI,6,S-1-M*

Lever Actuators

3- and 4-Way valves through 10" (250mm) size can be furnished with levers to provide the lowest cost control. However, handwheel or powered actuators are recommended for easier operation, for applications exceeding listed shutoff pressures and where sudden valve closure may cause water hammer. Levers can provide full 360° plug rotation or can be furnished with stops to limit plug travel, as indicated by combination number. In addition, lever actuated valves include a locking screw to lock the plug in the desired position.



Ordering Valve for Lever Actuation (LV)

Order lever actuated valves by giving complete valve order code followed by the code LV. Levers are removable and must be ordered separately (see LVT below).

Ordering Example:
PTW,4,F1,CI,6,S-1-M*LV

Ordering Levers (LVT)

Order as a separate item by giving code ACC*LVT followed by the appropriate size code as shown in the sizing chart.

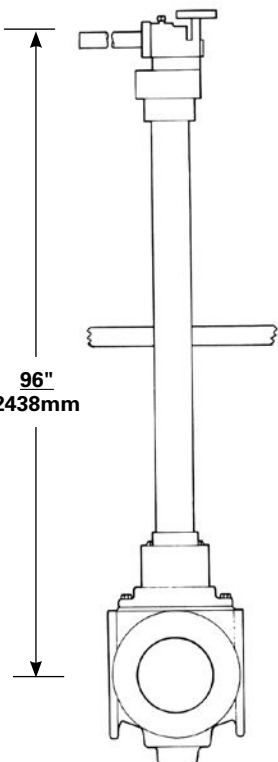
Ordering Example:
ACC*LVT102

Sizing Chart

| Valve Size | Code |
|-----------------------|------|
| 3" 80mm | 101 |
| 4" 100mm | 102 |
| 5 & 6" 125 & 150mm | 103 |
| 8" 200mm | 104 |
| 10" 250mm | 105 |

Note: Contact Application Engineering for lever actuators on larger valve sizes.

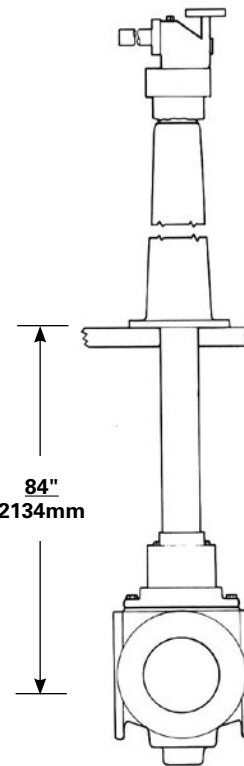
Accessories for Lever Actuated Valves



Extended Lever

Allows remote operation of 3–10" (80–250mm) valves. Includes external extension pipe to extend handle as well as internal extension pipe and fittings. To order, add the code EL to the valve identification. Specify the required length from the centerline of valve to centerline of the handle below valve order code.

Ordering Example:
PTW,4,F1,CI,6,S-O-M*LV,EL
Centerline of valve to centerline of handle 96" (2438mm).



Floorstand

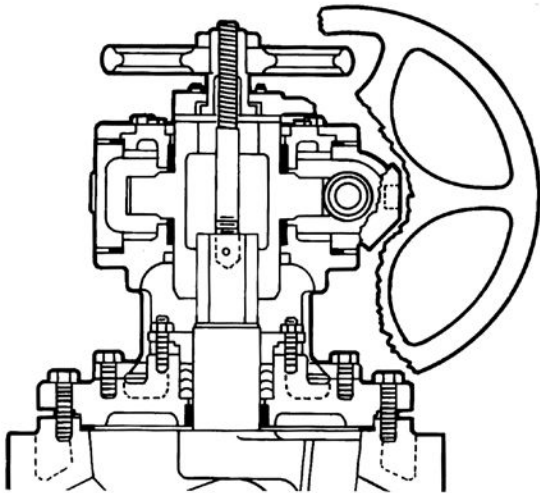
Allows remote valve operation of 3–10" (80–250mm) valves from the floorstand. Includes floorstand, fittings, and EL extension pipe. To order, add FS to the valve identification. Specify the required length from the centerline of valve to the base of the floorstand below the valve order code. Maximum is 13' (396cm).

Ordering Example:
PTW,4,F1,CI,6,S-O-M*LV,EL,FS
Centerline of valve to base of floorstand 84" (2134mm).

