

▲ Model 115-2 shown

The OCV Series 115 Solenoid Control Valve is designed to provide on/off or open/close control of fluids in response to an electrical signal. The valve consists of the basic OCV model 65 with solenoid-operated pilot. With the appropriate solenoid, the valve may be normally closed (energize to open) or normally open (de-energize to open).

## SERIES FEATURES

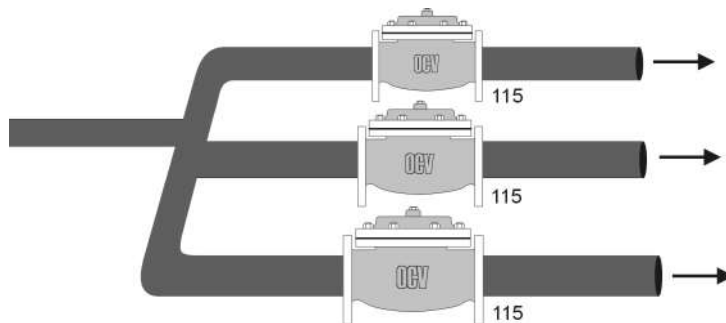
- ▶ The 115 Series provides responsive control in answer to such triggering devices as clocks, timers, relays, probes, pressure or temperature sensors.
- ▶ Available for AC or DC voltages.
- ▶ Wider range of sizes and flow capacity than is available with direct acting solenoid valves.
- ▶ Valves can be equipped with Manual Override solenoid operation.
- ▶ Solenoid feature can be added to other hydraulic control functions.

## VALVE FEATURES

- ▶ Operates automatically off of line pressure.
- ▶ Heavy-duty, nylon-reinforced diaphragm.
- ▶ Rectangular-shaped, soft seat seal provides drip-tight Class VI closure.
- ▶ Diaphragm assembly guided top and bottom.
- ▶ Throttling seat retainer for flow and pressure stability.
- ▶ Easily maintained without removal from the line.
- ▶ Replaceable seat ring.
- ▶ Alignment pins assure proper reassembly after maintenance.
- ▶ Factory tested.
- ▶ Serial numbered and registered to facilitate replacement parts and factory support.

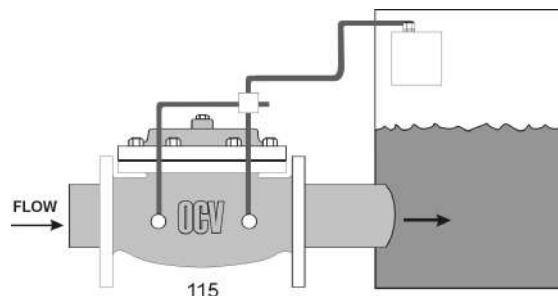
## ZONE CONTROL

Used in irrigation and industrial processes, each flow line can be activated independently of the others.



## LEVEL CONTROL

Valve, activated by level sensor, fills storage tank.

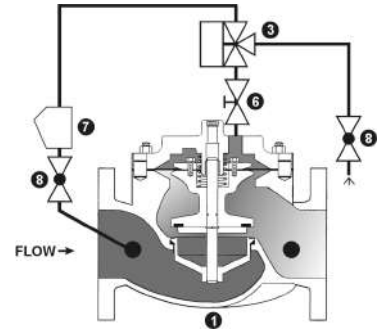


## VALVE OPERATION

### SOLENOID VALVE TYPES

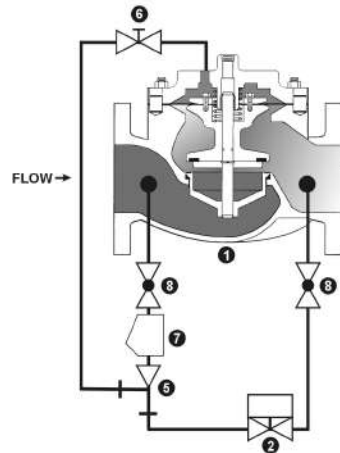
#### Model 115-1 Three-Way Solenoid

Operated by a 3-Way solenoid. The main valve diaphragm chamber may be exhausted to atmosphere, allowing for full open operation at any flow rate. Standard valve includes needle valve opening/closing speed control adjustment. Size ranges 1 1/4" - 4", consult factory on application of larger sizes.



