# FLOWRITE II®
## UTILITY IRON BODY CONTROL VALVES

Form TI 596SI v2

# TECHNICAL INSTRUCTIONS
## Iron Body Series 596 SI

## UTILITY IRON BODY SERIES

## DESCRIPTION

The rugged Powers Type SI (single seat iron body) valve is primarily used for steam and water modulating applications with moderate pressure drops. The equal percent plug provides excellent control characteristics and is more tolerant of oversizing than linear or quick-opening plugs. The SI's control and close off characteristics are particularly well-suited to commercial water heaters, boilers, and industrial utility applications. The SI valve is available with the Powers 46 in.$^2$. and 100 in.$^2$. actuators. Actuator selection depends on valve size and flowing system pressure drop across the valve.

**Normally-closed 596SI with 46 in.$^2$ actuator shown**

| Sizes | Actuators Available |
|---|---|
| 2 1/2" | 46 in.$^2$ or 100 in.$^2$ Diaphragm |
| 3" | 46 in.$^2$ or 100in.$^2$ Diaphragm |
| 4" | 46 in.$^2$ or 100 in.$^2$ Diaphragm |
| 5" | 100 in.$^2$ Diaphragm |
| 6" | 100 in.$^2$ Diaphragm |

## SPECIFICATIONS

| | |
|---|---|
| **VALVE** | |
| **Body Sizes:** | 2 1/2" – 6" |
| **Body Material:** | Cast Iron (per ASTM A126-93 Class B) |
| **End Connections:** | 125 # Flanged (per ANSI B16.1–1993) |
| **Trim:** | Bronze Composition Disc or Stainless Steel Teflon disc |
| **Packing:** | Spring loaded TFE packing |
| **Seat Leakage:** | ANSI Class IV < 0.01% leakage |
| **Cv Range:** | 56-350 |
| **Rangeability:** | 75:1 |
| **Characteristics:** | Equal Percent |
| **Maximum Pressure:** | 200 psi @ Temp. <150°F |
| **Max. Differential Press.:** | 50 psi for Bronze, 100 psi for Stainless Steel |
| **Temperature Range:** | 40° – 281° F |
| **ACTUATOR** | |
| **Housing Construction:** | Die cast aluminum |
| **Diaphragm Construction:** | Replaceable molded neoprene |
| **Diaphragm Area:** | 46 in.$^2$, 100 in.$^2$ |
| **Maximum Pressure and Temp.:** | 35 psi and 200°F |
| **Ambient Shipping Limits:** | - 40 to 220° F |
| **Ambient Operating Limits:** | - 20 to 220° F |
| **Air Connection:** | 46 in.$^2$ 1/4" NPT<br>100 in.$^2$ 1/8" NPT |
| **Position Indication:** | 1/8" increments |
| **Mounting:** | In any upright position with actuator head above 45° of the center line of the valve body. Actuator head may be swiveled to any convenient position. |

## TABLE OF CONTENTS



**CALIFORNIA PROPOSITION 65 WARNING**

**WARNING:** This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. (California law requires this warning to be given to customers in the State of California.)
For more information: www.wattsind.com/prop65

## APPLICATION INFORMATION

Flowrite II Single Seated SI Valves are generally recommended for steam, hot water and chilled water applications. They are particularly suited for installations requiring tight shutoff and quick response.

## THEORY OF OPERATION

On normally closed valve assemblies, the valve stem will start to open whenever the control air pressure applied against the actuator diaphragm area and the lower housing exceeds the holding force of the springs. A further increase in control air pressure will initiate a continued upward travel of the valve steam until the valve has fully opened.

On normally open valve assemblies, the stem will start to close whenever the control air pressure applied against the actuator diaphragm area and upper housing exceeds the holding force of the springs. A further increase in control air pressure will initiate a continued downward travel of the valve stem until the valve has fully closed.

The air pressure change to initiate full stem travel is known as the spring range or span. This spring span is factory set and will vary slightly as the pressure drop across the valve changes.