Handwheel Actuators

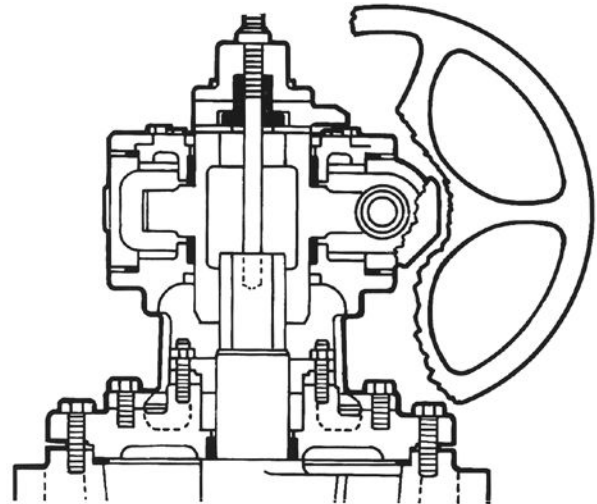
Double Handwheel Actuators

Lift, turn, reset double handwheel actuators provide dead-tight shutoff when used on valves with resilient faced plugs. The totally enclosed and sealed construction protects moving parts from damage or corrosion. Continual lubrication is not required for operating ease. The heavy-duty, corrosion resistant bearings in the actuator assure lasting easy valve operation and overall reliability. Actuator castings, gears and shafts also add to reliability by assuring permanent alignment of moving parts for smooth, easy operation.



Single Handwheel Actuators

Single handwheel actuators are only for use with valves having metal or hard rubber lined plugs which do not provide dead-tight shutoff. Totally enclosed, single handwheel actuators are also furnished with corrosion resistant bearings and feature the same heavy-duty construction as double handwheel models. In single handwheel models, a threaded collar acts to adjust clearance between the plug and seat. Plug-to-seat clearance can be adjusted easily by turning the collar. It is not necessary to completely disassemble the actuator.



Ordering Handwheel Actuators

To order, add the appropriate actuator code to the valve order code. Both single and double handwheel actuators can provide 90° or 360° plug rotation. The combination number in the valve order code indicates plug travel requirements.

| Valve Size | Actuator Number | |
|-------------------------|------------------|------------------|
| | Double Handwheel | Single Handwheel |
| 3-6" 80-150mm | GSL-6-HD8 | GS-6-HD8 |
| 8" 200mm | GSL-6-HD12 | GS-6-HD12 |
| 10" 250mm | GSL-12-HD12 | GS-12-HD12 |
| 12 & 14" 300 & 350mm | GSL-12-HD16 | GS-12-HD16 |
| 16" 400mm | GSL-12-HD20 | GS-12-HD20 |

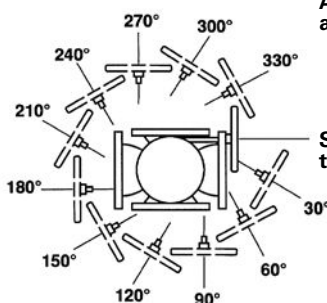
Actuator Mounting

Standard, 90°, 180° and 270° are the preferred mounting positions. However, actuators can be mounted at 30° increments from standard, with the following exceptions. Mounting position 210° clockwise from standard is not available on 16" (400mm) 3- and 4-Way valves. Mounting position 30° clockwise is not available on 16" (400mm) 4-Way valves. Specify mounting other than standard below valve and actuator identification.

Ordering Example:

PTW,4,F1,CI,6,S-1-M*GS-6-HD8

Actuator mounted 90° clockwise from standard.



Actuator mounting positions as viewed from top of valve.

Standard position shown on this drawing.

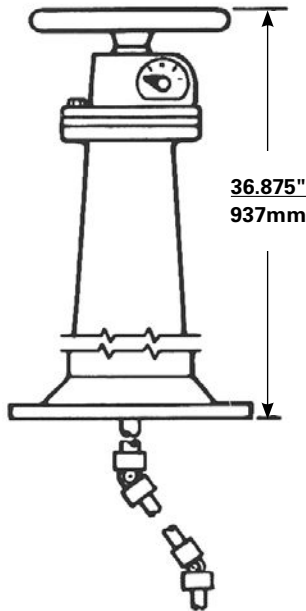
Accessories - Single Handwheel Actuators

Dial Indicating Floorstand (FSDI)

For use with single handwheel actuators with combination numbers 1, 2, 3 or 4 (90° rotation). Provides remote operation of valve. Includes floorstand, fittings, dial, and handwheel mounted on the floorstand. The extension rod must be ordered separately. To order floorstand, add FSDI to the valve and actuator order code.

Ordering Example:

PTW,4,F1,CI,6,S-1-M*GS-6-HD8,FSDI



Neck Extension (ENK)

For use on all manual and powered G-Series Actuators. Included is an extended valve neck and shaft.

