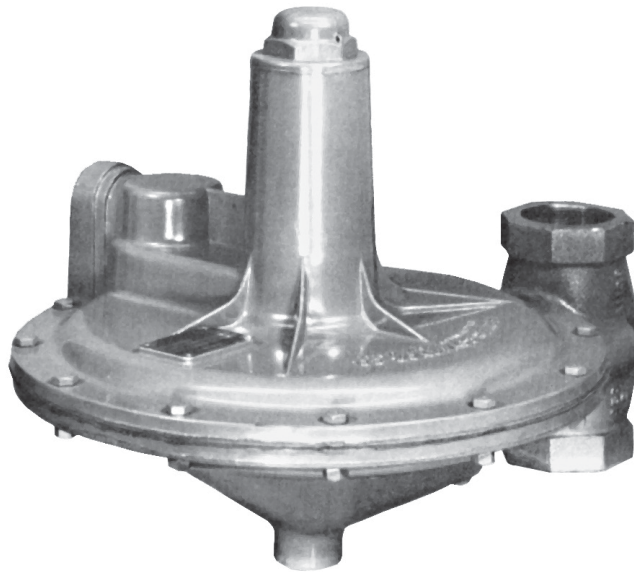


July 2013

# Y610A, Y611A, and Y612A Series Vacuum Service Equipment and Relief Valves



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*Figure 1. Type Y610A or Y610AP Vacuum Breaker*

## Introduction

The Y610A, Y611A, and Y612A Series devices (Figures 1 through 4) are used in a wide variety of vacuum and relief service applications. The Y610A Series devices are used as vacuum breakers, the Y611A Series devices are used as either vacuum breakers or relief valves, and the Y612A Series devices are used as vacuum regulators.

## Features

- **Precision Control of Low-Pressure Setting**—Large diaphragm areas provide more accurate control at low-pressure settings.
- **Corrosion Resistance**—Constructions are available in a variety of materials for compatibility with corrosive process gases.
- **Installation Adaptability**—360-degree adjustability of the body/diaphragm case connection and four-position vent mounting permit flexibility in vent positioning and installation in awkward positions or limited spaces. Units may be mounted in any orientation without affecting proper operation.
- **Tamper-Resistant Adjustment**—Closing cap and spring case on most types allow installation of sealing wire to discourage or detect unauthorized adjustment of the pressure setting (Figure 2).
- **Rugged Construction**—Diaphragm case and internal parts are designed to withstand vibration and shock.

# Y610A, Y611A and Y612A Series

## Specifications

### Available Configurations

See Table 1

### Body Sizes (Inlet x Outlet) and End Connection Style<sup>(1)</sup>

**Type Y610A, Y610AP, Y611A, Y611AP, Y612A, or Y612AP:**

1-1/2 x 1-1/2, 2 x 2 NPT, or  
NPS 2 x 2 / DN 50 x 50, CL125 FF, or  
CL250 RF flanged

### Pressure Information<sup>(2)</sup>

**Type Y610A or Y610AP**

**Vacuum Breaker:** See Table 2

**Type Y611A or Y611AP**

**Relief Valve:** See Table 3

**Type Y612A or Y612AP**

**Vacuum Regulator:** See Table 4

### Port Diameters and Flow Coefficients

TYPE NUMBER	SEAT RING PORT DIAMETER		C <sub>v</sub> WITH FULLY OPEN DISK	C <sub>i</sub>
	Inch	mm		
Y610A, Y610AP, Y611A, Y611AP	1-3/16	30	720	35
Y612A, Y612AP	5/8	16	150	
	1	25	450	
	1-3/16	30	720	

### Typical Flow Capacities and Performance Curves

**Y610A Series Vacuum Breakers:** See Table 5 and Capacity Information section

**Y611A Series Vacuum Breakers:** See Capacity Information section

**Y611A Series Relief Valves:** See Table 6, Figure 5, and Capacity Information section

**Y612A Series Vacuum Regulators:** See Table 7, Figure 6, and Capacity Information section

### Construction Materials

**Body:** Cast Iron (standard)

**Spring and Diaphragm Cases**

NPS 1-1/2 x 1-1/2 or 2 x 2 / DN 40 x 40 or  
50 x 50 Body: Aluminum

**Control Spring:** Steel

**Diaphragm Plate:** Steel

**Diaphragm and if Used, O-rings and**

**Wiper Ring:** Nitrile (NBR)

**Disk**

NPS 1-1/2 x 1-1/2 through 2 x 2 / DN 40 x 40  
through 50 x 50 Body: Nitrile (NBR) (standard),  
or Fluorocarbon (FKM)

**Seat Ring, Pusher Post, Stem Parts, Disk Holder, Adjusting Screw, and if Used, Body Cap**

NPS 1-1/2 x 1-1/2 through 2 x 2 / DN 40 x 40  
through 50 x 50 Body: Aluminum

**Lever Assembly**

NPS 1-1/2 x 1-1/2 or 2 x 2 / DN 40 x 40  
or 50 x 50 Body: Zinc-plated steel

**Gaskets:** Nitrile (NBR) or composition depending on location

**Stabilizer Vent Flappers if Used:** Nylon (PA)

**Flapper Spring, Disk Spring, Screen, and**

**if Used, Snap Ring:** Stainless steel

**Bolting:** Plated steel

**Other Metal Parts:** Steel, brass, stainless steel, zinc, and/or aluminum depending on construction

### Temperature Capabilities<sup>(2)</sup>

-20 to 150°F / -29 to 66°C

### Pressure Setting Adjustment

Adjusting screw

### Pressure Registration

See Table 1

### Pressure Connections

See Figures 11 and 12

### Approximate Weights

**Type Y610A, Y610AP, Y611A, Y611AP, Y612A, or Y612AP**

With NPS 1-1/2 x 1-1/2 / DN 40 x 40 Body:

25 pounds / 11 kg

With NPS 2 x 2 / DN 50 x 50 Body:

30 pounds / 14 kg

### Additional Options

PTFE diaphragm protector

1. The pressure/temperature limits in this Bulletin and any applicable standard limitation should not be exceeded.

2. Ratings and end connections for other than ANSI standards can usually be provided, consult your local Sales office.

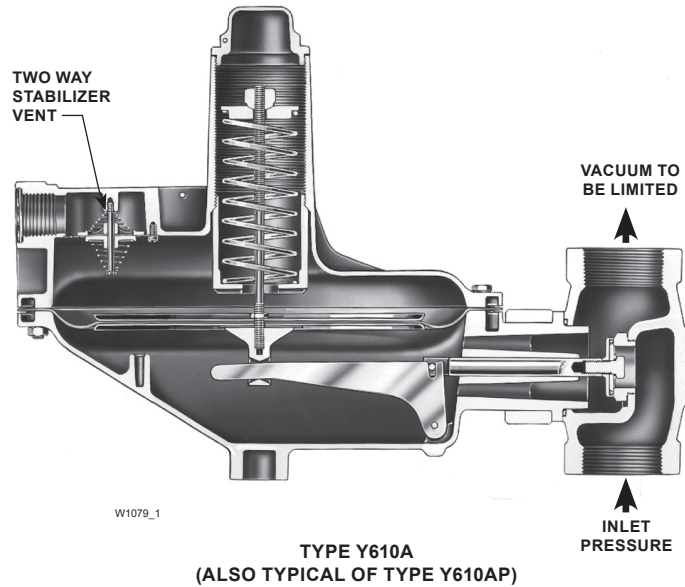


Figure 2. Y610A Series Vacuum Breaker Construction

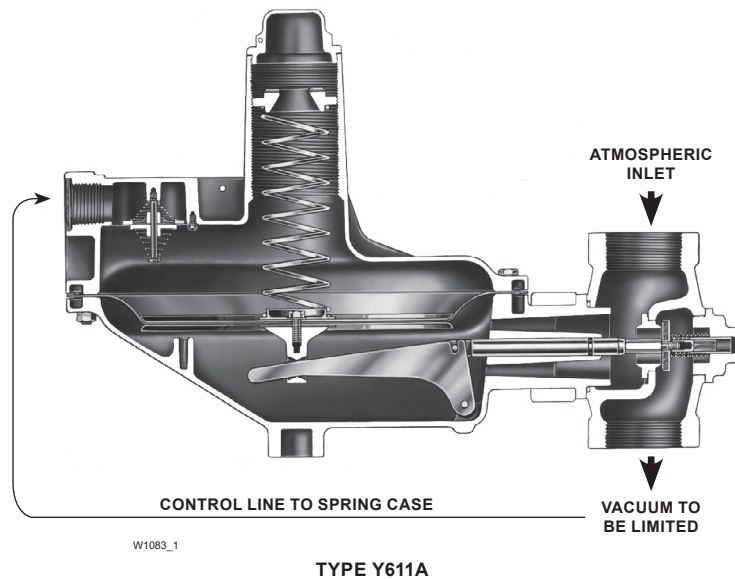


Figure 3. Y611A Series Vacuum Breaker Construction

## Y610A and Y611A Series Vacuum Breakers

These vacuum breakers are used in applications where an increase in vacuum must be limited. An increase in vacuum (decrease in absolute pressure) beyond a certain value registers underneath the diaphragm of a Y610A Series vacuum breaker (Figure 2) or above the diaphragm of a Y611A Series vacuum breaker with control line (Figure 3), opening the disk in either case. This permits atmosphere, or an upstream vacuum that has higher absolute pressure than the downstream

vacuum, to enter the system and restore the controlled vacuum to its original pressure setting.

## Y611A Series Relief Valves

A Y611A Series relief valve maintains a constant inlet pressure with the outlet flowing to atmosphere or to any system whose pressure is lower than the pressure at the relief valve inlet. An increase in inlet pressure opens the disk, relieving the excess pressure and restoring the inlet pressure to its original setting.

