Pneumatic and Hydraulic Gate Valve Cylinders
through 24 inch bore
Pneumatic and Hydraulic Gate Valve Cylinders

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**Pneumatic Gate Valve Cylinders**

**Overview**

Valve Actuator markets are typically:
- Oil & Gas
- Power Gen
- Pulp and Paper
- Water

**Aluminum Components – 2-1/2” through 12” Bore**
The end plates and piston are made from high strength Aluminum. Combined with an Aluminum or composite cylinder tube the ITT GV actuators are over 50% lighter than actuators constructed from steel components. The end plates are black hard coat anodized for high corrosion and abrasion resistance.

**End plates with rounded corners**
All end plates have rounded versus sharp corners to minimize the potential for injury when handling the actuator.

**Wear Band Piston**
Piston includes a wear band to support the weight of the piston and rod assembly as well as to handle side loading. The wear band also serves to prevent the over compression of the piston seal and practically eliminates compression set of the piston seal during long idle periods.

**Bright Zinc Coated Tie Rods**
Pneumatic Gate Valve Cylinders - 2-1/2” to 24” Bore

Overview

<table>
<thead>
<tr>
<th>ITEM</th>
<th>COMPONENT</th>
<th>DESCRIPTION</th>
<th>ITEM</th>
<th>COMPONENT</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Piston</td>
<td>Aluminum/Steel*</td>
<td>5</td>
<td>Tie Rod and Nuts</td>
<td>Zinc Plated High Strength Alloy Steel</td>
</tr>
<tr>
<td>2</td>
<td>Piston Seals</td>
<td>Buna Nitrile Quad Ring / Polypak</td>
<td>6</td>
<td>Head and Rear Caps</td>
<td>Aluminum/Steel*</td>
</tr>
<tr>
<td>2</td>
<td>Wear Strip</td>
<td>Carbon Reinforced PTFE</td>
<td>7</td>
<td>Ports</td>
<td>NPT</td>
</tr>
<tr>
<td>3</td>
<td>Rod Bearing</td>
<td>Ductile Cast Iron</td>
<td>8</td>
<td>Tube</td>
<td>Aluminum/Composite*</td>
</tr>
<tr>
<td>4</td>
<td>Rod</td>
<td>Hard Chrome Plated</td>
<td></td>
<td></td>
<td>High Strength Alloy Steel</td>
</tr>
</tbody>
</table>

*Alternate materials of construction are available for services where aluminum or steel is not compatible.

TEMPERATURE RATINGS

Standard Materials
- Buna-N seals and aluminum tube (2.5-5 in. bores): -20°F - 220°F (-29°C - 104°C)
- Buna-N seals and composite tube (6-24 in. bores): -20°F - 220°F (-29°C - 104°C)

Optional Materials
- Buna-N seals and steel tube (all bore sizes): -20°F - 220°F (-29°C - 104°C)
- Fluorocarbon and aluminum tube (2.5-5 in. bores): -15°F - 400°F (-26°C - 204°C)
- Fluorocarbon and steel tube (6-24 in. bores): -15°F - 400°F (-26°C - 204°C)
### Pneumatic Gate Valve Cylinders

#### How to Order

**Part Number Example:** GV6X8.75-W1.75-174-F-BB3.50-Z1.50

| 1 | Series |  | 2 | Rod Style |  | 3 | Bore |  | 4 | Stroke |  | 5 | Rod Extension |  | 6 | Rod Material |  | 7 | Seal Material |  | 8 | Tie Rod Extension (Rod End) |  | 9 | Tie Rod Extension (Cap End) |
| GV | Gate Valve | 150 PSI Max |  | Single (Leave Blank) |  | D | Double Rod (Standard Model) |  |  | X.XX | Indicate in Inches - Two Decimal Places |  |  | WX.XX | Leave Blank for Standard Dimension |  |  | Buna-N Seals (Leave Blank) |  | BBX.XX | Leave Blank for Standard Dimension |  | ZX.XX | Leave Blank for Standard Dimension |

