

## RATE OF FLOW PRESSURE REDUCING

## ACV 115

Automatically reduces a higher inlet pressure to a constant lower outlet pressure regardless of changing flow rate and/or varying inlet pressure. Refer to [ACV 115-7](#) for dead-end systems and/or systems using high demand, on-off equipment.

**NOTE:**

**Adjustment range:**

**Standard:** 20-175 psig

**Optional:** 0-30 psig 100-300 psig  
(stainless steel control)

**Remote sense:** [ACV 115-1](#)

**QUICK SIZING:**

Valve size one size smaller than line.

**Points to consider:**

See Engineering Data

Pressure Reducing Sizing

Check maximum and minimum

flow Check pressure drop

pressure reducing valves

or cavitation chart

If valve size required is smaller

than line size, consider [ACV 6115](#)

Consult [FLO-FAB ACV](#) representative/factory

**VALVE FUNCTION**

Reduce higher inlet pressure to constant lower outlet pressure (adjustable)

**COMPONENTS**

1. Main Valve
2. Pressure Reducing Control
3. Fixed Orifice
4. Adj. Opening Speed (3" and Smaller)

**ACCESSORIES**

X - Isolation Cocks

Located as indicated

Y - Y-Strainer Included as marked

P - Position Indicator

FC - Flo-Clean Strainer

L - Limit Switch

ACS - Adjustable Closing Speed





**ENGINEERING DATA / SIZING**

**INSTALLATION RECOMMENDATIONS AND REQUIREMENTS VERTICAL INSTALLATIONS**

Avoid mounting valves 6" and larger in a vertical discharge position (valve stem horizontal or cover pointed sideways). If your installation requires this mounting position consult the factory or specify at time of order.



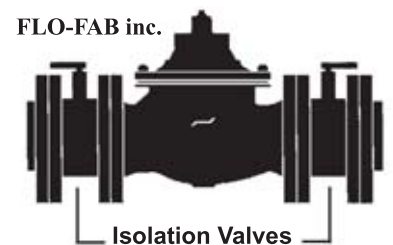
**VALVE SIZING — PRESSURE REDUCING**

Selection of the correct size pressure reducing valve is a relatively simple process. Criteria for selection is minimum flow, normal flow, maximum flow and pressure drop across the valve. Following are explanations of the three types of PRV installations. These also apply to any functions combined with the reducing function, such as reducing/check and reducing/solenoid valves.



**ISOLATION SHUT-OFF VALVES**

Butterfly or similar type valves should be installed in the line upstream and downstream of the automatic control valve to allow for maintenance service. Installing isolation valves will allow you to perform maintenance service without draining the system or exposing service personnel to line pressures.



## VALVE SIZING

## VALVE SIZING

To properly size an automatic control valve you need to know the following:

Highest and Lowest inlet pressures

Outlet pressure

Maximum flow requirements

Minimum flow requirements

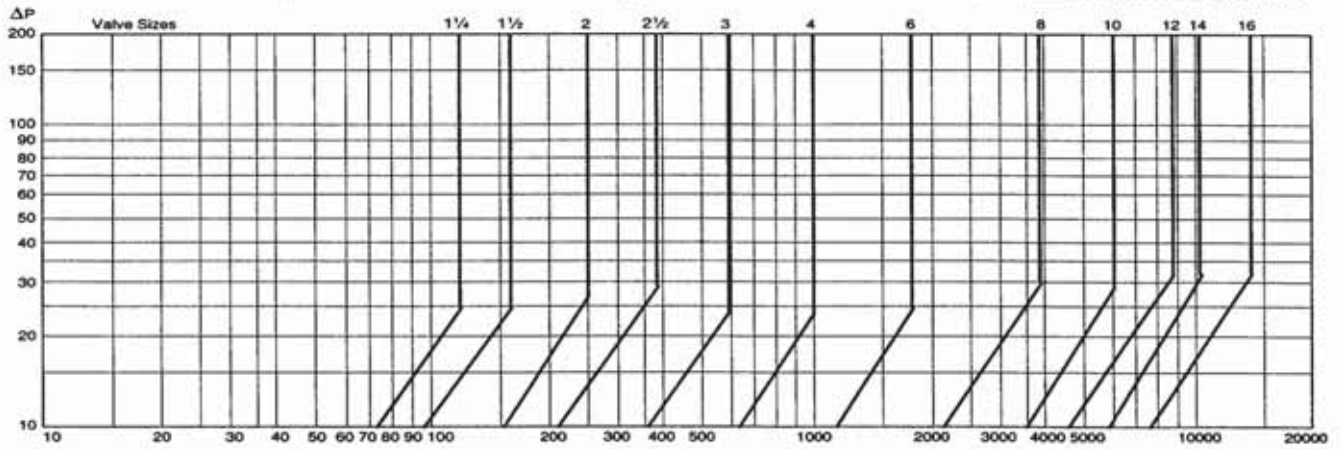
**Step 1:** Utilize the high flow chart and select the flow as found on the horizontal axis which corresponds with your maximum flow requirements. **Step 2:** From this point draw a vertical line until you intersect with the horizontal line corresponding with the minimum differential pressure. (Your minimum differential pressure will be the lowest inlet pressure minus the desired outlet pressure, this is also known as the delta P.) **Step 3:** From this point move right to the first valve size line. This will be the minimum valve size which should be used on intermittent flow of 25 ft./sec. If maximum flow is continuous, then do not exceed the GPM (20 FT./sec.) listed on the maximum continuous flow table. **Step 4:** Utilize the flow chart and select the maximum differential pressure as found on the vertical axis. (Your maximum differential pressure will be the highest inlet pressure minus the desired outlet pressure, this is also known as the delta P.) **Step 5:** From this point draw a horizontal line until you intersect with the line corresponding to the valve size as selected in step 3. **Step 6:** From this point draw a vertical line down to the horizontal axis. This will be the minimum flow capabilities of the valve based on these variables.