# Y610A, Y611A and Y612A Series

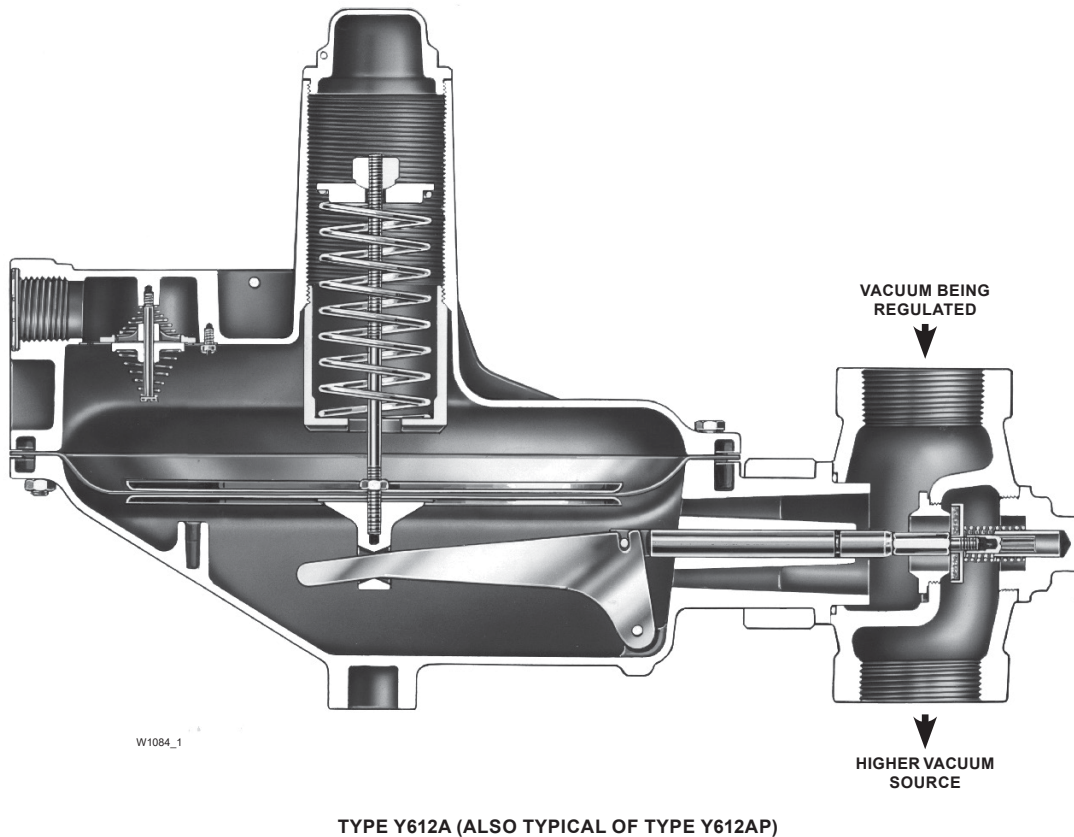


Figure 4. Y612A Series Vacuum Regulator Construction

## Y612A Series Vacuum Regulators

These vacuum regulators (Figure 4) maintain a constant vacuum at the regulator inlet. A decrease in this vacuum (increases in absolute pressure) beyond this value registers underneath the diaphragm and opens the disk. This permits a downstream vacuum of lower absolute pressure than the upstream vacuum to restore the upstream vacuum to its original pressure setting.

## Capacity Information

Tables 5, 6, and 7 give selected flow capacity information for Y610A, Y611A, and Y612A Series devices, respectively. Flows are in SCFH (60°F and 14.7 psia) of air at 60°F. To determine equivalent capacities of 0.6 specific gravity natural gas, propane, butane, or nitrogen, multiply the Table 5, 6, or 7 capacity by the following appropriate conversion factor: 1.29 for 0.6 natural gas, 0.810 for propane, 0.707 for butane, or 1.018 for nitrogen. For gases of other specific gravities, multiply the given capacity by 1.0, and divide by the square root of the appropriate specific gravity. Then, if capacity is desired in normal cubic meters per hour at 0°C and 1.01325 bar, multiply SCFH by 0.0268.

To determine capacities at outlet or relief set pressure not given in Table 5, 6, or 7, use one of the following formulas and convert according to the factors in the preceding paragraph if necessary:

## Vacuum Breaker or Vacuum Regulator Application

$$Q = P_{1\text{ abs}} C_g \sin \left( \frac{3415}{C_1} \sqrt{\frac{\Delta P}{P_{1\text{ abs}}}} \right) \text{ deg} \quad (1)$$

where,

- Q = flow capacity in SCFH (60°F and 14.7 psia) of air at 60°F
- $P_{1\text{ abs}}$  = absolute Inlet pressure in psia ( $P_1$  gauge + 14.7)
- $C_g$  = flow coefficient (from Specifications section)
- $C_1$  = 35 (from Specifications section)
- $\Delta P$  = pressure drop across vacuum breaker or regulator

Note that if the actual change in outlet (controlled) pressure (from the service condition) is less than the change in outlet (controlled) pressure required to fully open the vacuum breaker or regulator Table 2 or 5, the  $C_g$  in formula (1) must be reduced accordingly. To obtain the correct reduced  $C_g$ , multiply the Specifications section  $C_g$  by the ratio of the actual change in outlet (controlled) pressure to the change in outlet (controlled) pressure required to fully open the vacuum breaker or regulator.

## Relief Valve Application

$$Q = (P_1 + \text{buildup})_{\text{abs}} C_g \times \sin \left( \frac{3415}{C_1} \sqrt{\frac{(P_1 + \text{buildup})_{\text{gauge}}}{(P_1 + \text{buildup})_{\text{abs}}}} \right) \text{ deg} \quad (2)$$

where,

- $Q$  = flow capacity in SCFH
- $(P_1 + \text{buildup})_{\text{abs}}$  = set pressure (gauge) in psi + buildup in psi +14.7 to determine absolute pressure
- $C_g$  = flow coefficient (from Specifications section)
- $C_1$  = 35 (from Specifications section)
- $(P_1 + \text{buildup})_{\text{gauge}}$  = set pressure (gauge) in psi + buildup in psi

Note that if the actual buildup is less than the buildup required to fully open the relief valve (Table 3), the  $C_g$  in formula (2) must be reduced accordingly. To obtain the correct reduced  $C_g$ , multiply the Specifications section  $C_g$  by the ratio of the actual buildup to the buildup required to fully open the relief valve.

## Example Problems Using Formulas

### Example Problem 1

This problem involves a Type Y610A vacuum breaker with its outlet connected to vessel in which the vacuum must be limited. This breaker has a 1-3/16-inch / 30 mm seat ring and control spring 0B019727052 set to start opening and admit atmospheric pressure whenever the vacuum pump downstream from the vessel increases the vessel vacuum to more than 4-inches w.c. / 10 mbar. It desired

to find the air flow by the time the pump has increased the vessel vacuum to 8-inches w.c. / 20 mbar and the breaker has opened more. To find the air flow through the breaker under these conditions, perform the following steps:

1. Check whether the change in outlet (controlled) pressure of 4-inches w.c. or 0.144 psig / 10 mbar is less than the change in outlet (controlled) pressure required to fully open the vacuum breaker.

Because the change in outlet (controlled) pressure required to fully open a Type Y610A vacuum breaker with a 1-3/16-inch / 30 mm seat ring and control spring 0B019727052 is 0.143 psig / 10 mbar from Table 2, no reduction in the regulating  $C_g$  of 720 (Specifications section) need to be made.