- **Series:** GV – Gate Valve
- **Rod Style:**
  - Single (Leave Blank)
  - D – Double Rod (Standard Model)
- **Bore:**
  - 25 – 2-1/2” Bore Cylinder
  - 325 – 3-1/4” Bore Cylinder
  - 4 – 4” Bore Cylinder
  - 5 – 5” Bore Cylinder
  - 6 – 6” Bore Cylinder
  - 7 – 7” Bore Cylinder
  - 8 – 8” Bore Cylinder
  - 10 – 10” Bore Cylinder
  - 12 – 12” Bore Cylinder
  - 14 – 14” Bore Cylinder
  - 16 – 16” Bore Cylinder
  - 18 – 18” Bore Cylinder
  - 20 – 20” Bore Cylinder
  - 22 – 22” Bore Cylinder
  - 24 – 24” Bore Cylinder
- **Stroke:**
  - X.XX – Indicate in Inches - Two Decimal Places
- **Rod Extension:**
  - WX.XX – Leave Blank for Standard Dimension
- **Rod Material:**
  - CR1050 Steel (Leave Blank)
  - 174 – CR Stainless Steel 17-4ph
- **Seal Material:**
  - Buna-N Seals (Leave Blank)
  - F – Fluorocarbon or “Viton” Seals
- **Tie Rod Extension (Rod End):**
  - BBX.XX – Leave Blank for Standard Dimension
  - BBX.XX – Indicate in Inches - Two Decimal Places
- **Tie Rod Extension (Cap End):**
  - ZX.XX – Leave Blank for Standard Dimension
  - ZX.XX – Indicate in Inches - Two Decimal Places

For Custom Gate Valve Cylinders Please Consult Factory.
# Pneumatic Gate Valve Cylinders - 2 1/2” to 5” Bore

## Technical Data

### Theoretical Extend Force LBS. IN

<table>
<thead>
<tr>
<th>BORE in. (mm)</th>
<th>SUPPLY PRESSURE PSI (Bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5 (63.5)</td>
<td>295 (207)</td>
</tr>
<tr>
<td>3.25 (82.6)</td>
<td>461 (318)</td>
</tr>
<tr>
<td>4 (101.6)</td>
<td>707 (480)</td>
</tr>
<tr>
<td>5 (127.0)</td>
<td>1131 (765)</td>
</tr>
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</table>

### Theoretical Retract Force LBS. (N)

<table>
<thead>
<tr>
<th>BORE in. (mm)</th>
<th>SUPPLY PRESSURE PSI (Bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5 (63.5)</td>
<td>276 (195)</td>
</tr>
<tr>
<td>3.25 (82.6)</td>
<td>401 (276)</td>
</tr>
<tr>
<td>4 (101.6)</td>
<td>601 (409)</td>
</tr>
<tr>
<td>5 (127.0)</td>
<td>942 (649)</td>
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</tbody>
</table>

## Theoretical Weight (LBS. IN)

\[
A = B + (B \times \text{stroke})
\]

### Approximate Weight* (GV with Aluminum Heads & Aluminum Tube)

<table>
<thead>
<tr>
<th>BORE DIA. in. (mm)</th>
<th>ROD DIA. in. (mm)</th>
<th>WEIGHT AT ZEROD STROKE LBS. (gpa)</th>
<th>WEIGHT PER INCH (mm) OF GV ACTUATOR LBS. (gpa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5 (63.5)</td>
<td>0.62 (15.7)</td>
<td>2.7 (0.050)</td>
<td>0.3 (0.005)</td>
</tr>
<tr>
<td>3.25 (82.6)</td>
<td>1.00 (25.4)</td>
<td>4.8 (0.22)</td>
<td>0.5 (0.009)</td>
</tr>
<tr>
<td>4 (101.6)</td>
<td>1.00 (25.4)</td>
<td>6.3 (0.29)</td>
<td>0.6 (0.011)</td>
</tr>
<tr>
<td>5 (127.0)</td>
<td>1.00 (25.4)</td>
<td>11.5 (3.3)</td>
<td>0.7 (0.012)</td>
</tr>
</tbody>
</table>

*Total cylinder weight lbs. (gpa) = A + (B x stroke)

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### Pneumatic Gate Valve Cylinders - 6” to 12” Bore