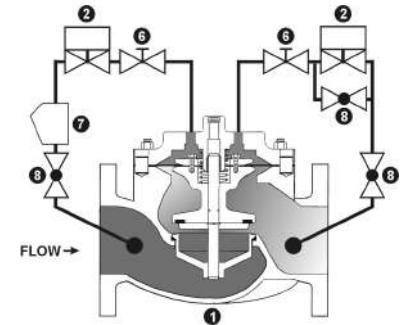
#### Model 115-2 Two-Way Solenoid

Operated by a 2-Way solenoid and ejector. The main valve diaphragm is exhausted to valve outlet port. Valve position is determined by flow rate demand (differential pressure). Standard valve includes needle valve opening/closing speed control adjustment. Size ranges 1 1/4" - 6", consult factory on application of larger sizes.



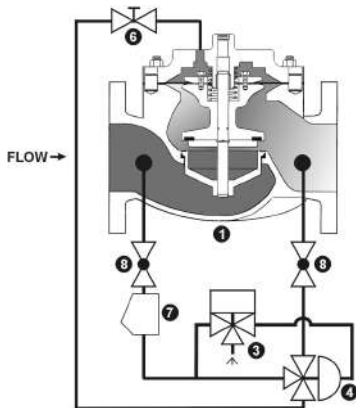
#### Model 115-3 Positioned Valve

Operated by two 2-Way solenoids. The valve may be positioned from full closed to full open or locked in any intermediate position. Equipped with both opening and closing speed adjustment. The valve can be configured to open, close, or hold position in the event of electrical power failure. The Model 115-3 is the basis for the OCV Series 22 Electronic Control Valves.



#### Model 115-4 Three-Way Solenoid With Accelerator

Operated by a 3-Way solenoid which operates a large port accelerator pilot, allowing quick response on larger valves. Standard valve includes needle valve opening/closing speed control adjustment. Size ranges 3 - 24".



#### Components

1. Basic Valve
2. 2-Way solenoid
3. 3-Way solenoid
4. 3-Way auxiliary pilot
5. Ejector
6. Needle valve speed control
7. Y-Strainer
8. Isolation ball valve

## SIZING CONSIDERATIONS

### Sizing of Series 115 Valves

Our ValveMaster Premier selection and sizing software covers this in detail; however, if you do not have access to this software online, sizing per the following procedure should result in satisfactory operation.

1. Decide whether a globe or angle valve will best fit your installation. Keep in mind that it is always best to install any control valve "bonnet up," particularly in sizes 8" and larger.
2. Begin with a line-sized valve.

Calculate the pressure drop from the formula:

$$DP = sg \left( Q / C_v \right)^2$$

where: DP = pressure drop, psi  
 sg = specific gravity of line fluid (water = 1.0)  
 Q = rated flow of pump, gpm  
 Cv = Valve coefficient from the table below

3. The pressure drop calculated is for a wide-open valve and would be true for an exhaust-to-atmosphere valve (115-1 or 115-4) regardless of flow rate. On the other hand, a valve exhausting to downstream (115-2) may not be wide open. Refer to the "wide open at" column of the table below. If the flow rate is less than this figure, the pressure drop of the valve can be 2-3 psi higher than the value calculated in Step 2. If the flow rate is higher than the figure given, the valve will be wide open and will have a pressure drop equal to the exhaust-to-atmosphere valve.
4. Check to see that the flow velocity does not exceed 20 ft/sec. If it does, or if the pressure drop is excessive, consider using the next size larger valve.
5. Finally, if an exhaust-to-atmosphere valve is selected, make note of the diaphragm chamber discharge. This quantity of water will be discharged into the atmosphere each time the valve opens or closes. Provision should be made to drain or otherwise dispose of this water.