When the valve is at its' "full open" position there is maximum flow potential through the valve. At this position, valves are compared based on flow that is directly related to the valve flow coefficient (see Cv equations in table 1). The 596 SI valves are designed so that equal changes in valve stem position provide equal percentage changes in existing flow through the valve. This is otherwise know as an equal percent valve which has a typical flow curve (figure 2) that can be used to determine flow based on stem position, pressure drop, and Cv. As you can see from the graph, these valves are less sensitive at the low end, which gives both high rangeability and high flows. These types of valves are used extensively to compensate for fluctuating system requirements (pressure, flow, load, etc.).

Valve actuators equipped with positioners provide feedback for enhanced control strategies and, as an example, are required for valve staging. Valves with positioners can utilize full control air pressure at any point in stem travel to initiate stem movement or to maintain stem position. However, the actuator springs still provide the necessary force to move the stem in the opposite direction. Use of a positioner will tend to provide faster response and ensure repeatability of stem position regardless of the load on the actuator. However, in a system where available pressure and flow requirements are relatively consistent, control valves can usually perform adequately without a positioner.

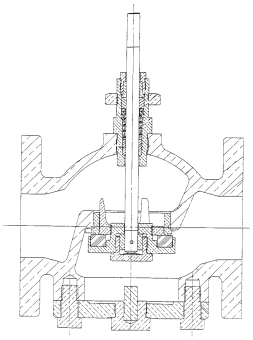


Figure 1 A- Push to Open

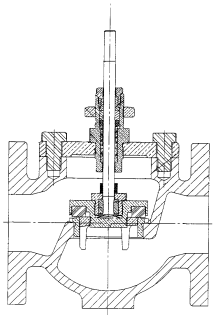


Figure 1 B- Push to Close

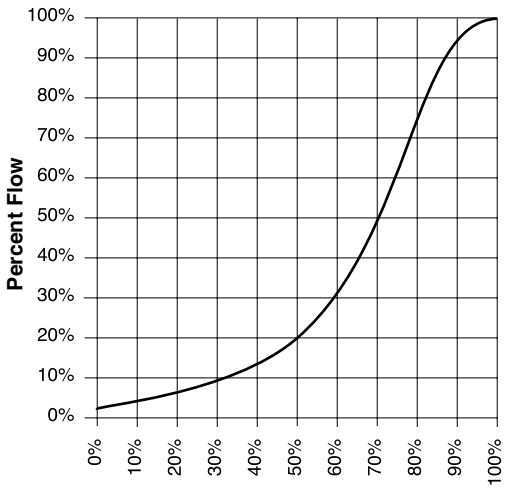



Figure 2

# VALVE SIZING AND SELECTION (WATER)

The sizing of a valve is very important if it is to render good service. If it is "undersized", it will not have sufficient capacity. If it is "oversized", the controlled variable may cycle, the trim can be exposed to excessive wear or wire drawing, and you could expect reduced valve life. To help select the right valve, it is important to understand your application and its variables (controlled fluid, temperatures, pressures, min/max load, etc.). When your system variables are known and you have calculated actual demand, it is possible to select the right Powers valve for your application. The following technical data should help you in selecting a valve for your water control applications. For fluid applications other than water, contact Powers' application engineering.

$$Q = Cv\sqrt{\Delta P}$$

*Where:*
Q = Water flow (gpm)
Cv = Valve flow coefficient (gpm with $P\Delta$ = 1 psi)
$\Delta P$ = Pressure differential, P1- P2 (psi)
P1= Inlet pressure (psi)
P2 = Outlet pressure (psi)

**On/Off Control:**
These types of applications are normally line sized to reduce pressure drop and pump size. In these applications it is important to verify valve seat leakage will not result in system overheat or damage. If this is a concern, it is necessary to take precautions to alleviate this potential problem.

**Proportional Control:**
In applications where the close-off pressure at the valve is below 20psig, use a pressure drop of 5psi.

In applications where the close-off pressure at the valve is above 20psig, it is generally recommended to take 25-50% of the system pressure drop at the control valve to maintain good valve/system performance. Certain applications can successfully utilize lower pressure drops across the valve (5-25%) if system fluctuations are kept to a minimum. If not, the valve is considered oversized it will not effectively throttle until it is nearly closed thereby resulting in poor control.