#### Technical Data

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>6 (152.4)</td>
<td>1.12</td>
<td>0.38</td>
<td>4.60</td>
<td>1.25</td>
<td>1.00</td>
<td>0.76</td>
<td>2.38</td>
<td>4.66</td>
<td>1.00</td>
<td>0.44</td>
<td>0.75</td>
<td>1.91</td>
<td>4.66</td>
<td>22.4</td>
<td>24.0</td>
<td>14.2</td>
<td>19.1</td>
<td>46.0</td>
<td>50.0</td>
<td></td>
</tr>
<tr>
<td>8 (203.2)</td>
<td>1.12</td>
<td>0.38</td>
<td>4.60</td>
<td>1.25</td>
<td>1.00</td>
<td>0.76</td>
<td>2.38</td>
<td>4.66</td>
<td>1.00</td>
<td>0.44</td>
<td>0.75</td>
<td>1.91</td>
<td>4.66</td>
<td>22.4</td>
<td>24.0</td>
<td>14.2</td>
<td>19.1</td>
<td>46.0</td>
<td>50.0</td>
<td></td>
</tr>
<tr>
<td>10 (254.0)</td>
<td>1.12</td>
<td>0.38</td>
<td>4.60</td>
<td>1.25</td>
<td>1.00</td>
<td>0.76</td>
<td>2.38</td>
<td>4.66</td>
<td>1.00</td>
<td>0.44</td>
<td>0.75</td>
<td>1.91</td>
<td>4.66</td>
<td>22.4</td>
<td>24.0</td>
<td>14.2</td>
<td>19.1</td>
<td>46.0</td>
<td>50.0</td>
<td></td>
</tr>
<tr>
<td>12 (304.8)</td>
<td>1.12</td>
<td>0.38</td>
<td>4.60</td>
<td>1.25</td>
<td>1.00</td>
<td>0.76</td>
<td>2.38</td>
<td>4.66</td>
<td>1.00</td>
<td>0.44</td>
<td>0.75</td>
<td>1.91</td>
<td>4.66</td>
<td>22.4</td>
<td>24.0</td>
<td>14.2</td>
<td>19.1</td>
<td>46.0</td>
<td>50.0</td>
<td></td>
</tr>
</tbody>
</table>

#### Theoretical Extend Force LBS. (N)

<table>
<thead>
<tr>
<th>BORE (in.)</th>
<th>SUPPLY PRESSURE PSI (Bar)</th>
<th>SUPPLY PRESSURE PSI (Bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 (152.4)</td>
<td>256 (17.54)</td>
<td>256 (17.54)</td>
</tr>
<tr>
<td>8 (203.2)</td>
<td>256 (17.54)</td>
<td>256 (17.54)</td>
</tr>
<tr>
<td>10 (254.0)</td>
<td>256 (17.54)</td>
<td>256 (17.54)</td>
</tr>
<tr>
<td>12 (304.8)</td>
<td>256 (17.54)</td>
<td>256 (17.54)</td>
</tr>
</tbody>
</table>

#### Theoretical Retract Force LBS. (N)

<table>
<thead>
<tr>
<th>BORE (in.)</th>
<th>SUPPLY PRESSURE PSI (Bar)</th>
<th>SUPPLY PRESSURE PSI (Bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 (152.4)</td>
<td>256 (17.54)</td>
<td>256 (17.54)</td>
</tr>
<tr>
<td>8 (203.2)</td>
<td>256 (17.54)</td>
<td>256 (17.54)</td>
</tr>
<tr>
<td>10 (254.0)</td>
<td>256 (17.54)</td>
<td>256 (17.54)</td>
</tr>
<tr>
<td>12 (304.8)</td>
<td>256 (17.54)</td>
<td>256 (17.54)</td>
</tr>
</tbody>
</table>

#### Weights

- **Approximate Weight**: (GV with Aluminum Heads & Composite Tube)
- **Weight at Zero Stroke**: LBS. (kgs.)
- **Weight Per Inch**: (GV Actuator LBS.)

