Figure 5455

Pressure Reducing Valve with Solenoid Shutoff

Data Sheet: GA-5455-0217B

The GA Industries Figure 5455 Reducing Valve with SolenoidShutoff is designed for applications where the reduction of high inletpressure to a safe and stable outlet pressure is desired. The pilotassembly reacts to changes in the downstream pressure allowing themain valve to modulate between closed and open position ensuring aconstant downstream set pressure regardless of the flow rate. Asolenoid pilot is provided to override the operation of the pressure pilot to close the valve upon electrical signal.

Standards Compliance

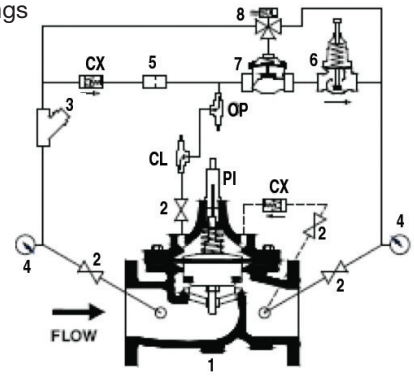
- ANSI/AWWA C530 Compliant
- NSF-61 Certified for Contact with Drinking Water
- NSF-372 Certified Lead Free (0.25% max weighted average lead content)

Standard Features

- Fusion Bond Epoxy Coated, NSF-61
- Pilot Assembly
  - Pressure Reducing Pilot, 15-150 PSI Range
  - 120VAC Solenoid (200 PSI max differential)
  - Opening Speed Control (1¼" to 4")
  - Wye Strainer
  - Isolating Valves
- Inlet and Outlet Pressure Gauges
- Copper Tubing and Brass Fittings
- Water Temperature 33 – 140F

Schematic Diagram

1. Main Valve
2. Isolation Valve
3. Wye Strainer
4. Pressure Gauge
5. Restriction Tube Fitting
6. Pressure Reducing Pilot
7. Solenoid Pilot



BODY CONFIGURATIONS		GLOBE STYLE BODY		ANGLE STYLE BODY
END CONNECTION	PRESSURE RATING	FULL PORT	REDUCED PORT	
Threaded	400 psi max.	1 ¼"-3"	n/a	1 ¼"-3"
Flanged	ANSI Class 150, 250 psi max.	1 ½"-16"	3"-10"	1 ½"-10"
	ANSI Class 300, 400 psi max.			
MINIMUM INLET PRESSURE 10 PSI				

Options (Add suffix letters to Figure Number)

Example: 5455-G-15-DM-NC-LH

Body Configuration (See table for availability)
- ☐ G – Globe Body
- ☐ A – Angle Body
- ☐ R-G – Reduced Port Globe Body

Connections (See table for availability)
- ☐ 00 – NPT Threaded
- ☐ 15 – ANSI Class 150 Flanges
- ☐ 30 – ANSI Class 300 Flanges

Reduced Pressure Spring Ranges (Select one)
- ☐ DL – 5 to 25 PSI (Optional)
- ☐ DM – 15 to 150 PSI (Standard)
- ☐ DH – 30 to 300 PSI (Optional)

Solenoid
- ☐ NC – Normally Closed, Main Valve Closes When Solenoid De-Energizes
- ☐ NO – Normally Open, Main Valve Closes When Solenoid Energizes
- ☐ MO – Manual Operator on Solenoid
- ☐ NS – Non-standard Solenoid

Optional Features
- ☐ CX – Pilot Check (Closes Main Valve on Pressure Reversal)
- ☐ OP – Opening Speed Control (Standard 1¼"- 4")
- ☐ CL – Closing Speed Control
- ☐ LG – Liquid Filled Gauges (Replaces Standard Gauges)
- ☐ LH – Pilot System Mounted on Left Side Looking at Inlet
- ☐ PI – Visual Position Indicator
- ☐ S9 – Stainless Steel Pilot, Controls and Piping