***Refer to the following table for flow….***

**Table - 1 Water Capacity in Gallons Per Minute**

| Valve Size | Cv Rating | Differential Pressure ($\Delta$P in psi) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 5 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 125 |
| **2.5** | **65** | 145 | 206 | 291 | 356 | 411 | 460 | 503 | 544 | 581 | 617 | 650 | 727 |
| **3** | **85** | 190 | 269 | 380 | 466 | 538 | 601 | 658 | 711 | 760 | 806 | 850 | 950 |
| **4** | **145** | 324 | 459 | 648 | 794 | 917 | 1025 | 1123 | 1213 | 1297 | 1376 | 1450 | 1621 |
| **5** | **235** | 525 | 743 | 1051 | 1287 | 1486 | 1662 | 1820 | 1966 | 2102 | 2229 | 2350 | 2627 |
| **6** | **350** | 783 | 1107 | 1565 | 1917 | 2214 | 2475 | 2711 | 2928 | 3130 | 3320 | 3500 | 3913 |

# CAVITATION LIMITATIONS ON VALVE PRESSURE DROP

A concern in high temperature water systems is the potential for cavitation/flashing, which is caused by the downstream pressure being lower than that of the vapor pressure of the fluid. This basically causes the water to "boil" and can result in reduced flow/capacity, excessive noise, vibration, wear and should be avoided if possible. Use the following equation to estimate the maximum allowable pressure drop across the valve:

**Pmax = 0.5 (P1 – Pv)**
***Where:***
Pmax = Maximum allowable pressure drop
P1 = Absolute inlet pressure (psia)
Pv = Absolute vapor pressure (refer to psia - Table 2)
Absolute pressure = gage pressure + 14.7

**Table-2 Vapor Pressure of Water Table**

| Water Temp. (°F) | Vapor Pressure (psia) | Water Temp. (°F) | Vapor Pressure (psia) |
|---|---|---|---|
| 40 | 0.12 | 140 | 2.89 |
| 50 | 0.18 | 150 | 3.72 |
| 60 | 0.26 | 160 | 4.74 |
| 70 | 0.36 | 170 | 5.99 |
| 80 | 0.51 | 180 | 7.51 |
| 90 | 0.70 | 190 | 9.34 |
| 100 | 0.95 | 200 | 11.53 |
| 110 | 1.28 | 210 | 14.12 |
| 120 | 1.69 | 220 | 17.19 |
| 130 | 2.22 | 230 | 20.78 |

# VALVE SIZING AND SELECTION (STEAM)

**Steam:**

One can use the same reasoning for selecting a valve in steam applications as would be used for water applications. Once again, pressure drop selection is a major determining factor for good control and system performance. In general, for steam applications, the largest possible pressure drop should be taken without exceeding the critical pressure ratio.

**On/Off Control:**

These types of applications are normally line sized to reduce pressure drop. In these applications it is important to verify valve seat leakage will not result in system overheat or damage. If this is a concern, it is necessary to take precautions to alleviate this potential problem.

**Proportional Control:**

For pressures less than 15 psig, use an 80% of the gauge inlet pressure as a differential. For pressures above 15psig, use 50% of the absolute inlet pressure. In those cases where the required Cv falls between two valves, select the larger size.

One may be concerned about steam entering a heating coil at 0 psig when these large pressure drops are taken at the valve. However, flow will continue as the pressure in the coil will drop to vacuum pressures due to the steam condensation. It is essential to use proper condensate piping and steam trapping in these applications.

**Table - 3 Steam Capacity in Pounds Per Hour**

| Steam Inlet Pressure (psig) | | 2 | | | 5 | | | | | 10 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure Drop Across Valve (psi) | | 0.5 | 1 | 2 | 1 | 2 | 3 | 4 | 5 | 2 | 4 | 6 | 8 | 10 |
| Valve Size | Cv Rating | | | | | | | | | | | | | |
| 2.5 | 65 | 554 | 777 | 1082 | 846 | 1181 | 1426 | 1624 | 1790 | 1329 | 1839 | 2203 | 2484 | 2709 |
| 3 | 85 | 724 | 1016 | 1415 | 1106 | 1544 | 1865 | 2124 | 2341 | 1738 | 2405 | 2880 | 3249 | 3543 |
| 4 | 145 | 1235 | 1733 | 2413 | 1887 | 2634 | 3182 | 3623 | 3993 | 2965 | 4103 | 4914 | 5542 | 6044 |
| 5 | 235 | 2002 | 2809 | 3911 | 3058 | 4268 | 5157 | 5872 | 6472 | 4805 | 6650 | 7964 | 8981 | 9796 |
| 6 | 350 | 2981 | 4184 | 5825 | 4555 | 6357 | 7681 | 8746 | 9639 | 7156 | 9905 | 11861 | 13376 | 14589 |