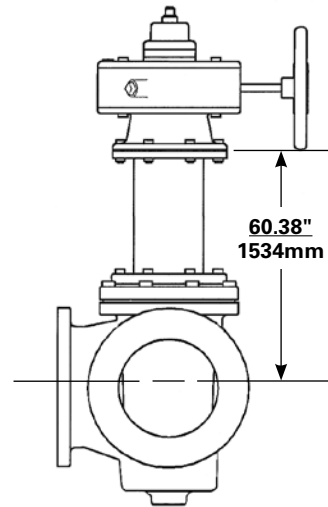
Ordering

To order as part of a complete valve and actuator assembly, add "ENK" to the valve/actuator ordering code. Below neck extension characteristic, specify C/L of valve to top of extension flange. If extension exceeds 21 feet, contact Application Engineering.

Ordering Example:

PTW,4,F1,CI,6,S-O-M*GS-6-HD8,ENK

C/L of valve to top of extension flange – 60.38" (1534mm).



Extension Rod for Floorstand (ER)

For use with Dial Indicating Floorstand (FSDI) on single handwheel actuated valves. Order as a separate item by giving code ACC*ER followed by the appropriate code as shown in the chart. Give required rod length from the centerline of the valve to the base of the floorstand below the valve order code.

| Actuator Size | Code |
|---------------|------|
| GS-6 | 101 |
| GS-12 | 102 |

Ordering Example:

ACC*ER,101

Centerline of valve to base of floorstand 96" (2440mm).

| Valve Size | Min. C/L Valve to Top of Flange |
|--------------|---------------------------------|
| 3" 80mm | 13.75 349 |
| 4" 100mm | 14.38 365 |
| 6" 150mm | 15.88 403 |
| 8" 200mm | 17.38 442 |
| 10" 250mm | 18.75 476 |
| 12" 300mm | 19.75 502 |
| 14" 350mm | 21.25 540 |
| 16" 400mm | 23.63 600 |

Inch
Millimeter

Chainwheel Actuators

Chainwheel actuated valves are furnished with chainwheels and chain guides. To order chainwheel actuated valves, add the actuator code, as listed in the chart, to the valve order code. The chain must be ordered separately — one length for single chainwheel actuators and two lengths for double chainwheel actuators.

| Valve Size | Double Chainwheel | Single Chainwheel |
|---------------------|-------------------|-------------------|
| 3-6" 80-160mm | GSL-6-CW8 | GS-6-CW8 |
| 8" 200mm | GSL-6-CW12 | GS-6-CW12 |
| 10" 250mm | GSL-12-CW12 | GS-12-CW12 |
| 12-16" 300-400mm | GSL-12-CW20 | GS-12-CW20 |

Note: Double chainwheel actuators available on 3-Way valves only.

Galvanized Chainwheel and Guide

To order for chainwheel actuators, specify galvanized below the actuator order code.

Actuator Mounting

Specify actuator mounting positions other than standard as on handwheel actuators. Standard actuator mounting is the same as for handwheel actuators.

Stainless Steel Bolting

Specify bolting requirement by giving code SB18 for 18-8 Stainless Steel or SB16 for 316 Stainless Steel bolting after the actuator order code.

Ordering Example for Double Handwheel Actuators:

PTW,4,F1,CI,6,5-O-M*GS-6-HD8,SB16

Standard Chain

For single chainwheel actuators, and for the side chainwheel on double handwheel actuators. Order standard chain as a separate item by giving code ACC*CN102 and specify length of chain below the order code. Galvanized chain may be ordered by order code ACC*CN103.

Ordering Example:

ACC*CN102

Chain: 12 feet

Babbitt Chain

Double chainwheel actuators have two chainwheels, each requiring a different type of chain. In addition to one length of standard chain, 1 length of Babbitt chain must be ordered for lift, turn and reseal chainwheel actuators. Order as a separate item by giving code ACC*CN followed by the appropriate code as shown in the chart. Specify the required length of chain below the order code.

| Gear Unit | Babbitt Chain Code |
|-----------|--------------------|
| GSL-6 | 104 |
| GSL-12 | 105 |

Ordering Example for Double Handwheel Actuators:

ACC*CN104

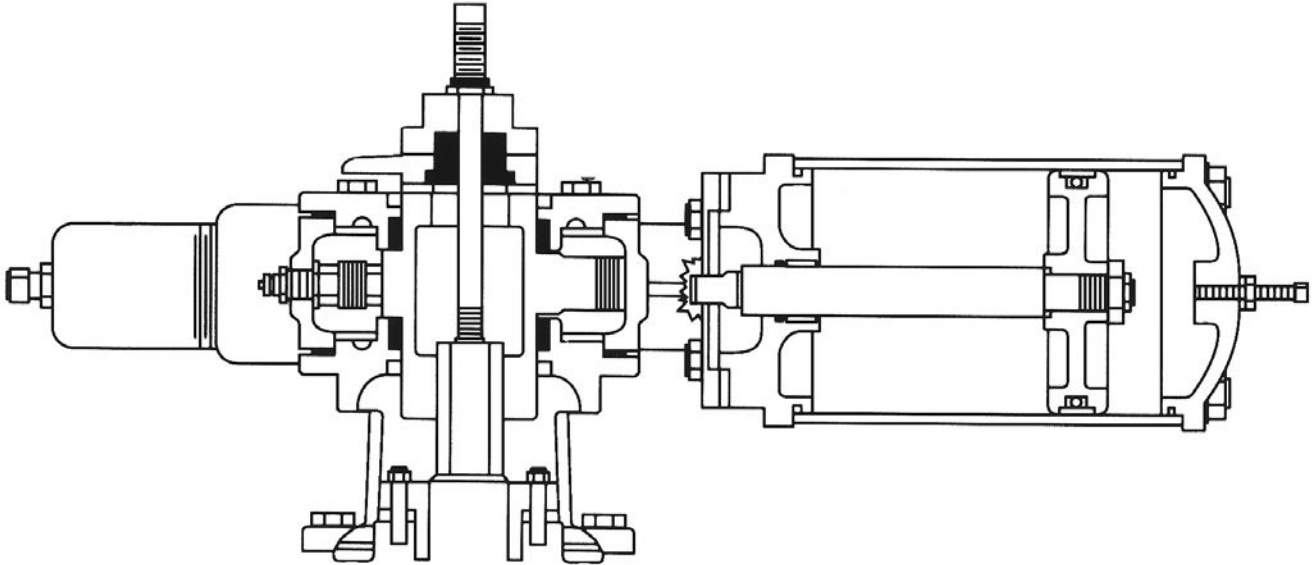
Chain: 12 feet

ACC*CN102

Chain: 12 feet

Cylinder Actuators

Cylinder actuators include both on-off and positioning, double-acting models. Actuators can be used with either pneumatic or hydraulic supply. They provide 90° rotation and can be used with 3- and 4-Way valves which have all-metal or hard rubber lined plugs only. Valves with cylinder actuators do not provide dead-tight shutoff.



Plug Adjusting Device

A threaded collar maintains constant clearance between the plug and seat to assure smooth valve operation. Plug-to-seat clearance is easily adjusted by turning the collar.

Manual Valve Operation

A manual nut connected to the valve stem allows manual valve operation in case of supply failure.

Enclosed Actuator Housing

The cast iron actuator housing is sealed to prevent the entry of dirt, moisture and contaminants. Lubrication is not required for smooth operation, even on continuous throttling applications.

Corrosion Resistant Bearings

Heavy-duty bearings provide support and minimize friction to assure smooth operation and throttling action.

Rugged Cylinder Construction

The cylinder construction features durable gears, pistons and piston rods to add reliability and smooth operation. A PTFE piston guide ring provides support for the piston. This, plus a piston rod bearing, makes piston action smooth and prevents sticking.

Optional Hydraulic Cylinder (Water Fitted)

The optional hydraulic actuator includes: cast iron construction, plastic coated wetted parts to prevent corrosion, stainless steel piston rod, multiple lip rod seal with an adjustable gland that does not require disassembly for replacement, and a polyurethane scraper with metal backup located inside the head of the cylinder to prolong the life of the seal.

Cylinder Actuators

Ordering Cylinder Actuators

To order cylinder actuators, add the actuator number from the following chart to the valve order code. Also add the code letter "A" or "B" to indicate the appropriate actuator mounting for the combination number.

Supply pressure is 50–100 psi (345–689 kPa). When ordering hydraulic actuators, specify supply media if oil or water.

Preferred mounting positions are standard, 90°, 180° and 270°. However, actuators can be mounted at 30 degree increments clockwise from standard.

Ordering Example:

PTW,4,F1,CI,6,S-1-M*GS-6-PC6-A

Actuator mounted 180° from standard.