GA INDUSTRIES
A VAG-Group Brand

Figure 5455

Data Sheet: GA-5455-0217B

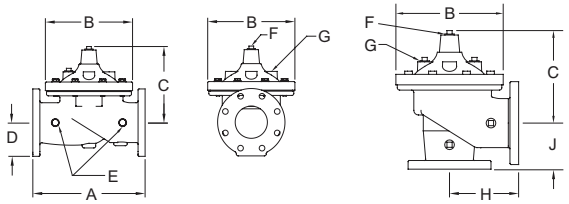
Pressure Reducing Valve with Solenoid Shutoff

Globe and Angle Main Valve Dimensions

DIM	FULL PORT	VALVE SIZE INCHES (mm)											
		1 ¼ (32)	1 ½ (38)	2 (50)	2 ½ (65)	3 (80)	4 (100)	6 (150)	8 (200)	10 (250)	12 (300)	14 (350)	16 (400)
A	Threaded	7 ¼	7 ¼	9 7/16	11	12 ½							
	Class 150 Flange		8 ½	9 ⅜	11	12	15	20	25 ⅜	29 ¾	34	39	41 ⅜
	Class 300 Flange		9	10	11 ⅝	13 ¼	15 ⅝	21	26 7/16	31 ⅛	35 ½	40 ½	43 ½
B	Diameter	5 ⅝	5 ⅝	6 ¾	8	9 3/16	11 11/16	15 ¾	20 ⅛	23 11/16	27 ½	31 ¾	34 ½
C	Maximum	5 ¾	5 ¾	6 3/16	7 ⅜	8	10 3/16	12 5/16	15 9/16	17 ⅝	20 3/16	22 13/16	25 ⅞
D	Threaded/Grooved	1 ⅜	1 ⅜	1 ¾	2 ⅛	2 9/16	3 7/16	5	5	5 13/16	6 ¾	8 ⅞	8 13/16
	Class 150 Flange		2 ½	3	3 ½	3 ¾	4 ½	5 ½	6 ¾	8	9 ½	10 ½	11 ¾
	Class 300 Flange		3	3 ¼	3 ¾	4 ⅛	5	6 ¼	7 ½	8 ¾	10 ¼	11 ½	12 ¾
E	NPT Body Tap	⅜	⅜	⅜	½	½	¾	¾	1	1	1	1	1
F	NPT Cover Plug Tap	½	½	½	½	½	¾	¾	1	1	1	1	1
G	NPT Cover Tap	⅜	⅜	⅜	½	½	¾	¾	1	1	1	1	1
H	Threaded	3 ¼	3 ¼	4 ¾	5 ½	6 ¼							
	Class 150 Flange		4	4 ¾	5 ½	6	7 ½	10	12 11/16	14 ⅞			
	Class 300 Flange		4 ¼	5	6	6 7/16	8	10 ½	13 ¼	15 9/16			
J	Threaded	1 15/16	1 15/16	3 ¼	4	4 ½							
	Class 150 Flange		4	3 ¼	4	4	5	6	8	8 ⅝			
	Class 300 Flange		4 ¼	3 ½	4 5/16	4 7/16	5 5/16	6 ½	8 ½	9 5/16			
Valve Stem Internal Thread		10-32	10-32	10-32	10-32	¼-20	¼-20	¼-20	⅜-16	⅜-16	⅜-16	⅜-16	⅜-16
Stem Travel (in)		7/16	7/16	¾	⅞	1	1 3/16	1 ¾	2 ⅜	2 13/16	3 7/16	3 13/16	4 5/16
Approx. Wt. (lbs)		22	26	36	55	70	130	240	440	720	820	1200	1550