2. Solve the problem by using the appropriate values in formula (1) as follows, remembering that the  $\Delta P$  across the vacuum breaker is 8-inches w.c. or 0.289 psig / 20 mbar:

$$Q = 14.7 (720) \sin \left( \frac{3415}{35} \sqrt{\frac{0.289}{14.7}} \right) \text{ deg} \\ = 2503 \text{ SCFH} / 67.1 \text{ Nm}^3/\text{h}$$

## Installation

The versatility of the Y610A, Y611A, and Y612A Series devices permits a wide variety of installations as shown in Figures 7 through 10.

The body may be mounted in any position (360-degree rotation possible) relative to the spring and diaphragm cases just by loosening the union nut or cap screws and rotating the diaphragm case. Spring case connection location are shown in Figure 11. Any possible mounting position will provide excellent performance. However, when exposed to the weather, the spring case connection should be protected by an optional vent or should be pointed downward to allow condensate to drain. On indoor installations, this connection should be piped outdoors if used in hazardous gas service.

Downstream piping will vary with the installation, but to obtain the calculated characteristics, the pipe should be the same size as the outlet and should be straight for the first 18-inches / 460 mm.

External dimensions and connection sizes are given in Figure 12.

# Y610A, Y611A and Y612A Series

**Table 1. Available Configurations**

CONSTRUCTION	TYPE NUMBER					
	Y610A	Y610AP	Y611A	Y611AP	Y612A	Y612AP
Vacuum breaker	x	x	----	----	----	----
Vacuum breaker or relief valve	----	----	x	x	----	----
Relief pilot with solid throat	----	----	----	----	----	----
Relief pilot with bleed hole in throat for Type 66RR	----	----	----	----	----	----
Vacuum regulator	----	----	----	----	x	x
1-1/2 or 2 NPT end connections and spring case with 1 NPT screened vent	x	x	x	x	x	x
Internal registration	x	----	x	----	----	----
External registration with 1/2 NPT downstream control line connection	----	x	----	x	----	x
Light diaphragm plate(s)	x	x	x	x	x	x
Heavy diaphragm plate(s)	----	----	----	----	----	----
O-ring stem seal	----	x	----	x	----	x

**Table 2. Types Y610A and Y610AP Vacuum Breaker Pressure Information**

TYPE NUMBER	MAXIMUM ALLOWABLE INLET (BODY) PRESSURE		MAXIMUM EMERGENCY OUTLET (CASING) PRESSURE (POSITIVE)		OUTLET PRESSURE RANGE (VACUUM)		MAXIMUM ALLOWABLE VACUUM		CONTROL SPRING COLOR CODE, PART NUMBER	CHANGE IN OUTLET (CONTROLLED) PRESSURE REQUIRED TO FULLY OPEN VACUUMBREAKER	
	psig	bar	psig	bar	With Spring Case Above Diaphragm	With Spring Case Below Diaphragm	psig	bar		psig	mbar
Y610A, Y610AP	13	0.90	15	1.0	1 to 3 inches w.c. / 2 to 7 mbar	0 to 2 inches w.c. / 0 to 5 mbar	5.1	0.35	Brown Stripe, 1D892527022	0.043	3
					1.5 to 5 inches w.c. / 4 to 12 mbar	0.50 to 4 inches w.c. / 1 to 10 mbar	5.2	0.36	Pink Stripe, 1D765427012	0.078	5
					3 to 8 inches w.c. / 7 to 20 mbar	2 to 7 inches w.c. / 5 to 17 mbar	5.3	0.37	Purple Stripe, 1B0197000A2	0.143	10
					8 to 16 inches w.c. / 20 to 40 mbar	7 to 15 inches w.c. / 17 to 37 mbar	5.6	0.39	Gray, 1B766627062	0.181	12
					16 to 32 inches w.c. / 40 to 80 mbar	15 to 31 inches w.c. / 37 to 77 mbar	6.1	0.42	Unpainted, 1B883327022	0.378	26
					0.25 to 3 psig / 0.02 to 0.21 bar	0.25 to 3 psig / 0.02 to 0.21 bar	8.0	0.55	Black, 1A630627022	1.944	134

# Y610A, Y611A and Y612A Series

**Table 3. Types Y611A and Y611AP Relief Valve Pressure Information**

TYPE NUMBER	MAXIMUM ALLOWABLE INLET (CASING) PRESSURE <sup>(1)</sup>		MAXIMUM OPERATING INLET (RELIEF) PRESSURE TO PREVENT PART DAMAGE <sup>(1)</sup>		INLET RELIEF SET PRESSURE RANGE		CONTROL SPRING COLOR CODE, PART NUMBER	BUILDUP OVER INLET PRESSURE REQUIRED TO FULLY OPEN RELIEF VALVE	
	psig	bar	psig	bar	With Spring Case Above Diaphragm	With Spring Case Below Diaphragm		psig	mbar
Y611A, Y611AP	15	1.0	5.1	0.35	3 to 4 inches w.c. / 7 to 10 mbar	2 to 3 inches w.c. / 5 to 7 mbar	Red, 1D892627022	0.089	6
			5.2	0.36	3.75 to 6 inches w.c. / 9 to 15 mbar	2.75 to 5 inches w.c. / 7 to 12 mbar	Red, 1D892627022	0.100	7
			5.3	0.37	5 to 8 inches w.c. / 12 to 20 mbar	4 to 7 inches w.c. / 10 to 17 mbar	Black Stripe, 1D892727012	0.124	9
			5.5	0.38	7 to 16 inches w.c. / 17 to 40 mbar	6 to 15 inches w.c. / 15 to 37 mbar	White Stripe, 1D893227032	0.216	15
			6	0.41	10 to 30 inches w.c. / 25 to 75 mbar	9 to 29 inches w.c. / 22 to 72 mbar	Green, 1D893327032	0.351	24
			6.5	0.45	0.75 to 1.5 psig / 0.05 to 0.10 bar	0.75 to 1.5 psig / 0.05 to 0.10 bar	Blue, 1H975827032	0.648	45
			7.5	0.52	1 to 2.5 psig / 0.07 to 0.17 bar	1 to 2.5 psig / 0.07 to 0.17 bar	Orange, 1H975927032	1.026	71