Sizing Chart

| Valve Size | Actuator |
|---------------------|------------|
| 3" 80mm | GS-6-PC6 |
| 4" 100mm | GS-6-PC6 |
| 5-8" 125–200mm | GS-6-PC8 |
| 10-12" 250–300mm | GS-12-PC8 |
| 14-16" 350–400mm | GS-12-PC10 |

Mounting Code

A code letter from the mounting chart must be added to the cylinder actuator ordering code. Select the appropriate code based on valve style, combination number, and actuator mounting.

| Code | Actuator Mounting |
|----------|--|
| A | 4-Way Valves - Combination 4 or 3-Way Valves - Combination 1 with actuator mounted standard or 60°, 120°, 180°, 240° or 300° clockwise from standard. |
| | 3-Way Valves - Combination 2 or 3 with actuator mounted 30°, 90°, 150°, 210°, 270° or 330°. |
| B | 3-Way Valves - Combination 2 or 3 with actuator mounted standard or 60°, 120°, 180°, 240° or 300° clockwise from standard. |
| | 4-Way Valves - Combination 4 or 3-Way Valves - Combination 1 with actuator mounted 30°, 90°, 150°, 210°, 270° or 330° clockwise from standard. |

Positioning Cylinder Actuators

Accurate positioners provide precise throttling control. A variety of models are available including pneumatic, hydraulic and electronic. Positioners are enclosed and mounted on the actuator.

The unique DeZURIK method of mounting positioners eliminates backlash in the positioner feedback system. A cam mounted solidly to the plug stem and spring loaded cam follower always transmit exact plug position. Positioner feedback is directly from the valve stem. Span and zero adjustments are simple and readily accessible. High gain and high positioner capacity, along with properly sized actuators, assure pneumatic control.

Ordering

To order, specify positioner model and desired signal range by adding positioner code to the valve and actuator order code. Also specify positioner action.

On 3-Way Valves, specify air-to-open port number _____ (port other than the combination number).

On 4-Way Valves, air-to-open port number _____ (2 or 4) to port number 1 (Port No. 1 is always open).

Ordering Example:

PTW,4,F1,CI,6,S-1-M*GS-6-PC6-A,P200,AFR2,G

Air-to-open port number 2.

3–15 psi (20–103 kPa) signal range.

Air Filters for Positioners

It is required that one of these air filters be in the air supply line of every P36C, P41C and P41D electronic positioner as a primary dirt filter.

| Filter | Order Code |
|------------|------------|
| Air Filter | AFR2 |

Accessories – Cylinder Actuators

Speed Control Valves

To control valve opening or closing speed on pneumatic actuators. Adjustable. Mounted. Must be ordered as part of a complete valve and actuator assembly.

| Speed Control Valves | Ordering Code |
|------------------------------------|---------------|
| 2 speed controls | SP |
| 1 speed control to control closing | SPC |
| 1 speed control to control opening | SPO |

Ordering Example:

PTW,6,F1,CI,6,S-1-M*GS-6-PC8-A,SPO

4-Way Diaphragm Pilot Valve (4VD)

For use with double-acting pneumatic cylinders only. Order as separate item by giving ACC*4VD025. To order as part of a complete valve/actuator assembly, enter 4VD025 after valve/actuator code.

Ordering Example:

PTW,6,F1,CI,6,S-1-M*GS-6-PC8-A,4VD025

Position Indicating Switches (SEH)

For use on GS actuators. To order switches, refer to bulletin 83.00-1.

4-Way Solenoid Valve (4V)

For use on cylinder actuators. To order solenoids, refer to bulletin 84.00-1.

4-Way Control Valve (CV)

For use on double-acting cylinder actuators. Order as a separate item by giving ACC* followed by appropriate 3-digit code from the table below. To order as part of a complete valve/actuator assembly, enter code from table below to the valve/actuator order code.

Pneumatic Actuators

| Valve Size | NPT Size | Order Code |
|------------|---------------|------------|
| All Sizes | .25" 6.4mm | CV201 |

Hydraulic Actuators

| Valve Size | NPT Size | Order Code |
|---------------------|----------------|------------|
| 4-8" 100-200mm | .375" 9.5mm | CV202 |
| 10-36" 250-900mm | .5" 13mm | CV203 |

Ordering Example:

ACC*CV201 (separate item)

Ordering Example:

PTW,6,F1,CI,6-1-M*GS-6-PC8-A,CV20

Filter/Strainer (FH/FP)

Filter for pneumatic actuators, strainer for hydraulic actuators. Order as a separate item per table below (not mounted).

| Description | Order Code |
|--------------------|------------|
| Pneumatic Filter | ACC*PCFP |
| Hydraulic Strainer | ACC*PCFH |