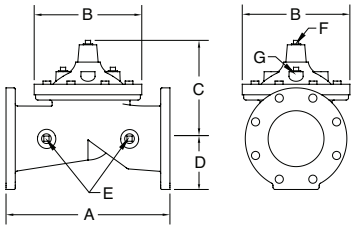
Reduced Port Main Valve Dimensions

DIM		VALVE SIZE INCHES (mm)				
		3 (80)	4 (100)	6 (150)	8 (200)	10 (250)
A	Class 150 Flange	10 ¼	14	17 ¾	21 7/16	26
	Class 300 Flange	11	14 ½	18 11/16	22 7/16	27 7/16
B	Diameter	6 ¾	9 3/16	11 11/16	15 ¾	20 ⅛
C	Maximum	6 ⅜	8 7/16	12 5/16	13 ¼	16 ¾
D	Class 150 Flange	3 ¾	4 ½	5 ½	6 ¾	8
	Class 300 Flange	4 ⅛	5	6 ¼	7 ½	8 ¾
E	NPT Body Tap	⅜	½	¾	¾	1
F	NPT Cover Plug Tap	⅜	½	¾	¾	1
G	NPT Cover Tap	⅜	½	¾	¾	1
Valve Stem Internal Thread		10-32	¼-20	¼-20	⅜-16	⅜-16
Stem Travel (in)		¾	1	1 ⅛	1 ¾	2 ⅜
Approx. Wt. (Lbs)		35	80	140	275	480



Globe Style Body

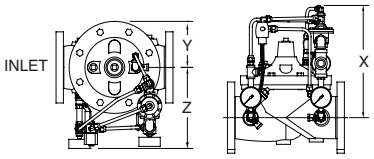
Angle Style Body



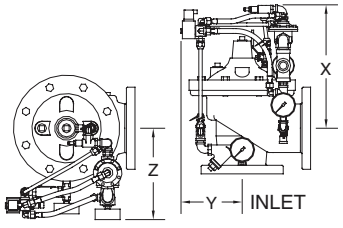
Reduced Port Body

Pilot System Dimensions

PILOT SYSTEM DIMENSIONS	DIM		VALVE SIZE INCHES (mm)											
			1 ¼ (32)	1 ½ (40)	2 (50)	2 ½ (65)	3 (80)	4 (100)	6 (150)	8 (200)	10 (250)	12 (300)	14 (350)	16 (400)
Full Port Body	X	Max. (in)	12 ⅛	12 ⅛	12	13 ¼	13 ¼	14 ⅜	15 ⅜	16 ⅛	18 ⅛	20	23	26
	Y	Max. (in)	3 ½	3 ½	3 ¾	4 ⅛	4 ⅝	5 ⅞	8	10 ¼	11 ⅞	14	16	17 ½
	Z	Max. (in)	10 ½	10 ½	10 ¾	10 ⅜	10 ¾	10 ¼	12 ½	14	15 ⅜	17	20	21 ½
Reduced Port Body	X	Max. (in)					12	13 ¼	14 ⅜	15 ⅜	16 ⅛			
	Y	Max. (in)					3 ¾	4 ⅝	5 ⅞	8	10 ¼			
	Z	Max. (in)					10 ¾	10 ¾	10 ¼	12 ½	14			
Angle Body	X	Max. (in)	12	12	12	13	13	13 ½	15 ½	16	18			
	Y	Max. (in)	6 ¾	6 ¾	6 ¾	6 ¾	6 ¾	6 ¾	8	10	12			
	Z	Max. (in)	10 ½	10 ½	11	10 ½	11	10	12 ½	14	15 ½			



Pilot System Dimensions



Angle Pilot System Dimensions

VAG USA, LLC • Phone: 724-776-1020 • Fax: 724-776-1254
Email: info-ga@vag-group.com • www.gaindustries.com

Flow Characteristics

Full Port Globe and Angle Valve size	inches (mm)	1 ¼ (32)	1 ½ (40)	2 (50)	2 ½ (65)	3 (80)	4 (100)	6 (150)	8 (200)	10 (250)	12 (300)	14 (350)	16 (400)
Reduced Port Globe Valve Size	inches (mm)			3 (80)		4 (100)	6 (150)	8 (200)	10 (250)				
Suggested Flow (GPM)	Max. Continuous	93	125	210	300	460	800	1800	3100	4900	7000	8400	11000
	Max Intermittent	120	160	260	375	600	1000	2250	4000	6150	8700	10500	13800
	Min. Continuous	10	10	15	20	30	50	115	200	300	435	530	690
Suggested Flow (Liters/sec)	Max. Continuous	6	8	13	19	29	50	113	195	309	550	665	870
	Max. Intermittent	7.6	10	16.4	23	37	62	142	246	388	440	530	95
	Min. Continuous	0.6	0.6	0.9	1.3	1.9	3.2	7.2	13	19	28	33	43