## FLOW CHARACTERISTICS

| SIZE | C <sub>v</sub><br>(GLOBE) | C <sub>v</sub><br>(ANGLE) | FLOW @<br>20 FT/SEC (GPM) | WIDE OPEN AT:<br>(GPM) | DIAPH. CHAMBER DISCHARGE<br>(GALLONS) |
|------|---------------------------|---------------------------|---------------------------|------------------------|---------------------------------------|
| 1 ¼  | 23                        | 30                        | 85                        | 50                     | 0.02                                  |
| 1 ½  | 27                        | 35                        | 120                       | 50                     | 0.02                                  |
| 2    | 47                        | 65                        | 210                       | 100                    | 0.05                                  |
| 2 ½  | 68                        | 87                        | 300                       | 140                    | 0.06                                  |
| 3    | 120                       | 160                       | 460                       | 220                    | 0.10                                  |
| 4    | 200                       | 270                       | 800                       | 400                    | 0.2                                   |
| 6    | 450                       | 550                       | 1800                      | 950                    | 0.6                                   |
| 8    | 760                       | 1000                      | 3100                      | 1300                   | 1.0                                   |
| 10   | 1250                      | 1600                      | 4900                      | 2000                   | 2.5                                   |
| 12   | 1940                      | 2400                      | 7000                      | 2800                   | 4.0                                   |
| 14   | 2200                      | --                        | 8450                      | 3300                   | 6.5                                   |
| 16   | 2850                      | 4000                      | 11,000                    | 4500                   | 9.6                                   |
| 24   | 6900                      | --                        | 25,000                    | 9300                   | 28.0                                  |

## VALVE SELECTION GUIDE

This chart shows only a sample of those most often specified valves. Consult the factory for specific data on the model you selected.

Combination valves can often reduce or eliminate other equipment. Example: If the system requires a reverse flow check function, the check feature can be added as a function of the Solenoid Valve Series 115.

| Feature                             | 115-1 | 115-2 | 115-26 | 115-3 | 115-36 | 115-4 | 115-46 | Definition  |
|-------------------------------------|-------|-------|--------|-------|--------|-------|--------|---|
| Two-Way Solenoid                    |       | X     | X      |       |        |       |        | Two-Way solenoid with ejector system                              |
| Check Feature                       |       |       | X      |       | X      |       | X      | Closes valve on pressure reversal                                 |
| Three-Way Solenoid                  | X     |       |        |       |        |       |        | Three-Way solenoid operates valve directly                        |
| Three-Way Solenoid with Accelerator |       |       |        |       |        | X     | X      | Three-Way solenoid actuates high capacity pilot                   |
| Digital Modulation                  |       |       |        | X     | X      |       |        | Valve positioned via discrete electrical signals to two solenoids |

## ABOUT YOUR VALVE

OCV Control Valves was founded more than 60 years ago with a vision and commitment to quality and reliability. From modest beginnings, the company has grown to be a global leader just a half century later. In fact, OCV valves can be found in some capacity in nearly every country around the world from fire protection systems in Malaysia to aircraft fueling systems in Africa and from oil refineries in Russia to water supply systems in the USA and Canada. You will also find our valves in irrigation systems in Europe, South America and the Middle East.

The original foundation on which the company was built allows our team of professionals to not only provide the service required to be a worldwide supplier, but more importantly, the opportunity to afford the personal touch necessary to be each of our customers' best partner. Simply stated, we take pride in all that we do.

Committed to the work they do, our employees average over 15 years of service with our company. This wealth of knowledge allows us to provide quality engineering, expert support, exacting control and the know-how to create valves known for their long life.

Being ISO 9001 certified means we are committed to a quality assurance program. Our policy is to supply each customer with consistent quality products and ensure that the process is right every time. Our valves meet and exceed industry standards around the world, including approvals by:



Check individual models for availability.

All valves are not created equal. OCV Control Valves proves that day in and day out. We stand behind our valves and are ready to serve your needs.

**TOLL FREE 1.888.628.8258** • phone: (918)627.1942 • fax: (918)622.8916 • 7400 East 42nd Place, Tulsa, OK 74145  
email: [sales@controlvalves.com](mailto:sales@controlvalves.com) • website: [www.controlvalves.com](http://www.controlvalves.com)

## SPECIFICATIONS

NOTE: ALL waterworks valves meet the Low-Lead laws of the United States, including individual state laws, as of March 2014.  
 \*Valves 1-1/4" through 24" are certified to NSF/ANSI 372. Valves 4" through 24" are also certified to NSF/ANSI 61-G.