1. Including buildup.

**Table 4. Types Y612A and Y612AP Vacuum Regulator Pressure Information**

MAXIMUM ALLOWABLE INLET (CASING) PRESSURE		MAXIMUM OPERATING INLET PRESSURE TO PREVENT PART DAMAGE		OUTLET PRESSURE RANGE (VACUUM) <sup>(1)</sup>		MAXIMUM ALLOWABLE VACUUM		CONTROL SPRING		CHANGE IN OUTLET (CONTROLLED) PRESSURE REQUIRED TO FULLY OPEN VACUUM REGULATOR					
										5/8-Inch / 16 mm Port Diameter		1-Inch / 25 mm Port Diameter		1-3/16-Inch / 30 mm Port Diameter	
psig	bar	psig	bar	With Spring Case Above Diaphragm	With Spring Case Below Diaphragm	psig	bar	Part Number	Color Code	psig	mbar	psig	mbar	psig	mbar
15	1.0	5.1	0.35	1 to 3 inches w.c. / 2 to 7 mbar	0 to 2 inches w.c. / 0 to 5 mbar	5.1	0.35	1D892527022	Brown Stripe	0.089	6	0.053	4	0.076	5
		5.2	0.36	1.5 to 5 inches w.c. / 4 to 12 mbar	0.5 to 4 inches w.c. / 1 to 10 mbar	5.2	0.36	1D765427012	Pink Stripe	0.124	9	0.074	5	0.106	7
		5.3	0.37	3 to 8 inches w.c. / 7 to 20 mbar	2 to 7 inches w.c. / 5 to 17 mbar	5.3	0.37	0B019727052	Purple Stripe	0.189	13	0.112	8	0.161	11
		5.6	0.39	8 to 16 inches w.c. / 20 to 40 mbar	7 to 15 inches w.c. / 17 to 37 mbar	5.6	0.39	1B766627062	Gray	0.227	16	0.134	9	0.193	13
		6.1	0.42	16 to 32 inches w.c. / 40 to 80 mbar	15 to 31 inches w.c. / 37 to 77 mbar	6.1	0.42	1B883327022	Unpainted	0.405	28	0.240	17	0.345	24
		8.0	0.55	0.25 to 3 psig / 0.02 to 0.21 bar	0.25 to 3 psig / 0.02 to 0.21 bar	8.0	0.55	1A630627022	Black	1.944	134	1.152	79	1.656	114

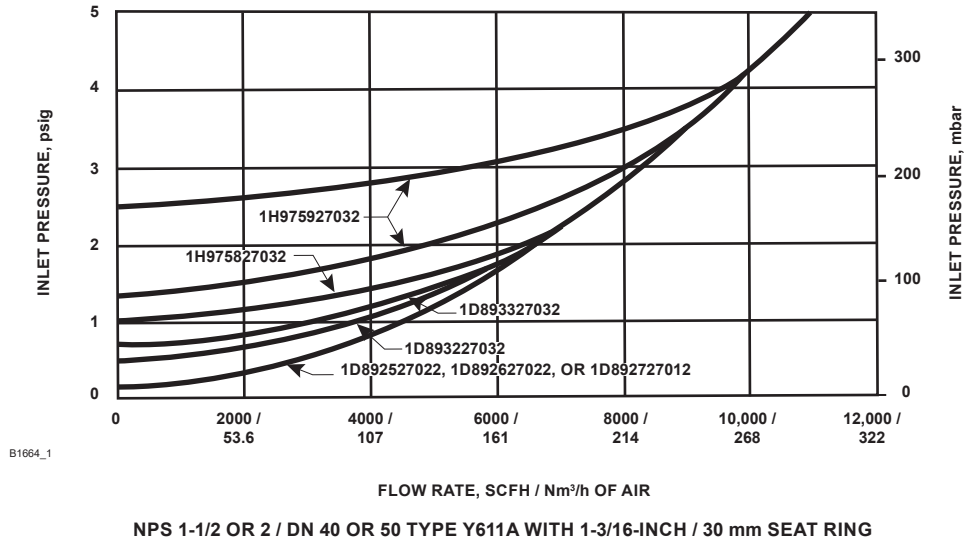
1. With spring case above the diaphragm as shown in Figure 4. With spring case below diaphragm, range 0.6-inch w.c. / 1 mbar lower in each end.

**Table 5. Selected Y610A Series Vacuum Breaker Capacities**

CONSTRUCTION, NPS / DN	CONTROL SPRING			CAPACITY, SCFH / Nm <sup>3</sup> /h OF AIR <sup>(1)</sup> (INLET PRESSURE IS ATMOSPHERIC)
	Part Number	Outlet Setting, Vacuum	Offset, Vacuum	
1-1/2 or 2 / 40 or 50 Type Y610A	1D892527022 1D765427012 0B019727052	2 inches w.c. / 5 mbar 4 inches w.c. / 10 mbar 7 inches w.c. / 17 mbar	1 inch w.c. / 2 mbar 1 inch w.c. / 2 mbar 1 inch w.c. / 2 mbar	1000 / 26.8 1400 / 37.5 1800 / 48.2
	1B766627062 1B883327022 1A630627022	14 inches w.c. / 35 mbar 28 inches w.c. / 70 mbar 2 psig / 0.14 bar	2 inches w.c. / 5 mbar 6 inches w.c. / 15 mbar 0.4 psig / 0.03 bar	1800 / 48.2 1900 / 50.9 2500 / 67.0