<table>
<thead>
<tr>
<th>BORE (in.)</th>
<th>APPROXIMATE WEIGHT (GV WITH ALUMINUM HEADS &amp; COMPOSITE TUBE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 (152.4)</td>
<td>10.00 (25.4)</td>
</tr>
<tr>
<td>8 (203.2)</td>
<td>10.00 (25.4)</td>
</tr>
<tr>
<td>10 (254.0)</td>
<td>10.00 (25.4)</td>
</tr>
<tr>
<td>12 (304.8)</td>
<td>10.00 (25.4)</td>
</tr>
</tbody>
</table>

*Total cylinder weight lbs. (kgs.) = A + (B x stroke)
### Pneumatic Gate Valve Cylinders - 14” to 24” Bore

#### Technical Data

| BORE in. (mm) | A in. (mm) | C in. (mm) | D in. (mm) | E in. (mm) | G in. (mm) | H in. (mm) | J in. (mm) | K in. (mm) | F in. (mm) | P in. (mm) | R in. (mm) | Y in. (mm) | Z in. (mm) | BL in. (mm) | MM in. (mm) |
|--------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| 14 (355.6)   | 1.62 (41.1)| 0.50 (12.7)| 1.12 (28.6)| 1.47 (37.4)| 1.50 (38.1)| 2.67 (68.0)| 1.50 (38.1)| 0.79 (20.1)| 4.29 (109.0)| 10.90 (276.6)| 2.50 (63.5)| 4.89 (124.9)| 4.29 (109.0)| 1359.3 (616.6)| 1.00 (25.4)| .88 (22.4)| 88.1 (22.4)| 3.50 (88.9)| 1.00 (25.4)|
| 16 (406.4)   | 1.62 (41.1)| 0.62 (15.7)| 1.30 (33.0)| 1.70 (43.1)| 1.30 (33.0)| 2.67 (68.0)| 1.30 (33.0)| 0.88 (22.4)| 4.29 (109.0)| 12.59 (319.8)| 2.73 (69.9)| 4.89 (124.9)| 4.29 (109.0)| 1459.2 (616.6)| 1.25 (31.8)| 2.73 (69.9)| 3.75 (95.2)| 3.50 (88.9)| 1.00 (25.4)|
| 16 (406.4)   | .75 (19.1)| 1.69 (43.0)| 1.19 (30.2)| 1.90 (48.2)| 1.75 (44.5)| 4.45 (113.0)| 1.75 (44.5)| 1.90 (48.2)| 4.45 (113.0)| 14.54 (369.2)| 3.66 (93.1)| 7.0 (178.0)| 4.45 (113.0)| 1659.1 (659.1)| 1.25 (31.8)| 2.73 (69.9)| 3.75 (95.2)| 3.50 (88.9)| 1.00 (25.4)|
| 1.25 (31.8)| 1.54 (39.2)| 2.00 (50.8)| 1.69 (43.0)| 2.10 (53.3)| 2.00 (50.8)| 1.69 (43.0)| 2.00 (50.8)| 1.69 (43.0)| 14.54 (369.2)| 3.66 (93.1)| 7.0 (178.0)| 4.45 (113.0)| 1659.1 (659.1)| 1.25 (31.8)| 2.73 (69.9)| 3.75 (95.2)| 3.50 (88.9)| 1.00 (25.4)|
| 22 (558.8)   | .50 (12.7)| 1.86 (47.2)| 1.69 (43.0)| 2.30 (58.4)| 2.00 (50.8)| 1.69 (43.0)| 2.00 (50.8)| 1.69 (43.0)| 14.54 (369.2)| 3.66 (93.1)| 7.0 (178.0)| 4.45 (113.0)| 1659.1 (659.1)| 1.25 (31.8)| 2.73 (69.9)| 3.75 (95.2)| 3.50 (88.9)| 1.00 (25.4)|
| 24 (609.6)   | .75 (19.1)| 1.93 (49.1)| 1.76 (44.5)| 2.52 (63.5)| 2.52 (63.5)| 2.52 (63.5)| 2.52 (63.5)| 2.52 (63.5)| 14.54 (369.2)| 3.66 (93.1)| 7.0 (178.0)| 4.45 (113.0)| 1659.1 (659.1)| 1.25 (31.8)| 2.73 (69.9)| 3.75 (95.2)| 3.50 (88.9)| 1.00 (25.4)|