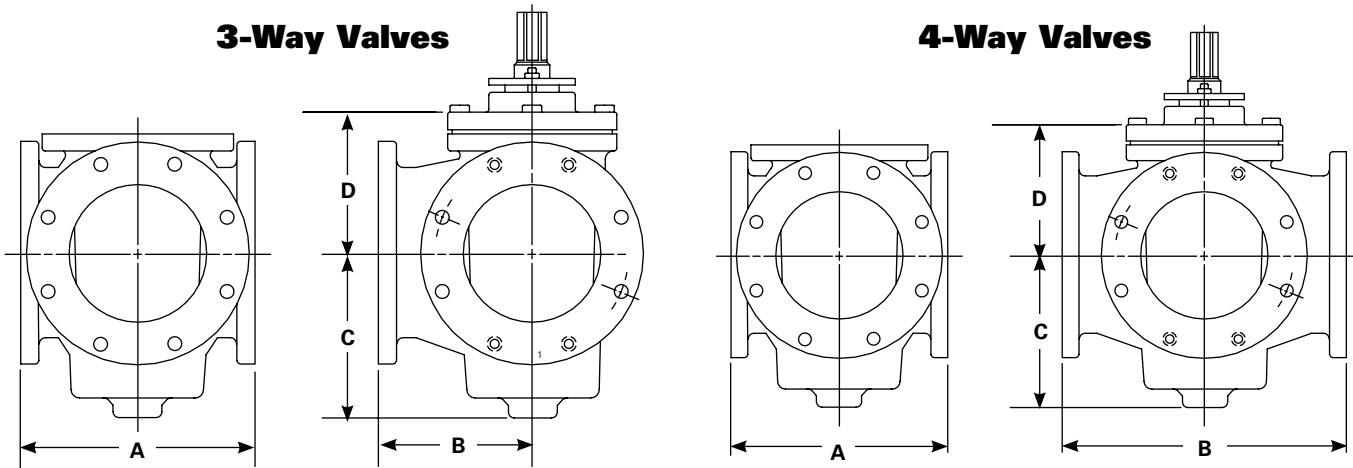
Ordering Example:

ACC*PCFP

Electric Motor Actuators

Electric motors offer reliable and economical valve operation on 3- and 4-Way valves with metal and hard rubber lined plugs. Valves with electric motor actuators do not provide dead-tight shutoff. When ordering electric motor actuators, specify electrical characteristics, flowing media, pressure drop, speed of operation, and actuator accessories or controls required.

Dimensions



Material Groups

- Group 1 = Cast Iron, Aluminum
- Group 2 = Carbon Steel
- Group 3 = Stainless Steel, Alloys
- Group 4 = Cast Iron/Hard Rubber Lined

Basic Valve

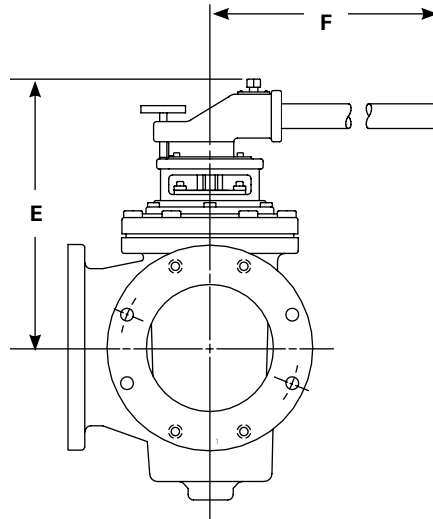
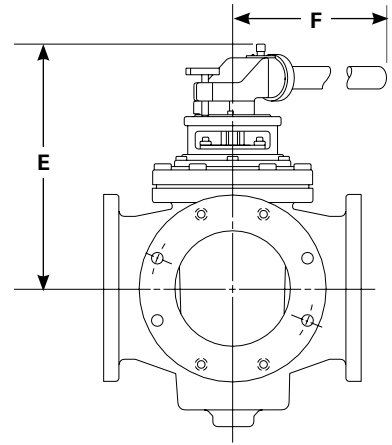
| Dimensions | | | | | | | | | | | |
|-----------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Valve Size | A | | | B | | | | | | C | D |
| | | | | 3-Way Valves | | | 4-Way Valves | | | | |
| | Group 1 | Group 2 & 3 | Group 4 | Group 1 | Group 2 & 3 | Group 4 | Group 1 | Group 2 & 3 | Group 4 | | |
| 3" 80mm | 8.00 203 | 7.88 200 | 8.25 210 | 5.50 140 | 5.38 137 | 5.62 43 | 11.00 279 | 10.75 273 | 11.25 286 | 5.44 138 | 4.94 126 |
| 4" 100mm | 9.88 251 | 9.75 248 | 10.12 257 | 6.50 165 | 6.38 162 | 6.62 168 | 13.00 330 | 12.75 324 | 13.25 337 | 6.62 168 | 5.44 138 |
| 5 & 6" 125 & 150mm | 11.62 295 | 11.38 289 | 11.88 302 | 8.00 203 | 7.88 200 | 8.12 206 | 16.00 406 | 15.75 400 | 16.25 413 | 7.94 202 | 6.69 170 |
| 8" 200mm | 13.88 353 | 13.62 346 | 14.12 359 | 9.00 229 | 8.81 224 | 9.12 232 | 18.00 457 | 17.62 448 | 18.25 464 | 9.69 246 | 8.56 217 |
| 10" 250mm | 16.75 425 | 16.38 416 | 17.00 432 | 11.00 279 | 10.75 273 | 11.12 282 | 22.00 559 | 21.50 546 | 22.25 565 | 12.56 319 | 10.06 256 |
| 12" 300mm | 19.00 483 | 18.62 473 | 19.25 489 | 11.56 294 | 11.31 287 | 11.69 297 | 23.12 587 | 22.62 575 | 23.38 594 | 13.44 341 | 11.06 281 |
| 14" 360mm | 21.00 533 | 20.50 521 | 21.25 540 | 12.50 318 | 12.25 311 | 12.62 321 | 25.00 635 | 24.50 622 | 25.25 641 | 14.38 365 | 12.31 313 |
| 16" 400mm | 23.75 603 | 23.25 591 | 24.00 610 | 15.12 384 | 14.88 378 | 15.25 387 | 30.25 768 | 29.75 756 | 30.50 775 | 15.88 403 | 14.69 373 |