1. See Capacity Information section for conversion to equivalent capacities of other gases and/or Nm<sup>3</sup>/h.

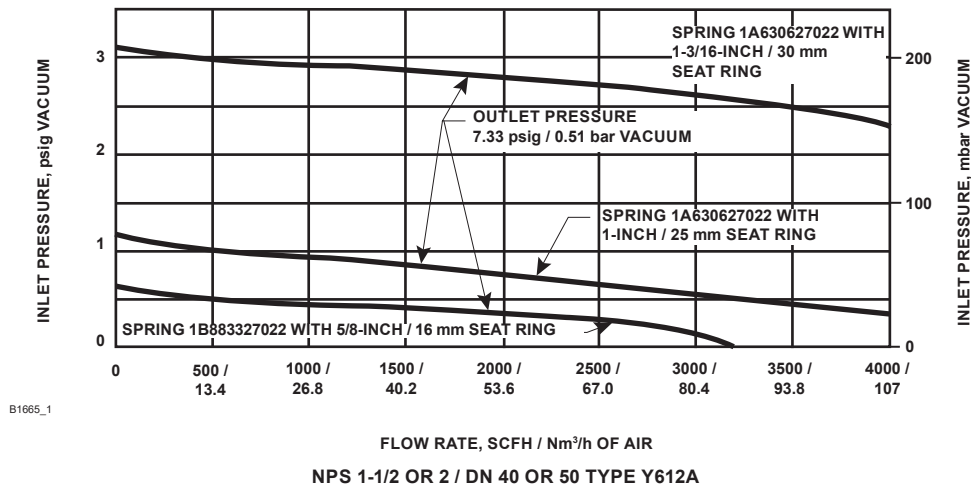
# Y610A, Y611A and Y612A Series



**NOTE:**

SEE CAPACITY INFORMATION SECTION FOR CONVERSION TO EQUIVALENT CAPACITIES OF OTHER GASES AND/OR CUBIC METERS PER HOUR. EACH CURVE REPRESENTS A DIFFERENT CONTROL SPRING AS MARKED AND INITIAL RELIEF SET PRESSURE FOR THAT SPRING AS GIVEN IN TABLE 6. DO NOT BASE YOUR CAPACITY ON A CONTROL SPRING SETTING HIGHER THAN THE MAXIMUM OPERATING INLET (RELIEF) PRESSURE TO PREVENT PART DAMAGE AS GIVEN IN TABLE 3.

**Figure 5.** Typical Performance Curves for Y611A Series Relief Valves



**NOTE:**

SEE CAPACITY INFORMATION SECTION FOR CONVERSION TO EQUIVALENT CAPACITIES OF OTHER GASES AND/OR CUBIC METERS PER HOUR. EACH CURVE REPRESENTS A DIFFERENT CONTROL SPRING, SEAT RING PORT DIAMETER, AND OUTLET PRESSURE AS MARKED. THE INITIAL PRESSURE SETTING FOR THE CONTROL SPRING IS GIVEN IN TABLE 7.

**Figure 6.** Typical Performance Curves for Y612A Series Vacuum Regulators



# Y610A, Y611A and Y612A Series

**Table 6. Selected Y611A Series Relief Valve Capacities**

CONSTRUCTION, NPS / DN	CONTROL SPRING PART NUMBER	RELIEF SET PRESSURE	CAPACITY, SCFH / Nm <sup>3</sup> /h OF AIR <sup>(1)</sup> AT FOLLOWING BUILD-UP OVER RELIEF SET PRESSURE					
			7 inches w.c. / 17 mbar	14 inches w.c. / 35 mbar	21 inches w.c. / 52 mbar	1 psig / 0.07 bar	1.5 psig / 0.10 bar	2 psig / 0.14 bar
1-1/2 or 2 / 40 or 50 Type Y611A	1D892527022	4 inches w.c. / 10 mbar	3000 / 80.4	4000 / 107	4500 / 121	5000 / 134	6000 / 161	7000 / 188
	1D892627022	5 inches w.c. / 12 mbar						
	1D892727012	7 inches w.c. / 17 mbar						
	1D893227032	14 inches w.c. / 35 mbar	2500 / 67	4000 / 107	5000 / 134	5500 / 147	6500 / 174	7500 / 201
	1D893327032	21 inches w.c. / 52 mbar	3000 / 80.4	4000 / 107	5000 / 134	6000 / 161	7000 / 188	8000 / 214
	1H975827032	1 psig / 0.07 bar	3000 / 80.4	4000 / 107	5500 / 147	6500 / 174	7500 / 201	8000 / 214
	1H975927032	1.25 psig / 0.09 bar	2000 / 53.6	4000 / 107	5000 / 134	6000 / 161	7500 / 201	8500 / 228
2.5 psig / 0.17 bar		3500 / 93.8	5500 / 147	7000 / 188	8000 / 214	9500 / 255	10,500 / 281	

1. See Capacity Information section for conversion to equivalent capacities of other gases and/or Nm<sup>3</sup>/h.

- continued -

**Table 6. Selected Y611A Series Relief Valve Capacities (continued)**

CONSTRUCTION, NPS / DN	CONTROL SPRING PART NUMBER	RELIEF SET PRESSURE	CAPACITY, SCFH / Nm <sup>3</sup> /h OF AIR <sup>(1)</sup> AT FOLLOWING BUILD-UP OVER RELIEF SET PRESSURE				
			2.5 psig / 0.17 bar	3 psig / 0.21 bar	4 psig / 0.28 bar	5 psig / 0.34 bar	6 psig / 0.41 bar
1-1/2 or 2 / 40 or 50 Type Y611A	1D892527022	4 inches w.c. / 10 mbar	8000 / 214	8500 / 228	10,000 / 268	11,000 / 295	
	1D892627022	5 inches w.c. / 12 mbar					
	1D892727012	7 inches w.c. / 17 mbar					
	1D893227032	14 inches w.c. / 35 mbar	8000 / 214	9000 / 241	10,500 / 281	11,300 / 303	
	1D893327032	21 inches w.c. / 52 mbar	8500 / 228	9500 / 255	10,500 / 281	11,600 / 311	
	1H975827032	1 psig / 0.07 bar	9000 / 241	10,000 / 268	11,000 / 295	11,800 / 316	
	1H975927032	1.25 psig / 0.09 bar	9500 / 255	10,000 / 268	11,000 / 295	12,000 / 322	13,000 / 348
2.5 psig / 0.17 bar		10,800 / 289	11,300 / 303	12,300 / 330	13,300 / 356		