#### APPROXIMATE WEIGHT* (GV WITH STEEL HEADS & COMPOSITE TUBE)

<table>
<thead>
<tr>
<th>BORE in. (mm)</th>
<th>ROD DIA. in. (mm)</th>
<th>ROD DIA. in. (mm)</th>
<th>APPROXIMATE WEIGHT* (GV WITH STEEL HEADS &amp; COMPOSITE TUBE)</th>
<th>WEIGHT AT ZERO STROKE LBS. (kg.)</th>
<th>WEIGHT PER INCH (mm) OF GV ACTUATOR LBS. (kg.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 (355.6)</td>
<td>1.38 (35.1)</td>
<td>236.8 (544.7)</td>
<td>1.3 (0.59)</td>
<td>296.8 (664.6)</td>
<td>1.3 (0.59)</td>
</tr>
<tr>
<td>16 (406.4)</td>
<td>1.75 (44.5)</td>
<td>386.5 (853.5)</td>
<td>2.7 (1.22)</td>
<td>386.5 (853.5)</td>
<td>2.7 (1.22)</td>
</tr>
<tr>
<td>16 (406.4)</td>
<td>1.75 (44.5)</td>
<td>386.5 (853.5)</td>
<td>2.7 (1.22)</td>
<td>386.5 (853.5)</td>
<td>2.7 (1.22)</td>
</tr>
<tr>
<td>18 (457.2)</td>
<td>2.00 (50.8)</td>
<td>537.8 (1263.9)</td>
<td>3.3 (1.50)</td>
<td>537.8 (1263.9)</td>
<td>3.3 (1.50)</td>
</tr>
<tr>
<td>20 (508.0)</td>
<td>2.00 (50.8)</td>
<td>742.2 (1837.7)</td>
<td>3.7 (1.66)</td>
<td>742.2 (1837.7)</td>
<td>3.7 (1.66)</td>
</tr>
<tr>
<td>22 (558.8)</td>
<td>2.00 (50.8)</td>
<td>963.3 (2235.6)</td>
<td>4.5 (2.04)</td>
<td>963.3 (2235.6)</td>
<td>4.5 (2.04)</td>
</tr>
<tr>
<td>24 (609.6)</td>
<td>2.00 (50.8)</td>
<td>1359.3 (3164.6)</td>
<td>5.8 (2.64)</td>
<td>1359.3 (3164.6)</td>
<td>5.8 (2.64)</td>
</tr>
</tbody>
</table>

*Total cylinder weight lbs. (kg.) = A + (x stroke)

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CAUTION: CHECK MAXIMUM OPERATING PRESSURE LISTED ON CYLINDER LABEL BEFORE APPLYING PRESSURE TO CYLINDER. EXCEEDING THE PRESSURE RATING LISTED ON THE CYLINDER MAY CAUSE FAILURE WHICH MAY ENDANGER PERSONNEL AND/OR EQUIPMENT.

WARNING: READ INSTALLATION SERVICE INSTRUCTIONS AND GENERAL PARTS BREAKDOWN BEFORE INSTALLATION, OPERATION OR SERVICING. THIS MANUAL IS NOT FOR SPRING LOADED CYLINDERS.

NOTICE: DISASSEMBLY OF THIS PRODUCT WILL VOID WARRANTY

GV ACTUATOR INSTALLATION AND MAINTENANCE INSTRUCTIONS

1. GENERAL: The parts drawing on Page 3 shows a complete listing of parts and is applicable to all standard series GV air cylinders (2.50” through 24.00” bores only). This parts drawing when used in conjunction with the parts listed and kits, should facilitate the ordering of any replacement parts or kits by specifying:
   A. Cylinder Part Number as it appears on the identification label on the cylinder tube located on the port side.
   B. Item number and part name or kit type and name.

2. INSTALLATION OF CYLINDER: The seals and packing of standard air cylinders operate within the temperature range of -20°F (-29°C) to 220°F (104°C). Buffets are recommended to shield cylinder from heat, whenever practical, for unusually high or low temperatures, different seal materials may have been used. (Contact ITT Westminster @ 864-647-9521. For the cylinder to perform well, it must be properly installed. Alignment of the cylinder with load is most important. Forcing the rod or mounting bolts into position indicates that the cylinder is not properly aligned, and permanent damage may result from such installation. Protective port covers should not be removed before installing air line connections as dirt or other foreign particles may enter the cylinder. All pipe and fittings must be clean before making final connections.