Inches
Millimeters

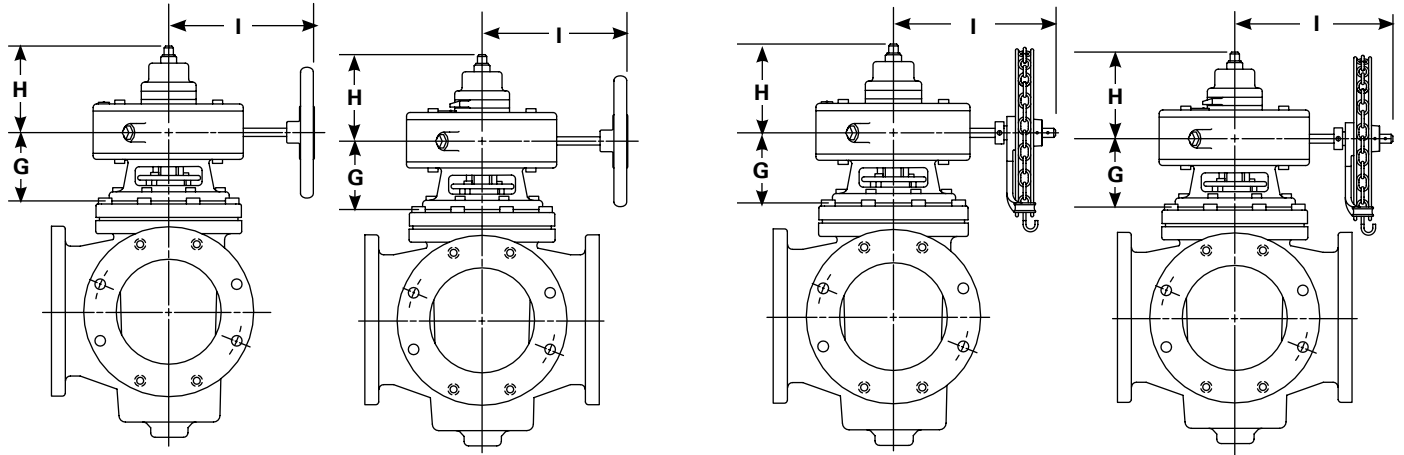
Lever Actuator

| Valve Size | E | F |
|-----------------------|--------------|--------------|
| 3" 80mm | 12.56 319 | 9.25 235 |
| 4" 100mm | 13.56 344 | 14.25 362 |
| 5 & 6" 125 & 150mm | 14.81 376 | 17.75 451 |
| 8" 200mm | 16.69 424 | 26.25 667 |
| 10" 250mm | 20.00 508 | 36.00 914 |

Inch
Millimeter



Single Handwheel/Chainwheel



Handwheel or Chainwheel

| Actuator Code | G | H |
|---------------|-------------|-------------|
| GS-6 | 5.69 145 | 6.25 159 |
| GS-12 | 6.56 167 | 8.38 213 |