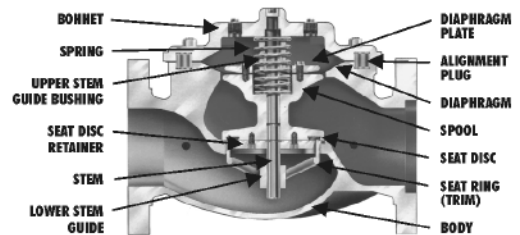


| VALVE BODY & BONNET  |  | DUCTILE IRON  |         | CAST STEEL                            |                                     | STAINLESS STEEL         |         |
|--|--|---|---------|---------------------------------------|-------------------------------------|-------------------------|---------|
| Material Specification   |  | ASTM A536/65-45-12<br>(epoxy coated)  |         | ASTM A216/WCB<br>(epoxy coated)       |                                     | ALL GRADES              |         |
| END CONNECTIONS  |  |   |         |                                       |                                     |                         |         |
| Flange Standard (also available in metric)                                     |  | ANSI B16.42   |         | ANSI B16.5                            |                                     | ANSI B16.5              |         |
| Flange Class   |  | 150#  | 300#    | 150#                                  | 300#                                | 150#                    | 300#    |
| Flange Face  |  | Flat  | Raised  | Raised                                | Raised                              | Raised                  | Raised  |
| Maximum Working Pressure   |  | 250 psi   | 640 psi | 285 psi                               | 740 psi                             | 285 psi                 | 740 psi |
| Screwed Working Pressure: ANSI B1.20.1 640 psi                                 |  |   |         | Grooved End Working Pressure: 300 psi |                                     |                         |         |
| INTERNALS  |  |   |         |                                       |                                     |                         |         |
| Stem   |  | STAINLESS STEEL   |         |                                       |                                     |                         |         |
| Spring   |  | STAINLESS STEEL   |         |                                       |                                     |                         |         |
| Spool  |  | DUCTILE IRON (epoxy coated) / OPTIONAL - STN. STL.  |         |                                       |                                     | STAINLESS STEEL         |         |
| Seat Disc Retainer   |  | DUCTILE IRON (epoxy coated) (10" & LARGER)<br>STN. STL. (8" & SMALLER / OPTIONAL - ALL SIZES) |         |                                       |                                     | STAINLESS STEEL         |         |
| Diaphragm Plate  |  | DUCTILE IRON (epoxy coated) / OPTIONAL - STN. STL.  |         |                                       |                                     | STAINLESS STEEL         |         |
| Seat Ring (Trim)   |  | LOW-LEAD BRONZE OR STN. STL.  |         |                                       |                                     | STN. STL.               |         |
| Upper Stem Bushing   |  | BRONZE OR TEFLON®   |         |                                       |                                     | TEFLON®                 |         |
| Lower Stem Bushing   |  | NOT APPLICABLE FOR LOW-LEAD BROZE SEAT RINGS / TEFLON FOR FOR STN. STL. SEAT RINGS            |         |                                       |                                     |                         |         |
| ELASTOMER PARTS (Rubber)   |  |   |         |                                       |                                     |                         |         |
| Diaphragm/Seat Disc/O-Rings  |  | EPDM  |         |                                       |                                     |                         |         |
| Operating Temperature*   |  | 32°F to 230°F   |         |                                       |                                     |                         |         |
| *Consult factory when temperatures approach low or high temperature allowance. |  |   |         |                                       |                                     |                         |         |
| COATINGS   |  |   |         |                                       |                                     |                         |         |
| NSF-61 EPOXY COATING   |  |   |         |                                       |                                     |                         |         |
| ELECTRICAL SOLENOIDS   |  |   |         |                                       |                                     |                         |         |
| Bodies   |  | BRASS / OPTIONAL - STAINLESS STEEL  |         |                                       |                                     |                         |         |
| Enclosures   |  | WATER TIGHT, NEMA 1, 3, 4, & 4X   |         |                                       |                                     |                         |         |
| Power  |  | AC, 60HZ - 24, 120, 240, 480 VOLTS  |         | AC, 50HZ - In 110 VOLT MULTIPLES      |                                     | DC, 6 12, 24, 240 VOLTS |         |
| Operation  |  | ENERGIZE TO OPEN (NORMALLY CLOSED)  |         |                                       | DE-ENERGIZE TO OPEN (NORMALLY OPEN) |                         |         |
| CONTROL PILOTS   |  |   |         |                                       |                                     |                         |         |
| Bodies   |  | LOW-LEAD BRONZE   |         | STN. STL.                             |                                     |                         |         |
| Internal   |  | STAINLESS STEEL   |         | STAINLESS STEEL                       |                                     |                         |         |
| Tubing   |  | COPPER  |         | STAINLESS STEEL                       |                                     |                         |         |
| Fittings   |  | LOW-LEAD BRASS  |         | STAINLESS STEEL                       |                                     |                         |         |