3. PROCEDURE FOR REPACKING CYLINDER:
   NOTE: DISASSEMBLY BEFORE WARRANTY PERIOD EXPIRES WILL VOID WARRANTY! (See Page 8 for Disassembly/Parts Diagram)
   A. Disconnect air lines from head cap and rear cap ports of cylinder.
   B. Remove the tie rod nuts (5) and tie rods (4).
   C. Remove the tie rod nuts (5) and tie rods (4).
   D. Remove piston and rod assembly from tube (3).
   E. To disassemble rear cap (2), remove cap O-ring or gasket (13).
   F. To disassemble head cap (1):
      1. Remove head cap O-ring or gasket (13).
      2. 12.00”-24.00” bore sizes remove bearing retainert ring (12) and rod bearing (11) from head cap (11). NOTE: 2.50”-10.00” rod bearings (11) are press fit – DO NOT REMOVE.
      3. Remove rod seal (15). For 12.00”-24.00” bore sizes remove the rod bearing O-ring (17).
      4. Remove rod wiper (16) from the head cap.
   G. CLEANING: Clean all parts thoroughly. The packing and seals in this cylinder are compatible with hydraulic oils, air, and neutral fluids. The cleaning agent must be compatible to avoid damage to packing and seals. Whenever a particular lubricant is specified for a particular installation, do not deviate from the specification without checking for compatibility.

4. INSPECTION
   A. Inspect all packing and seals for swelling, shrinkage, wear, nicks, cuts
Pneumatic Gate Valve Cylinders

Components, Assembly and Maintenance

Actuator Parts
1. Head Cap
2. Rear Cap
3. Tube
4. Tie Rods
5. Tie Rod Nuts
6. Tie Rod Washers
7. Piston
8. Piston Rod
9. Piston to Rod Screw
10. Piston to Rod Washer
11. Rod Bearing
12. Retaining Ring

Seals
13. Tube Seals
14. Piston Seals
15. Rod Seal
16. Rod Wiper
17. Rod Bearing O-Ring
18. Piston Wear Strip
19. Wear Strip O-Ring
20. Expanders

Gate Valve Cylinder Tie Rod Torque Reference

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<thead>
<tr>
<th>TUBE MATERIAL</th>
<th>CYLINDER BORE SIZE</th>
<th>TUBE MATERIAL</th>
<th>CYLINDER BORE SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>2.5 6</td>
<td>3.25 10</td>
<td>4.0 18</td>
</tr>
<tr>
<td>lb-ft (Nm)</td>
<td>6.0 8.1</td>
<td>10.0 13.6</td>
<td>12.0 18.4</td>
</tr>
<tr>
<td>Composite</td>
<td>13.0 17.6</td>
<td>25.0 33.9</td>
<td>29.0 41.3</td>
</tr>
</tbody>
</table>

Gate Valve Cylinder Repair Kits

<table>
<thead>
<tr>
<th>CYLINDER BORE</th>
<th>PISTON ROD DIAMETER</th>
<th>SEAL MATERIAL</th>
<th>REPAIR KITS CONTAIN THE FOLLOWING ITEM NUMBERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inches (mm)</td>
<td>Inches (mm)</td>
<td>BUNA-N</td>
<td>FLUOROCARBON</td>
</tr>
<tr>
<td>2.5 63.5</td>
<td>0.63 16.0</td>
<td>RKGV25</td>
<td>RKGV25</td>
</tr>
<tr>
<td>3.25 82.6</td>
<td>1 25.4</td>
<td>RKGV325</td>
<td>RKGV325</td>
</tr>
<tr>
<td>4 101.6</td>
<td>1 25.4</td>
<td>RKGV4</td>
<td>RKGV4</td>
</tr>
<tr>
<td>5 127.0</td>
<td>1 25.4</td>
<td>RKGV5</td>
<td>RKGV5</td>
</tr>
<tr>
<td>6 152.4</td>
<td>1 25.4</td>
<td>RKGV6</td>
<td>RKGV6</td>
</tr>
<tr>
<td>7 177.8</td>
<td>1 25.4</td>
<td>RKGV7</td>
<td>RKGV7</td>
</tr>
<tr>
<td>8 203.2</td>
<td>1 25.4</td>
<td>RKGV8</td>
<td>RKGV8</td>
</tr>
<tr>
<td>10 254.0</td>
<td>1 25.4</td>
<td>RKGV10</td>
<td>RKGV10</td>
</tr>
<tr>
<td>12 304.8</td>
<td>1.38 35.1</td>
<td>RKGV12</td>
<td>RKGV12</td>
</tr>
<tr>
<td>14 355.6</td>
<td>1.38 35.1</td>
<td>RKGV14</td>
<td>RKGV14</td>
</tr>
<tr>
<td>16 406.4</td>
<td>1.75 44.5</td>
<td>RKGV16</td>
<td>RKGV16</td>
</tr>
<tr>
<td>18 457.2</td>
<td>2 50.8</td>
<td>RKGV18</td>
<td>RKGV18</td>
</tr>
<tr>
<td>20 508.0</td>
<td>2 50.8</td>
<td>RKGV20</td>
<td>RKGV20</td>
</tr>
<tr>
<td>22 558.8</td>
<td>3 76.2</td>
<td>RKGV22</td>
<td>RKGV22</td>
</tr>
<tr>
<td>24 609.6</td>
<td>3.5 88.9</td>
<td>RKGV24</td>
<td>RKGV24</td>
</tr>
</tbody>
</table>
At ITT we produce the following custom options and specials:

- Spring Extend - Air Retract
- Spring Retract - Air Extend
- Steel Tubes
- Adjustable Stops
- Special Coatings
- Special Mountings
- All Stainless Steel Components
- Multi-Piston for:
  - Multi-Power
  - Multi-Position
- Special Ports
- Oversized Rods
- Custom Rod Configurations

If you can imagine a design, ITT can provide the solution.
Hydraulic Gate Valve Cylinders - 1-1/2” to 8” Bore

Overview

TEMPERATURE RATINGS

<table>
<thead>
<tr>
<th>Standard Materials</th>
<th>Optional Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urethane Seals: -30°F (-40° C) TO 175°F (82° C)</td>
<td>Viton Seals: -15°F (-26° C) TO 400°F (204° C)</td>
</tr>
</tbody>
</table>
Hydraulic Gate Valve Cylinders

How to Order

<table>
<thead>
<tr>
<th>Type</th>
<th>Pressure</th>
<th>Series</th>
<th>Bore</th>
<th>Stroke</th>
<th>Rod End Style</th>
<th>Rod Diameter</th>
<th>Rod Extension</th>
<th>Rod Material</th>
<th>Seal Material</th>
<th>Port Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>3</td>
<td>GV</td>
<td>15</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>W3.00</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Part Number Example: H3GV15x1.75-MFS-W3.00-F

1. **Type**
   - H: Hydraulic
2. **Pressure**
   - 3: 3000 PSI Max
3. **Series**
   - GV: Gate Valve Series
4. **Bore**
   - 15: 1-1/2” Bore Cylinder
   - 2: 2” Bore Cylinder
   - 25: 2-1/2” Bore Cylinder
   - 325: 3-1/4” Bore Cylinder
   - 4: 4” Bore Cylinder
   - 5: 5” Bore Cylinder
   - 6: 6” Bore Cylinder
   - 8: 8” Bore Cylinder
5. **Stroke**
   - X.XX: Indicate in Inches - Two Decimal Places
6. **Mounting Style**
   - MFS: NFPA Style Square Front Flange Mount
7. **Rod End Style**
   - Standard Style 4-Short Female (Leave Blank)
   - 2: Style 2 - Small Male
   - 5: Style 5 - Intermediate Male
8. **Rod Diameter**
   - Standard Rod Diameter * (Leave Blank)
   - X.XX: Optional Rod Diameter - Inches - Two Decimal Places
   - Ex. 1.38 = 1-3/8” Rod Diameter
   - Consult Factory for Available Sizes
9. **Rod Extension**
   - Standard Rod Extension (Leave Blank)
   - WX.XX: Optional Rod Extension - Inches - Two Decimal Places
   - Ex. W2.25 = 2.25” Rod Protrusion When Retracted
10. **Rod Material**
    - CR1050 Steel (Leave Blank)
    - 174: Chrome Plated Stainless Steel 17-4ph
11. **Seal Material**
    - Standard Urethane (Leave Blank)
    - F: Fluorocarbon or “Viton” Seals
12. **Port Type**
    - Standard SAE Ports (Leave Blank)
    - xNPT: Optional NPT Ports (Specify Size - Ex. 3/4NPT)