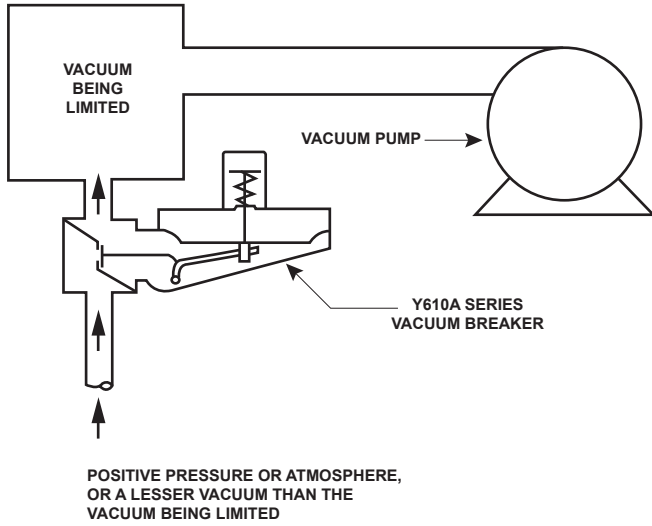
1. See Capacity Information section for conversion to equivalent capacities of other gases and/or Nm<sup>3</sup>/h.  
 - Shaded areas show where maximum operating inlet (relief) pressure to prevent part damage is exceeded.

**Table 7. Selected Y612A Series Vacuum Regulator Capacities**

CONSTRUCTION, NPS / DN	CONTROL SPRING			CAPACITY, SCFH / Nm <sup>3</sup> /h OF AIR <sup>(1)</sup>	AT OUTLET PRESSURE (VACUUM) OF:
	Part Number	Inlet Setting, Vacuum	Offset, Vacuum		
1-1/2 or 2 / 40 or 50 Type Y612A	5/8-inch / 16 mm Seat Ring	1B883327022	16-inches w.c. / 40 mbar	3 inches w.c. / 7 mbar	7.33 psig / 0.51 bar
	1-inch / 25 mm Seat Ring	1A630627022	1 psig / 0.07 bar	0.2 psig / 0.01 bar	
	1-3/16-inch / 30 mm Seat Ring	1A630627022	3 psig / 0.21 bar	0.6 psig / 0.04 bar	

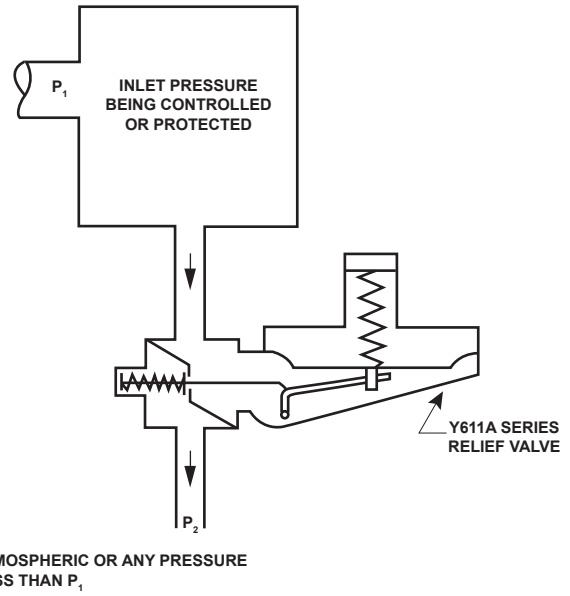
1. See Capacity Information section for conversion to equivalent capacities of other gases and/or Nm<sup>3</sup>/h.

# Y610A, Y611A and Y612A Series



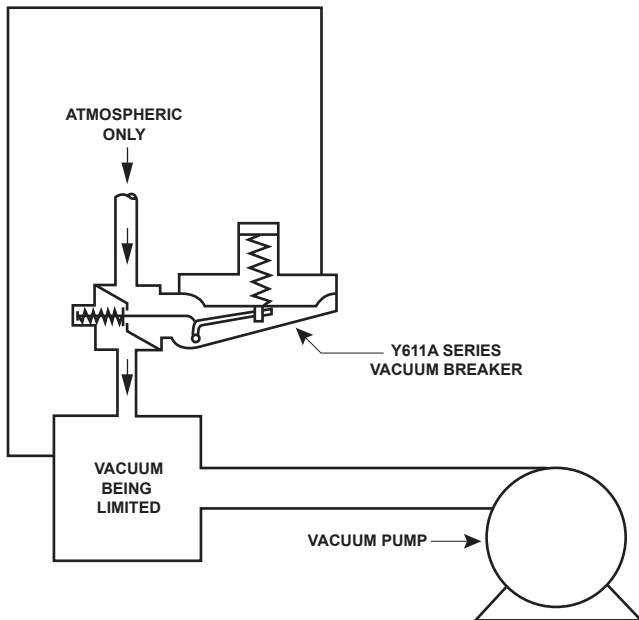
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Figure 7. Typical Y610A Series Vacuum Breaker Installation