**Notes:** 1) If the minimum flow capability obtained from step 6 is above your actual minimum flow requirements, you should consider a parallel installation. Using the minimum flow capability, begin at step 1 to select the size you will need for this low-flow by-pass. 2) Use the cavitation chart and determine if the intersection of the inlet and outlet pressures falls in the shaded area. If so, you should consider a series installation. Both valves should be sized in accordance with the above steps.



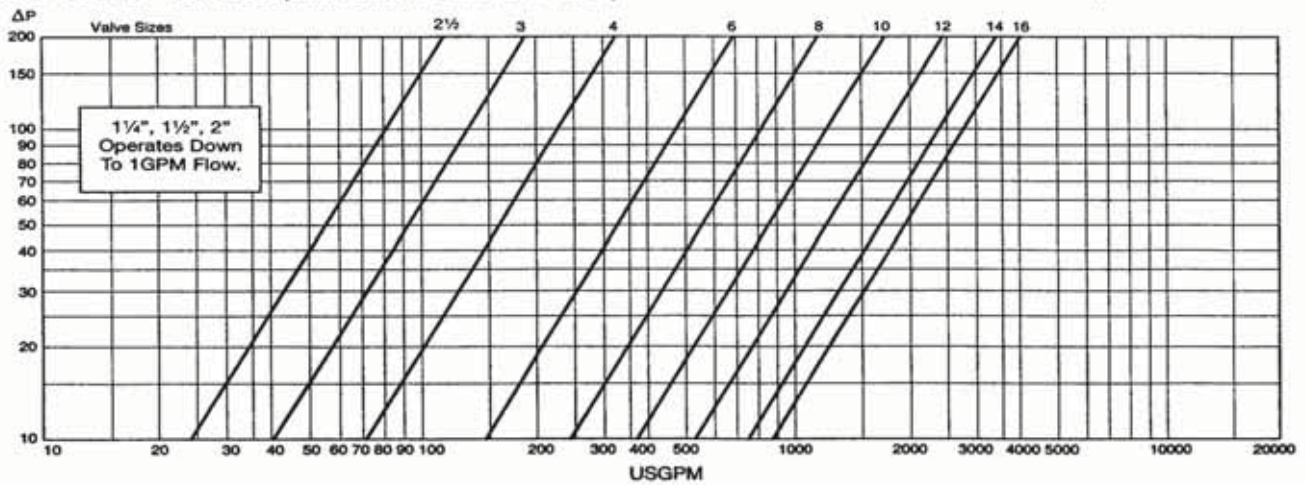
## HIGH FLOW CHART (MAXIMUM INTERMITTENT FLOW)