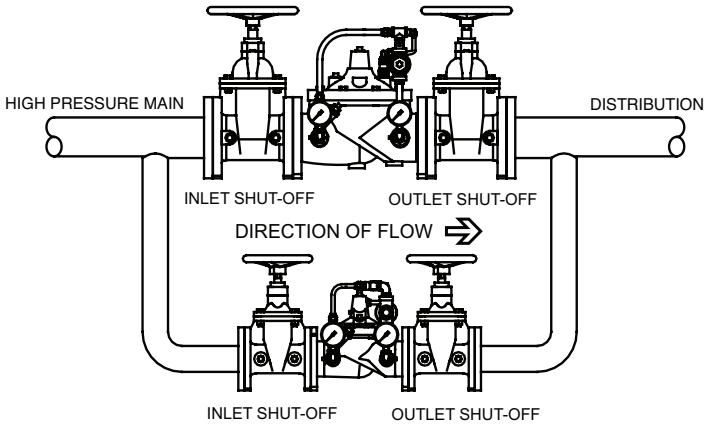
Suggested flow calculations are based on flow through Schedule 40 Pipe. Maximum continuous flow is approx. 20 ft./sec (6.1 meters/sec) & maximum intermittent is approx. 25 ft./sec (7.6 meters/sec) and minimum continuous flow is approx. 1.25 ft./sec (0.4 meters/sec). Many factors should be considered in sizing pressure reducing valves including inlet pressure, outlet pressure and flow rates.

Do not oversize. Select size that accommodates maximum continuous and intermittent flows. Consider low flow bypass for prolonged flow below minimum. Verify sufficient pressure drop and check for cavitation using charts on page 4.

Operation

The Figure 5455 utilizes a pressure reducing pilot valve that installs on the discharge side of the control circuitry. The pilot is a direct acting, normally open, spring loaded, diaphragm actuated valve. The operation of the Figure 5455 begins with accurately sizing the valve, then fine tuning the control circuit by adjusting the pilot spring to the desired downstream pressure. Inlet pressure is piped to the inlet port of the pressure reducing pilot. A sensing line runs internally from the discharge side of the pilot to its lower control chamber under the diaphragm. Thus, downstream pressure exceeding the preset acts to close the pilot while the adjustable spring seeks to keep it open. The result is a modulating action in the pilot that is transmitted to the bonnet of the main valve. This creates a mirror modulation of the diaphragm assembly in the main valve. Downstream pressure is maintained within narrow limits regardless of changing flow rates or varying inlet pressures.