| Steam Inlet Pressure (psig) | | 15 | | | | | 25 | | | | 50 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure Drop Across Valve (psi) | | 3 | 6 | 9 | 12 | (max) 15 | 5 | 10 | 15 | (max) 20 | 10 | 20 | 30 | (max) 32.5 |
| Valve Size | Cv Rating | | | | | | | | | | | | | |
| 2.5 | 65 | 1776 | 2443 | 2907 | 3255 | 3523 | 2633 | 3596 | 4242 | 4705 | 4717 | 6385 | 7454 | 7660 |
| 3 | 85 | 2322 | 3195 | 3802 | 4257 | 4607 | 3443 | 4702 | 5548 | 6152 | 6168 | 8350 | 9747 | 10017 |
| 4 | 145 | 3961 | 5450 | 6485 | 7262 | 7858 | 5873 | 8022 | 9464 | 10495 | 10522 | 14243 | 16628 | 17088 |
| 5 | 235 | 6419 | 8834 | 10511 | 11770 | 12736 | 9518 | 13001 | 15338 | 17010 | 17053 | 23084 | 26949 | 27694 |
| 6 | 350 | 9561 | 13156 | 15654 | 17529 | 18968 | 14176 | 19363 | 22844 | 25334 | 25397 | 34380 | 40137 | 41247 |

| Steam Inlet Pressure (psig) | | 75 | | | | 100 | | | | 125 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure Drop Across Valve (psi) | | 10 | 25 | 35 | (max) 45 | 10 | 25 | 36 | (max) 58 | 20 | 50 | (max) 70 |
| Valve Size | Cv Rating | | | | | | | | | | | |
| 2.5 | 65 | 5618 | 8481 | 9704 | 10615 | 6394 | 9758 | 11390 | 13610 | 9832 | 14619 | 16526 |
| 3 | 85 | 7347 | 11090 | 12690 | 13882 | 8361 | 12760 | 14894 | 17797 | 12857 | 19117 | 21611 |
| 4 | 145 | 12533 | 18918 | 21647 | 23681 | 14263 | 21767 | 25408 | 30360 | 21932 | 32611 | 36866 |
| 5 | 235 | 20312 | 30661 | 35084 | 38379 | 23116 | 35277 | 41178 | 49205 | 35546 | 52853 | 59748 |
| 6 | 350 | 30251 | 45665 | 52252 | 57160 | 34428 | 52541 | 61329 | 73284 | 52940 | 78717 | 88987 |

| Steam Inlet Pressure (psig) | | 150 | | | 175 | | | 200 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Pressure Drop Across Valve (psi) | | 25 | 50 | (max) 83 | 50 | 70 | (max) 95 | 50 | 75 | (max) 108 |
| Valve Size | Cv Rating | | | | | | | | | |
| 2.5 | 65 | 11908 | 16134 | 19521 | 17518 | 20088 | 22437 | 18800 | 22254 | 25431 |
| 3 | 85 | 15572 | 21098 | 25527 | 22908 | 26269 | 29340 | 24585 | 29102 | 33256 |
| 4 | 145 | 26563 | 35990 | 43546 | 39078 | 44812 | 50051 | 41939 | 49644 | 56731 |
| 5 | 235 | 43051 | 58329 | 70574 | 63334 | 72627 | 81117 | 67971 | 80457 | 91944 |
| 6 | 350 | 64118 | 86873 | 105111 | 94327 | 108167 | 120813 | 101233 | 119830 | 136937 |

$$W = \frac{2.1Cv\sqrt{\Delta P\ (P1+P2)}}{K}$$

*Where:*
W = Steam flow (lbs/hr)
Cv = Valve flow coefficient (US gpm with ΔP = 1 psi)
K = 1+ (0.0007 * °F superheat)
ΔP = Pressure differential, P1- P2 (psi)
P1= Inlet pressure (psia)
P2 = Outlet pressure (psia)
Absolute Pressure = Gage pressure + 14.7 (psia)

## CLOSE OFF DATA

In all cases requiring greater close off, a preload adjustment is possible. Consult with factory for your application.