$\Delta P$  = minimum pressure difference



## LOW FLOW CHART (MINIMUM INTERMITTENT FLOW)

$\Delta P$  = maximum pressure difference



**VALVE SIZING**

**Pressure Drop Index-Pressure Reducing Valves Valves Sizing**

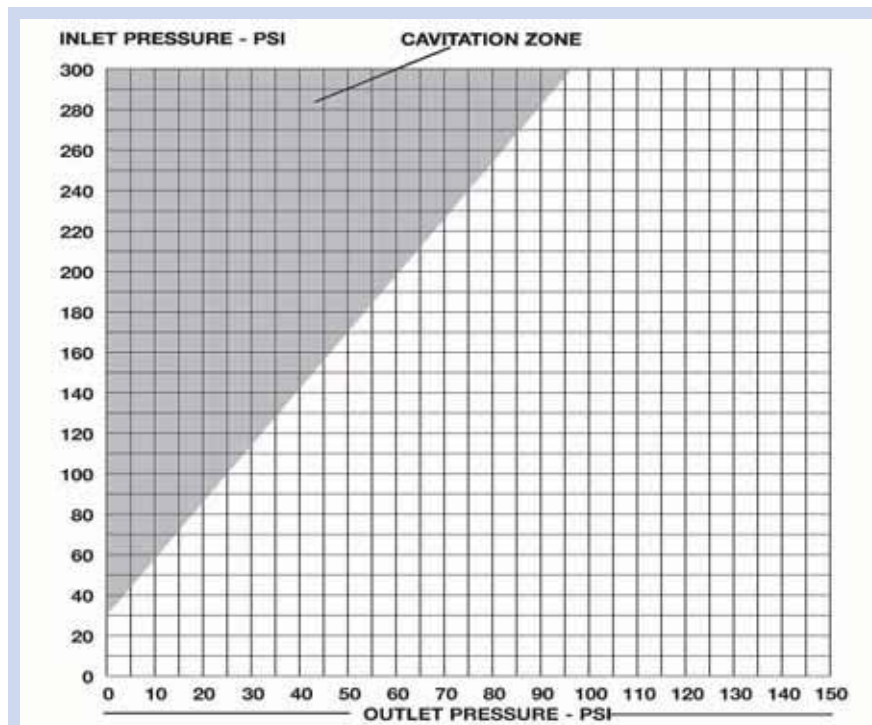
**PRESSURE DROP INDEX - PRESSURE REDUCING VALVES**

Calculate the pressure difference by subtracting the desired outlet pressure from the maximum inlet pressure. Find the number on the pressure difference line and note the outlet pressure index number. This is the lowest outlet pressure setting allowed without failing into the cavitation zone. *Design* of the **FLO-FAB Automatic Control Valve** minimizes potential valve damage that can be caused by cavitation. Avoid continued operation within the cavitation zone.

PRESSURE DIFFERENCE (PSIG)													
10	20	30	40	50	60	70	80	90	100	125	150	175	200
OUTLET PRESSURE INDEX (Lowest Outlet Setting, PSIG)													
0	0	0	3	8	14	20	25	31	37	51	65	79	93

**CAVITATION CHART**

After selecting valve size, locate inlet and outlet pressures on this chart. If the intersection point falls in the shaded area, cavitation can occur. Operation of valves continually in the cavitation zone should be avoided. Consult **FLO-FAB ACV** for alternatives.