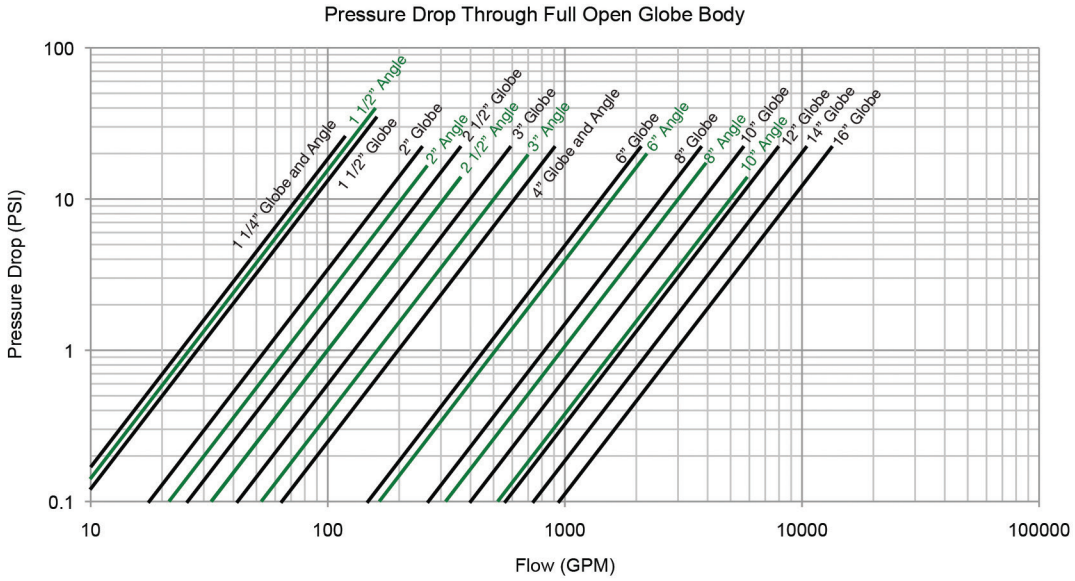
Typical Installation



Notice:
In cases where design flow falls below the minimum continuous flow rate, a low flow by-pass shall be installed.

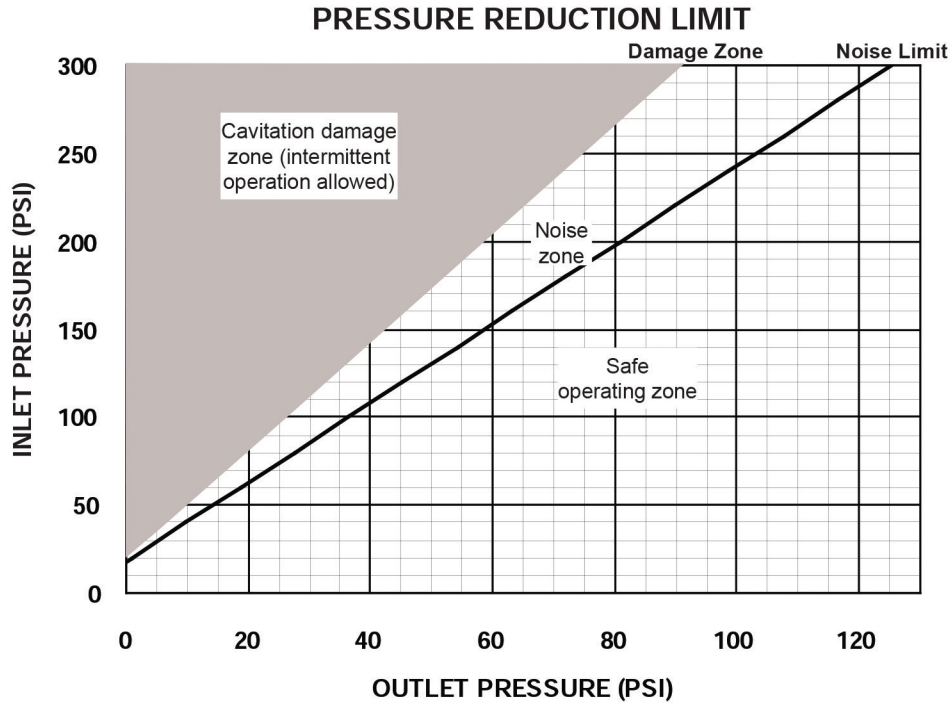
VAG USA, LLC • Phone: 724-776-1020 • Fax: 724-776-1254
Email: info-ga@vag-group.com • www.gaindustries.com

Figure 5455
Pressure Reducing Valve with Solenoid Shutoff



How to Use Body Friction Loss Chart:
Minimum inlet pressure is 10 PSI higher than the reduced pressure set point or the reduced pressure set point plus the body friction loss at intended flow, whichever is higher. Friction loss typically exceeds 10 PSI at flows above 15 ft/sec nominal velocity through a full port valve.

Example: A 6" full port globe valve must pass a peak flow of 2,000 GPM and maintain 50 PSI reduced pressure. The 6" full port globe valve has a friction loss of 20 PSI at 2,000 GPM. Therefore, the minimum inlet pressure necessary to pass the 2,000 and maintain 50 PSI reduced pressure would be 50 + 20 = 70 PSI. If inlet pressure falls below the minimum, the outlet pressure will be the pressure at the inlet minus the friction loss.



VAG USA, LLC • Phone: 724-776-1020 • Fax: 724-776-1254
Email: info-ga@vag-group.com • www.gaindustries.com