**Close Off Ratings for Normally Closed Valves**

| Valve Size (in) | Actuator ($in^2$) | Close Off ( Δ P in psi) Signal-to-Actuator 3-15 PSI | 1-17 PSI | (Positioner) 0-30 PSI |
|---|---|---|---|---|
| 2.5 | 46 | 26 | 53 | 106 |
| | 100 (1U) | 96 | 125 | 125 |
| 3 | 46 | 15 | 34 | 70 |
| | 100 (1U) | 63 | 92 | 92 |
| 4 | 46 | 6 | 16 | 36 |
| | 100 (1U) | 32 | 48 | 48 |
| 5 | 100 (1U) | 19 | 29 | 29 |
| 6 | 100 (1U) | 12 | 19 | 19 |

**Close Off Ratings for Normally Open Valves**

| Valve Size (in) | Actuator ($in^2$) | Close Off ( Δ P in psi) Signal-to-Actuator 3-15 PSI | 1-17 PSI | (Positioner) 0-30 PSI |
|---|---|---|---|---|
| 2.5 | 46 | 49 | 86 | 125 |
| | 100 (1L) | 125 | 125 | 125 |
| 3 | 46 | 32 | 58 | 125 |
| | 100 (1L) | 90 | 118 | 125 |
| 4 | 46 | 15 | 30 | 77 |
| | 100 (1L) | 48 | 64 | 125 |
| 5 | 100 (1L) | 29 | 39 | 105 |
| 6 | 100 (1L) | 19 | 26 | 72 |

## TEMPERATURE/PRESSURE RATINGS

In all cases, do not exceed the temperature/pressure ratings of the valve (see figure 3). Acceptable region is shown by the shaded area.