TEFLON® is a registered trademark of DuPont.

The diagram shows a cross-section of a solenoid valve. On the left, a vertical assembly consists of a Bonnet at the top, followed by a Spring, an Upper Stem Guide Bushing, a Seat Disc Retainer, and a Cylinder at the bottom. On the right, another vertical assembly consists of a Diaphragm Plate at the top, followed by an Alignment Plug, a Diaphragm, a Spool, and a Seat Disc at the bottom. Arrows point from each label to its corresponding part in the diagram.

TEFLON® is a registered trademark of DuPont.



### Globe Flanged Sizes

|       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |
|-------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1.25" | 1.5" | 2"   | 2.5" | 3"   | 4"    | 6"    | 8"    | 10"   | 12"   | 14"   | 16"   | 18"*  | 20"*  | 24"   |
| 32mm  | 40mm | 50mm | 65mm | 80mm | 100mm | 150mm | 200mm | 250mm | 300mm | 350mm | 400mm | 450mm | 500mm | 600mm |

\*CONSULT FACTORY



### Angle Flanged Sizes

|       |      |      |      |      |       |       |       |       |       |       |
|-------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| 1.25" | 1.5" | 2"   | 2.5" | 3"   | 4"    | 6"    | 8"    | 10"   | 12"   | 16"   |
| 32mm  | 40mm | 50mm | 65mm | 80mm | 100mm | 150mm | 200mm | 250mm | 300mm | 400mm |



### Globe/Angle Screwed Sizes

|       |      |      |      |      |
|-------|------|------|------|------|
| 1.25" | 1.5" | 2"   | 2.5" | 3"   |
| 32mm  | 40mm | 50mm | 65mm | 80mm |



### Globe/Angle Grooved Sizes

|      |      |      |      |       |        |
|------|------|------|------|-------|--------|
| 1.5" | 2"   | 2.5" | 3"   | 4"    | 6"*    |
| 32mm | 50mm | 65mm | 80mm | 100mm | 150mm* |

\*GLOBE ONLY

TOLL FREE 1.888.628.8258 • phone: (918)627.1942 • fax: (918)622.8916 • 7400 East 42nd Place, Tulsa, OK 74145  
 email: sales@controlvalves.com • website: www.controlvalves.com