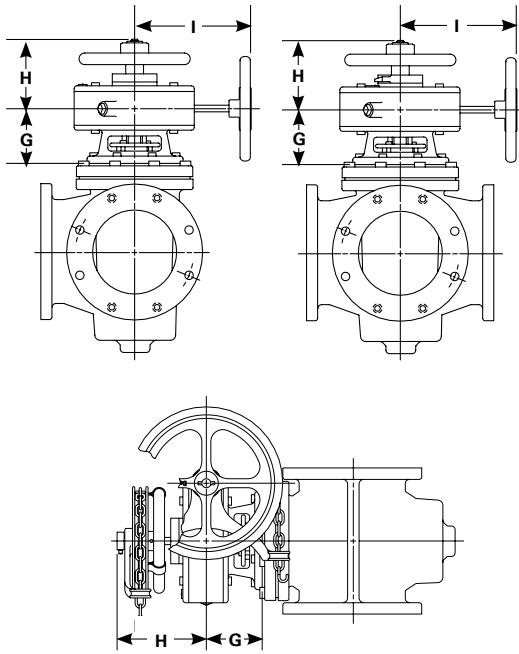
Inch
Millimeter

| Valve Size | I | | | |
|-------------------------|--------------|--------------|--------------|--------------|
| | GS-6-HD | GS-6-CW | GS-12-HD | GS-12-CW |
| 3 & 4" 80 & 100mm | 6.88 175 | 9.62 244 | - | - |
| 5 & 6" 125 & 150mm | 8.75 222 | 9.62 244 | - | - |
| 8" 200mm | 11.12 282 | 11.12 282 | - | - |
| 10 & 16" 250 & 400mm | - | - | 17.88 454 | 17.38 442 |

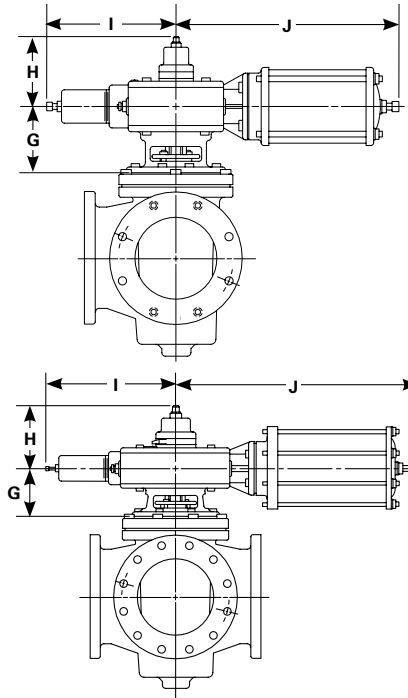
Inch
Millimeter

Dimensions

Lift, Turn, Reseat Handwheel/ Chainwheel



Cylinder Actuators



| Actuator Code | G | H | |
|---------------|------|-----------|------------|
| | | Handwheel | Chainwheel |
| GSL-6 | 5.69 | 5.75 | 7.94 |
| | 145 | 146 | 202 |
| GSL-12 | 6.56 | 6.50 | 8.62 |
| | 167 | 165 | 219 |

| Actuator Code | G | H |
|---------------|-------------|-------------|
| GS-6-PC_ | 5.69 145 | 6.25 159 |
| GS-12-PC_ | 6.56 167 | 8.38 213 |

| Valve Size | I | | | |
|-------------------------|----------|----------|-----------|-----------|
| | GS-6-HD_ | GS-6-CW_ | GS-12-HD_ | GS-12-CW_ |
| 3 & 4" 80 & 100mm | 6.88 | 9.62 | - | - |
| | 175 | 244 | - | - |
| 5 & 6" 125 & 150mm | 8.75 | 9.62 | - | - |
| | 222 | 244 | - | - |
| 8" 200 | 11.12 | 11.12 | - | - |
| | 282 | 282 | - | - |
| 10 & 16" 250 & 400mm | - | - | 17.88 | 17.38 |
| | - | - | 454 | 442 |

| Actuator Code | I | J |
|---------------|-------|-------|
| GS-6-PC6 | 11.00 | 19.12 |
| | 279 | 486 |
| GS-6-PC8 | 11.00 | 19.38 |
| | 279 | 492 |
| GS-12-PC8 | 17.50 | 30.88 |
| | 445 | 784 |
| GS-12-PC10 | 17.50 | 31.00 |
| | 445 | 787 |

Inch
Millimeter

Inch
Millimeter

Sales and Service

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

Web Site: www.dezurik.com E-Mail: info@dezurik.com



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

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.