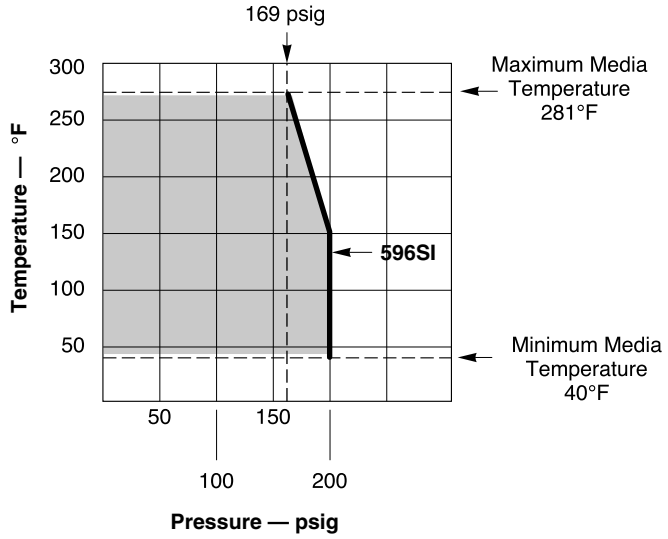



Figure 3 - Temperature and Pressure Ratings

# DIMENSIONAL DATA

**Table-4 Dimensions for 596 SI Series Valves**

| Nominal Pipe Size | 2-1/2" | 3" | 4" | 5" | 6" |
|---|---|---|---|---|---|
| **A** | 8.500 | 9.500 | 11.500 | 13.000 | 14.000 |
| **STROKE** | 0.938 | 0.938 | 0.938 | 1.938 | 1.938 |
| **B1** | 4.125 | 4.125 | 5.063 | 6.750 | 7.375 |
| **B2** | 3.500 | 3.750 | 4.500 | 5.000 | 5.500 |
| **C1** | 4.125 | 4.375 | 5.000 | 5.500 | 6.500 |
| **C2** | 3.875 | 4.250 | 4.875 | 5.500 | 6.375 |
| **D** | 10.375 | 10.375 | 10.375 | N/A | N/A |
| **E** | 10.000 | 10.000 | 10.000 | N/A | N/A |
| **F** | 16.625 | 16.625 | 16.625 | 19.000 | 19.000 |
| **G** | 10.313 | 10.313 | 10.313 | 10.313 | 10.313 |
| **Valve Weight (lbs)** | 52.00 | 65.00 | 90.00 | 150.00 | 225.00 |
| **Weight w/46"** | 65.00 | 78.00 | 103.00 | N/A | N/A |
| **Weight w/100"** | 77.00 | 90.00 | 115.00 | 180.00 | 255.00 |

**Figure 4 - 2-1/2" to 6" Valve Bodies**

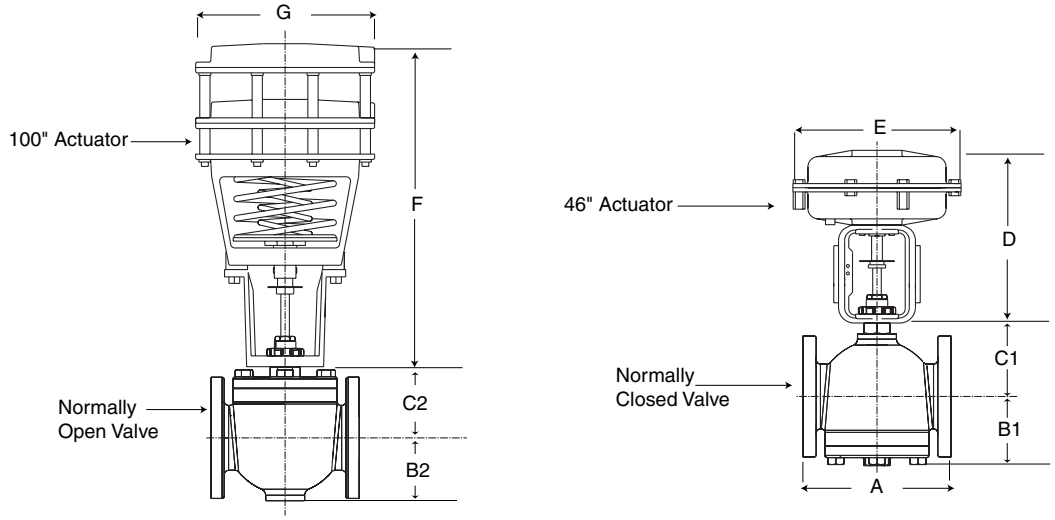
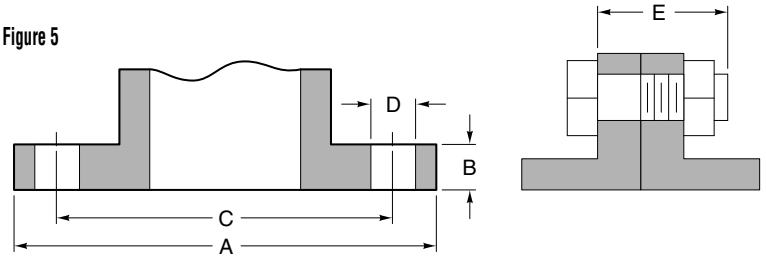



**Table - 5 Flange Detail for American Standard 125 lb. Cast Iron Pipe Flanges**

| Valve Size | Flanges | | Drilling | | Bolting | | Length of Machine Bolts |
|---|---|---|---|---|---|---|---|
| | Flange Diameter A | Flange Thickness B | Diameter of Bolt Circle C | Diameter of Bolt Holes D | Number of Bolts | Diameter of Bolts | E |
| 2-1/2" | 7" | 11/16" | 5-1/2" | 3/4" | 4 | 5/8" | 2-1/2" |
| 3" | 7-1/2" | 3/4" | 6" | 3/4" | 4 | 5/8" | 2-1/2" |
| 4" | 9" | 15/16" | 7-1/2" | 3/4" | 8 | 5/8" | 3" |
| 5" | 10" | 15/16" | 8-1/2" | 7/8" | 8 | 3/4" | 3" |
| 6" | 11" | 1" | 9-1/2" | 7/8" | 8 | 3/4" | 3-1/4" |

**Figure 5**



# INSTALLATION

**Inspection**

Inspect the package for damage. If damaged, notify the appropriate carrier immediately.