## DIMENSIONS

U.S. DIMENSIONS - INCHES

| DIM | END CONN. | 1 1/4-1 1/2  | 2       | 2 1/2   | 3      | 4       | 6      | 8        | 10      | 12     | 14     | 16       | 24     |
|-----|-----------|--------------|---------|---------|--------|---------|--------|----------|---------|--------|--------|----------|--------|
| A   | SCREWED   | 8 3/4        | 9 7/8   | 10 1/2  | 13     | --      | --     | --       | --      | --     | --     | --       | --     |
|     | GROOVED   | 8 3/4        | 9 7/8   | 10 1/2  | 13     | 15 1/4  | 20     | --       | --      | --     | --     | --       | --     |
|     | 150# FLGD | 8 1/2        | 9 3/8   | 10 1/2  | 12     | 15      | 17 3/4 | 25 3/8   | 29 3/4  | 34     | 39     | 40 3/8   | 62     |
|     | 300# FLGD | 8 3/4        | 9 7/8   | 11 1/8  | 12 3/4 | 15 5/8  | 18 5/8 | 26 3/8   | 31 1/8  | 35 1/2 | 40 1/2 | 42       | 63 3/4 |
| B   | SCREWED   | 1 7/16       | 1 11/16 | 1 7/8   | 2 1/4  | --      | --     | --       | --      | --     | --     | --       | --     |
|     | GROOVED   | 1*           | 1 3/16  | 1 7/16  | 1 3/4  | 2 1/4   | 3 5/16 | --       | --      | --     | --     | --       | --     |
|     | 150# FLGD | 2 5/16-2 1/2 | 3       | 3 1/2   | 3 3/4  | 4 1/2   | 5 1/2  | 6 3/4    | 8       | 9 1/2  | 10 5/8 | 11 3/4   | 16     |
|     | 300# FLGD | 2 5/8-3 1/16 | 3 1/4   | 3 3/4   | 4 1/8  | 5       | 6 1/4  | 7 1/2    | 8 3/4   | 10 1/4 | 11 1/2 | 12 3/4   | 18     |
| C   | SCREWED   | 4 3/8        | 4 3/4   | 6       | 6 1/2  | --      | --     | --       | --      | --     | --     | --       | --     |
|     | GROOVED   | 4 3/8*       | 4 3/4   | 6       | 6 1/2  | 7 5/8   | --     | --       | --      | --     | --     | --       | --     |
|     | 150# FLGD | 4 1/4        | 4 3/4   | 6       | 6      | 7 1/2   | 10     | 12 11/16 | 14 7/8  | 17     | --     | 20 13/16 | --     |
|     | 300# FLGD | 4 3/8        | 5       | 6 3/8   | 6 3/8  | 7 13/16 | 10 1/2 | 13 3/16  | 15 9/16 | 17 3/4 | --     | 21 5/8   | --     |
| D   | SCREWED   | 3 1/8        | 3 7/8   | 4       | 4 1/2  | --      | --     | --       | --      | --     | --     | --       | --     |
|     | GROOVED   | 3 1/8*       | 3 7/8   | 4       | 4 1/2  | 5 5/8   | --     | --       | --      | --     | --     | --       | --     |
|     | 150# FLGD | 3            | 3 7/8   | 4       | 4      | 5 1/2   | 6      | 8        | 11 3/8  | 11     | --     | 15 11/16 | --     |
|     | 300# FLGD | 3 1/8        | 4 1/8   | 4 3/8   | 4 3/8  | 5 13/16 | 6 1/2  | 8 1/2    | 12 1/16 | 11 3/4 | --     | 16 1/2   | --     |
| E   | ALL       | 6            | 6       | 7       | 6 1/2  | 8       | 10     | 11 7/8   | 15 3/8  | 17     | 18     | 19       | 27     |
| F   | ALL       | 3 7/8        | 3 7/8   | 3 7/8   | 3 7/8  | 3 7/8   | 3 7/8  | 6 3/8    | 6 3/8   | 6 3/8  | 6 3/8  | 6 3/8    | 8      |
| G   | ALL       | 6            | 6 3/4   | 7 11/16 | 8 3/4  | 11 3/4  | 14     | 21       | 24 1/2  | 28     | 31 1/4 | 34 1/2   | 52     |
| H   | ALL       | 10           | 11      | 11      | 11     | 12      | 13     | 14       | 17      | 18     | 20     | 20       | 28 1/2 |

\*GROOVED END NOT AVAILABLE IN 1 1/4"

METRIC DIMENSIONS - M.M.