For Custom Gate Valve Cylinders Please Consult Factory.
Hydraulic Gate Valve Cylinders

Components and Technical Data

Component

Actuator Parts
1. MF5 Style Flange
2. Tie Rods
3. Head Cap
4. Rod Bearing
5. Tube
6. Rod
7. Piston
8. Piston Retaining Screw
9. Rear Cap
10. Tie Rod Nuts

Seals
11. Cap O-Rings
12. Rod Wiper
13. Rod Seal
14. Rod Bearing O-Ring Backup
15. Rod Bearing O-Ring
16. Piston Seal Backup
17. Piston U-Cup Seals

3.25" Bore and Larger
18. Bearing Retaining Screws
19. Threaded Rod Bearing
20. Head Cap

THEORETICAL EXTEND FORCE LBS. (N)
BORE
DIA. in. (mm)
1500 (103.4)
2000 (137.9)
2500 (172.4)
3000 (206.4)

SUPPLY PRESSURE PSI (Bar)
1500 (103.4)
2000 (137.9)
2500 (172.4)
3000 (206.4)

THEORETICAL RETRACT FORCE LBS. (N)

ROD Dia. in. (mm)
635 (16)
1143 (29)
1651 (42)
2159 (55)

SUPPLY PRESSURE PSI (Bar)
1500 (103.4)
2000 (137.9)
2500 (172.4)
3000 (206.4)

WEIGHT AT ZERO STROKE LBS. (kgs.)
4.6 (2.1)
7.7 (3.5)
11.8 (5.3)
16.8 (7.6)

WEIGHT PER INCH (mm) OF ACTUATOR STROKE LBS. (kgs.)
0.5 (0.006)
0.8 (0.014)
1.1 (0.019)
1.4 (0.025)

WEIGHT PER INCH (mm) OF ADDED ROD LENGTHS, LBS. (kgs.)
1.5 (0.018)
2.1 (0.034)
2.7 (0.046)
3.3 (0.068)

*Total actuator weight lbs. (kgs.) = A + (B x Stroke) + (C x Added Rod Length)

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Gate Valve Cylinder Series Warranty

Seller warrants for one year from the date of shipment Seller’s manufactured products to the extent that Seller will replace those having defects in material or workmanship when used for the purpose and in the manner which Seller recommends. If Seller’s examination shall disclose to its satisfaction that the products are defective, and an adjustment is required, the amount of such adjustment shall not exceed the net sales price of the defective products only and no allowance will be made for labor or expense of repairing or replacing defective products or workmanship or damage resulting from the same. Seller warrants the products which it sells of other manufacturers to the extent of the warranties of their respective makers. Where engineering design or fabrication work is supplied, Buyer’s acceptance of Seller’s design or of delivery of work shall relieve Seller of all further obligation, other than as expressed in Seller’s product warranty. THIS IS SELLER’S SOLE WARRANTY. SELLER MAKES NO OTHER WARRANTY OF ANY KIND, EXPRESSED OR IMPLIED. AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEED SELLER’S AFORESTATED OBLIGATION ARE HEREBY DISCLAIMED BY SELLER AND EXCLUDED FROM THIS WARRANTY. Seller neither assumes, nor authorizes any person to assume for it, any other obligation in connection with the sale of its engineering designs or products. This warranty shall not apply to any products or parts of products which (a) have been repaired or altered outside of Seller’s factory, in any manner; or (b) have been subjected to misuse, negligence or accidents; or (c) have been used in a manner contrary to Seller’s instructions or recommendations. Seller shall not be responsible for design errors due to inaccurate or incomplete information supplied by Buyer or its representatives.

SELLER’S LIABILITY: Seller will not be liable for any loss, damage, cost of repairs, incidental or consequential damages of any kind, whether based upon warranty (except for the obligation accepted by Seller under “Warranty” above), contract or negligence, arising in connection with the design, manufacture, sale, use or repair of the products or of the engineering designs supplied to Buyer.