If undamaged, open the package and inspect the device for obvious damage. Return damaged products.

**Requirements**

- Pipe wrenches
- Flange gaskets, bolts/nuts
- Installer must be a qualified, experienced technician

**CAUTION!**

- Install the valve with the flow in the direction of the flow arrow.
- Do not exceed the ratings of the device.
- Avoid locations where excessive moisture, corrosive fumes, or vibration are present.

**Mounting/Orientation**

1. The valve should be mounted in a location that is within the ambient limits of the actuator. When selecting a location, allow sufficient room for valve linkage, actuator, and other accessories and for service of the product.
2. The preferred mounting position for the valve is with the valve stem vertical above the valve body. Avoid mounting the valve so that the valve stem is below horizontal.
3. On steam applications where the ambient temperature approaches the limit of the actuator, the valve stem should be mounted 45° from vertical.

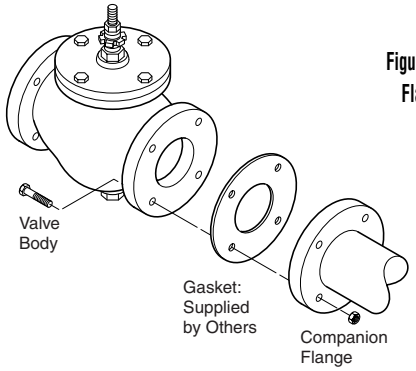



**Figure 6 - Installation of Flanged End Valves**

**Flanged Connection**

The 596SI series flanged valve bodies conform to American Standard 125 Lb. Cast Iron Pipe Flanges. The companion flanges (not provided) should be the same specification as the valve. The 125 lb. flanges have plain flat faces and should not be bolted to a raised faced flange.

1. All parts should be clean to assure the best results.
2. The pipe with the companion flanges installed should be properly supported and aligned. Be sure the companion flange is flush with the face of the valve body flange and lined up squarely.
3. Use a gasket material (not provided) that is recommended for the medium being handled.

   **CAUTION!** Do not apply pipe dope to the valve flange, gasket, or companion flange.
4. See Figure-5 for flange and flange bolt details.

   Figure-6 shows the proper way a flanged valve should be mounted.

# MAINTENANCE

Regular maintenance of the total system is recommended to assure sustained performance. See Table-6 for maintenance kit part numbers.

**Table - 6 Maintenance Kits for 596SI Valves**

| Valve Description | Replacement Packing Assembly | Replacement Gaskets | Valve Repair Kit* |
|---|---|---|---|
| **2.5 Normally Closed** | 596 Pack | 596250G | SIGOBCTK |
| **3 Normally Closed** | | 596300G | SIHOBCTK |
| **4 Normally Closed** | | 596400G | SIJOBCTK |
| **5 Normally Closed** | | 596500G | SIKOBCTK |
| **6 Normally Closed** | | 596600G | SILOBCTK |
| **2.5 Normally Open** | | 596250G | SIGOBXTK |
| **3 Normally Open** | | 596300G | SIHOBXTK |
| **4 Normally Open** | | 596400G | SIJOBXTK |
| **5 Normally Open** | | 596500G | SIKOBXTK |
| **6 Normally Open** | | 596600G | SILOBXTK |