| DIM | END CONN. | DN32-DN40 | DN50 | DN65 | DN80 | DN100 | DN150 | DN200 | DN250 | DN300 | DN350 | DN400 | DN600 |
|-----|-----------|-----------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| A   | SCREWED   | 222       | 251  | 267  | 330  | --    | --    | --    | --    | --    | --    | --    | --    |
|     | GROOVED   | 222       | 251  | 267  | 330  | 387   | 508   | --    | --    | --    | --    | --    | --    |
|     | 150# FLGD | 216       | 238  | 267  | 305  | 381   | 451   | 645   | 756   | 864   | 991   | 1026  | 1575  |
|     | 300# FLGD | 222       | 251  | 283  | 324  | 397   | 473   | 670   | 791   | 902   | 1029  | 1067  | 1619  |
| B   | SCREWED   | 37        | 43   | 48   | 57   | --    | --    | --    | --    | --    | --    | --    | --    |
|     | GROOVED   | 25*       | 30   | 37   | 44   | 57    | 84    | --    | --    | --    | --    | --    | --    |
|     | 150# FLGD | 59-64     | 76   | 89   | 95   | 114   | 140   | 171   | 203   | 241   | 270   | 298   | 406   |
|     | 300# FLGD | 67-78     | 83   | 95   | 105  | 127   | 159   | 191   | 222   | 260   | 292   | 324   | 457   |
| C   | SCREWED   | 111       | 121  | 152  | 165  | --    | --    | --    | --    | --    | --    | --    | --    |
|     | GROOVED   | 111*      | 121  | 152  | 165  | 194   | --    | --    | --    | --    | --    | --    | --    |
|     | 150# FLGD | 108       | 121  | 152  | 152  | 191   | 254   | 322   | 378   | 432   | --    | 529   | --    |
|     | 300# FLGD | 111       | 127  | 162  | 162  | 198   | 267   | 335   | 395   | 451   | --    | 549   | --    |
| D   | SCREWED   | 79        | 98   | 102  | 114  | --    | --    | --    | --    | --    | --    | --    | --    |
|     | GROOVED   | 79*       | 98   | 102  | 114  | 143   | --    | --    | --    | --    | --    | --    | --    |
|     | 150# FLGD | 76        | 98   | 102  | 102  | 140   | 152   | 203   | 289   | 279   | --    | 398   | --    |
|     | 300# FLGD | 79        | 105  | 111  | 111  | 148   | 165   | 216   | 306   | 298   | --    | 419   | --    |
| E   | ALL       | 152       | 152  | 178  | 165  | 203   | 254   | 302   | 391   | 432   | 457   | 483   | 686   |
| F   | ALL       | 98        | 98   | 98   | 98   | 98    | 98    | 162   | 162   | 162   | 162   | 162   | 203   |
| G   | ALL       | 152       | 171  | 195  | 222  | 298   | 356   | 533   | 622   | 711   | 794   | 876   | 1321  |
| H   | ALL       | 254       | 279  | 279  | 279  | 305   | 330   | 356   | 432   | 457   | 508   | 508   | 724   |

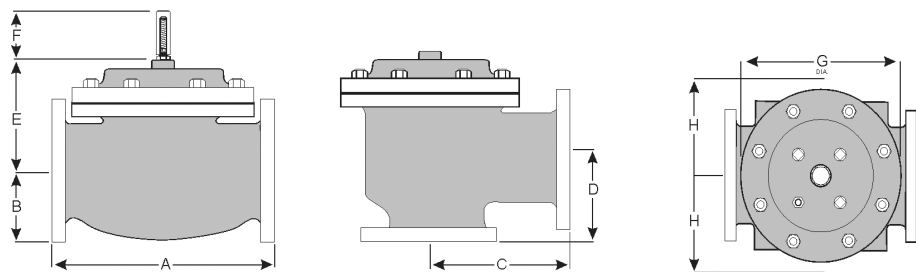
\*GROOVED END NOT AVAILABLE IN DN32

For maximum efficiency, the OCV control valve should be mounted in a piping system so that the valve bonnet (cover) is in the top position. Other positions are acceptable but may not allow the valve to function to its fullest and safest potential. In particular, please consult the factory before installing 8" and larger valves, or any valves with a limit switch, in positions other than described. Space should be taken into consideration when mounting valves and their pilot systems.

A routine inspection & maintenance program should be established and conducted yearly by a qualified technician. Consult our factory @ **1-888-628-8258** for parts and service.

### How to order your valve

When Ordering please provide:  
 Series Number - Valve size - Globe or Angle -  
 Pressure Class - Screwed, Flanged, Grooved -  
 Trim Material - Adjustment Range - Pilot  
 Options - Special Needs / or Installation  
 Requirements.



Represented by:

**TOLL FREE 1.888.628.8258** • phone: (918)627.1942 • fax: (918)622.8916 • 7400 East 42nd Place, Tulsa, Ok 74145  
 email: sales@controlvalves.com • website: www.controlvalves.com