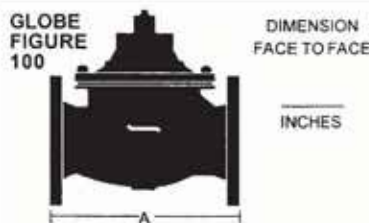




# FLO FAB inc. SUBMITTAL / SPECIFICATION

DATE	WATTS ACV REFERENCE #	FIGURE #	ASSEMBLY #	SIZE	QUANTITY
PROJECT IDENTIFICATION		DESCRIPTION			
		TECHNICAL			

COMPONENT	SPECIFICATION
<b>MAIN VALVE</b>	
BODY / COVER	<input type="checkbox"/> DUCTILE IRON - ASTM A536 65-45-12
BODY PATTERN	<input type="checkbox"/> GLOBE <input type="checkbox"/> ANGLE
END CONNECTION	<input type="checkbox"/> 150# FLANGED ANSI B16.1 (Max. W.P. 250psi) <input type="checkbox"/> THREADED ANSI B 16.4 (Max. W.P. 400 psig) <input type="checkbox"/> 300# FLANGED ANSI B16.1 (Max. W.P. 400psi)
SEAT & STEM	<input type="checkbox"/> BRASS SEAT - ASTM B584, Brass Alloy C84400 / STAINLESS STEEL STEM - AISI 303 (standard) <input type="checkbox"/> COATED BRASS SEAT - ASTM B584, Brass Alloy C84400 / COATED STAINLESS STEEL STEM - AISI 303 *Anti-scale trim XYLAN (TEFLON) coated seat and KOLENE coated stem <input type="checkbox"/> STAINLESS STEEL SEAT - AISI 303 / STAINLESS STEEL STEM - AISI 303 <input type="checkbox"/> COATED STAINLESS STEEL SEAT - AISI 303 / COATED STAINLESS STEEL STEM - AISI 303 *Anti-scale trim XYLAN (TEFLON) coated seat and KOLENE coated stem
ELASTOMERS *	<input type="checkbox"/> BUNA-N (standard) <input type="checkbox"/> BUNA-N VULCANIZED (optional) <input type="checkbox"/> VITON VULCANIZED (optional) (2 1/2" 1-PLY, 3" & LARGER 2-PLY ASTM D 2000)
<b>COATINGS</b>	
MAIN VALVE	<input type="checkbox"/> FUSED EPOXY COATING - FDA Approved Regulation 21CFR 175.300, ASTM D3451-76 (Coated 100%), NSF Approved <input type="checkbox"/> MARINE EPOXY COATING - Flexcote Abranon Coated 100%
<b>FLOW DIRECTION</b>	<input type="checkbox"/> OVER THE SEAT ("R" Flow) <input type="checkbox"/> UNDER THE SEAT
<b>CONTROL PILOTS</b>	
BODY/HOUSING	<input type="checkbox"/> STAINLESS STEEL - ASTM A743/AISI 303 <input type="checkbox"/> BRASS - ASTM B584
TRIM	<input type="checkbox"/> STAINLESS STEEL - AISI 303
ELASTOMERS (diaphragm / seat / o-rings)	<input type="checkbox"/> BUNA-N (standard) ASTM D 2000 <input type="checkbox"/> VITON (incl. when main valve elastomer is VITON)
SPRING RANGE *	<input type="checkbox"/> 20-175 PSI (standard) <input type="checkbox"/> 0-30 PSI <input type="checkbox"/> 100-300 PSI <input type="checkbox"/> SELECT TANK HEIGHT
<b>TUBING AND FITTINGS</b>	<input type="checkbox"/> TUBING: STAINLESS STEEL AISI TYPE 316 ASTM A 312 <input type="checkbox"/> COPPER / BRASS (standard) <input type="checkbox"/> FITTINGS: STAINLESS STEEL AISI TYPE 316
<b>ACCESSORIES</b>	
STRAINER	<input type="checkbox"/> FLO-CLEAN-STAINLESS STL Housing AISI 303 Screen Type 316 <input type="checkbox"/> Y-STRAINER - STAINLESS STEEL <input type="checkbox"/> FLO-CLEAN - BRASS <input type="checkbox"/> Y-STRAINER - BRASS
POSITION INDICATOR	<input type="checkbox"/> POSITION INDICATOR - STAINLESS STEEL <input type="checkbox"/> POSITION INDICATOR - BRASS
SPEED CONTROLS	<input type="checkbox"/> ADJUSTABLE OPENING SPEED (consult schematic) <input type="checkbox"/> ADJUSTABLE CLOSING SPEED (consult schematic) <input type="checkbox"/> FIXED RESTRICTION
OTHER	<input type="checkbox"/> ISOLATION COCKS
LIMIT SWITCH	<input type="checkbox"/> SINGLE SWITCH - Single Pole Double Throw <input type="checkbox"/> GENERAL / WEATHERPROOF NEMA Type 1, 2, 3, 3R/S, 4, 12 <input type="checkbox"/> DUAL SWITCH - Single Pole Double Throw <input type="checkbox"/> EXPLOSION PROOF NEMA Type 1, 7, 9
<b>SOLENOID</b>	
VOLTAGE	<input type="checkbox"/> STANDARD 110-120 VAC 50/60 Hz <input type="checkbox"/> OPTIONAL: <input type="checkbox"/> 24 VAC <input type="checkbox"/> 240 VAC <input type="checkbox"/> 480 VAC <input type="checkbox"/> SPECIAL: <input type="checkbox"/> 6 VDC <input type="checkbox"/> 12 VDC <input type="checkbox"/> 24 VDC <input type="checkbox"/> 120 VDC <input type="checkbox"/> 240 VDC
ENCLOSURE	<input type="checkbox"/> BRASS - NEMA TYPE 1, 2, 3, 3S, 4, 4X APPLIC. (incl. gen. purpose, weatherproof & watertight enclosure) <input type="checkbox"/> MANUAL OPERATOR (STD on 3-Way & 4-Way, OPTIONAL on 2-Way) <input type="checkbox"/> BRASS - NEMA TYPE 3, 3S, 4, 4X, 6, 6P, 7, 9 APPL. (incl. weatherproof, watertight, expl. proof & ignition proof enclosure) <input type="checkbox"/> STAINLESS STL - NEMA TYPE 3, 3S, 4, 4X, 6, 6P, 7, 9 APPLIC. MAX TEMP T2D 419°F - MANUAL OPERATOR (STD)
ACTION	<input type="checkbox"/> POWER TO SOLENOID OPENS VALVE <input type="checkbox"/> POWER TO SOLENOID CLOSES VALVE



ENGINEERING APPROVAL SIGNATURE

DATE