** Kit includes replacement packing and stem & plug assembly.*

**Water System Maintenance**

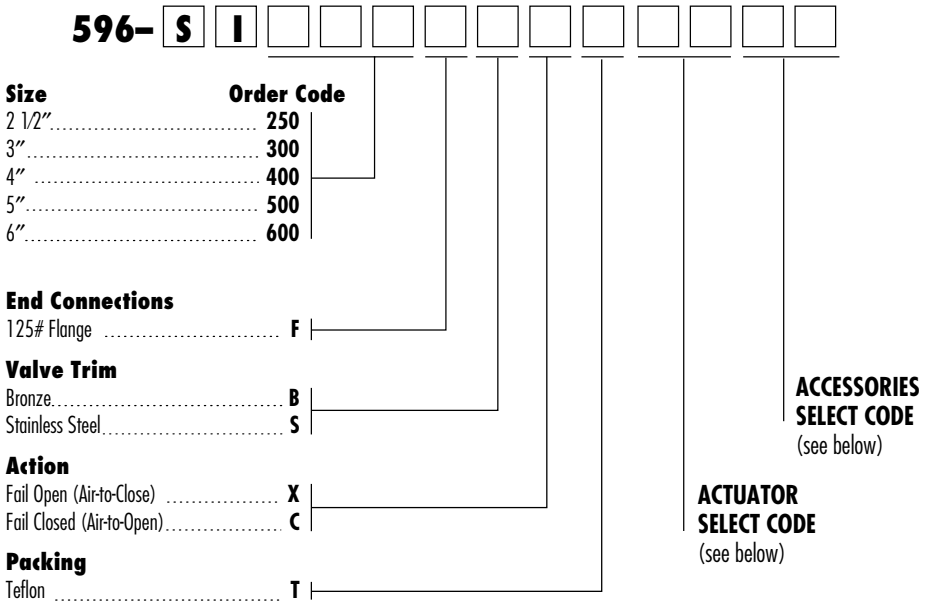
All systems are susceptible to valve and system problems caused by improper water treatment and system storage procedures. These guidelines are provided to help avoid valve and water system problems resulting from improperly treated water or storage procedures and to obtain maximum life from the valves.

Durability of valve stems and packings is dependent on maintaining non-damaging water conditions. Inadequate water treatment or filtration can result in corrosion, scale, and abrasive particle formation. Scale and particulates can result in stem and packing scratches and can adversely affect packing life and other parts of the hydronic system.

To maintain non-damaging conditions, follow these guidelines:

- Clean the system prior to start up.
- Use filtration equipment where needed.
- Properly store off-line systems and monitor water treatment results.
- Follow the advice of a water treatment professional.

## ORDERING INFORMATION




## ACTUATOR SELECT CODE

| CODE | PNEUMATIC DIAPHRAGM ACTUATORS |
|---|---|
| **46** | 46 Sq. In., 1" Max Valve Stroke with Stainless Steel Springs, adjustable start w/ 7 ~ 12 lb. Fixed span. |
| **4X** | 46 Sq. In., 1" Max Valve Stroke with Extended Springs (requires positioner), adjustable start w/22 lb. span. |
| **1U** | 100 Sq. In; 8-13 psi Spring Range, (Normally Closed Valves) |
| **1L** | 100 Sq. In; 3-8 psi Spring Range, (Normally Open Valves) |

## ACCESSORIES SELECT CODE

| CODE | DESCRIPTION |
|---|---|
| | **Bellofram 1000 I/P'S** |
| **IS** | 3–15 psi |
| **TS** | 1–17 psi |
| **US** | 3–27 psi |
| | **CONTROL/AIR TYPE 900X I/P** |
| **ES** | 0–30 psi |
| | **UTILITY POSITIONER AND I/P** |
| **BS** | 4–20 mA |
| | **UTILITY POSITIONER** |
| **PS** | 3-15 psi |
| **RS** | 3-9 psi |
| **SS** | 9-15 ps |
| | **NO ACCESSORIES** |
| **OS** | No Accessories |

## I/P TRANSDUCERS

The "standard" 3-15 psi signal was originally designed as a transmission signal, not a valve actuation signal. The Fluid Controls Institute (in Standard 87-2) has recommended that a 1–17 psi air signal range be used when directly actuating a control valve without a positioner. Powers concurs with this recommendation, and therefore, offers a 1–17 psi I/P transducer and a 0–30 psi I/P transducer and the Accritem pneumatic controller for maximum close-off. 3-15 psi I/P transducers should be used in conjunction with positioners.

## POSITIONERS

Positioners are used for one or more of the following reasons:

1) To split range valves.
2) To eliminate unwanted valve movement caused by line pressure variations
3) To minimize the effects of "stick-slip"
4) To speed response time and/or
5) To increase close-off rating when I/Ps are used.


***USA Phone: 1.800.669.5430 • Fax 1.847.824.0627***
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