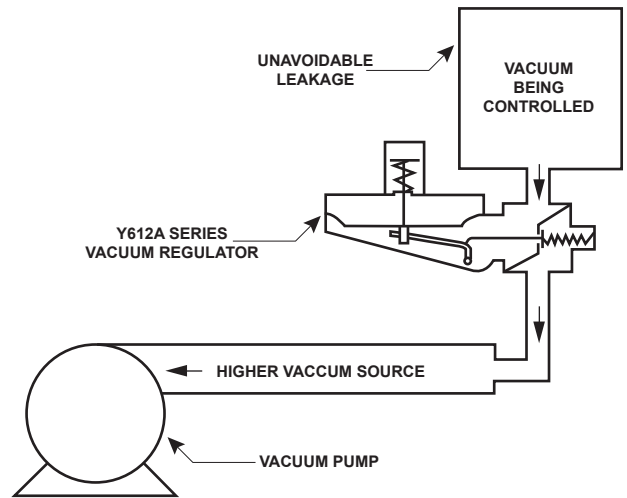
A2993\_2

Figure 9. Typical Y611A Series Relief Valve Installation



A2992

Figure 8. Typical Y611A Series Vacuum Breaker Installation



A2294\_1

Figure 10. Typical Y612A Series Vacuum Regulator Installation

# Y610A, Y611A and Y612A Series

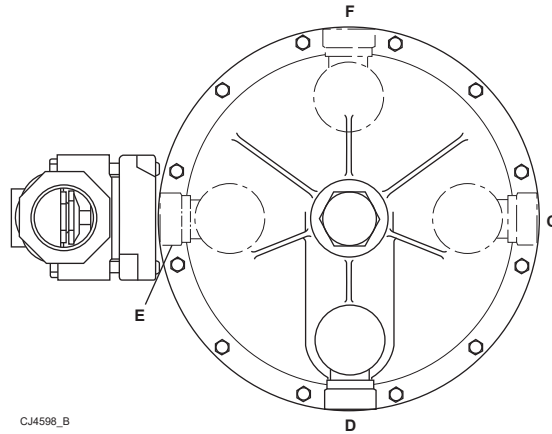


Figure 11. Spring Case Connection Locations

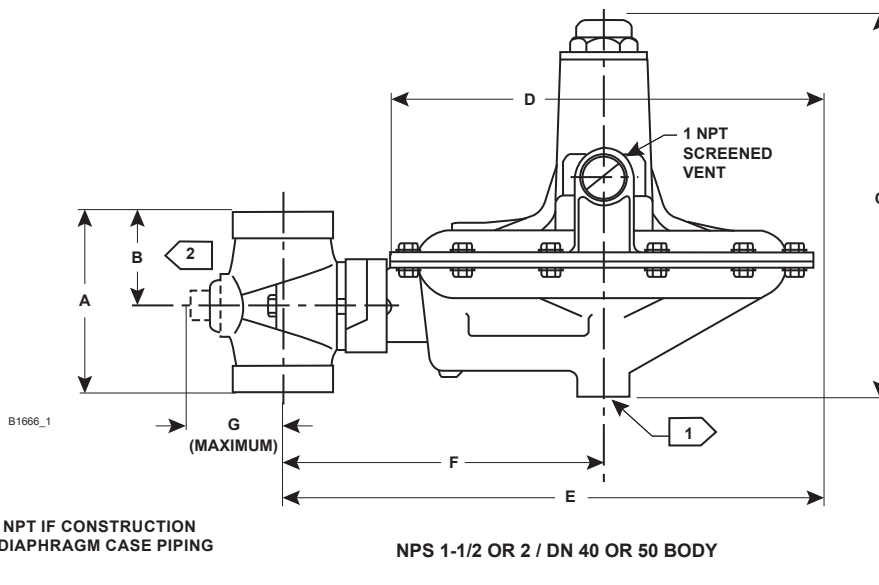


Figure 12. Dimensions

Table 8. Dimensions

BODY SIZE, NPS / DN	DIMENSIONS, INCH / mm									
	A			C		D	E	F	G (MAXIMUM)	
	NPT Connections	CL125 FF Flanged Connections	CL250 RF Flanged Connections	Y610A and Y612A Series Devices	Y611A Series Devices				Y610A Series Devices	Y611A and Y612A Series Devices
1-1/2 x 1-1/2 / 40 x 40 2 x 2 / 50 x 50	6.12 / 156 6.12 / 156	----- 10.0 / 254	----- 10.5 / 267	12.88 / 327 12.88 / 327	12.88 / 327 12.88 / 327	14.12 / 359 14.12 / 359	18.12 / 460 17.69 / 449	11.06 / 281 10.62 / 270	1.44 / 37 2.19 / 56	2.33 / 59 3.12 / 79

## Ordering Information

When ordering, specify:

## Application

1. Composition and specific gravity of the gas (including chemical analysis if possible).
2. Range of temperatures, flowing inlet pressure (maximum, minimum, nominal), and pressure drops.
3. Desired pressure setting or range.

4. Range of the flow rates (minimum controlled, maximum, normal).
5. Piping size(s).

## Construction

Refer to the Specifications section and to each referenced table: specify the desired selection whenever there is a choice to be made. Always be sure to specify the complete Y610A, Y611A, or Y612A Series type number from the Specifications section and the spring case connection location from Figure 11.

# Y610A, Y611A and Y612A Series

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## Ordering Guide

### Type (Select One)

- Type Y610A
- Type Y610AP
- Type Y611A
- Type Y611AP
- Type Y612A
- Type Y612AP

### Body Size (Select One)

- 1-1/2 NPS / DN 40
- 2 NPS / DN 50

### Body Material and End Connection Style (Select One)

- NPT
- CL125 FF (Not Available for Type Y612A)

### Control Pressure Range (Select One)

#### Type Y610A, Y610AP, Y612A, or Y612AP

- 1 to 3 inches w.c. / 2 to 7 mbar
- 1.5 to 5 inches w.c. / 4 to 12 mbar
- 3 to 8 inches w.c. / 7 to 20 mbar
- 8 to 16 inches w.c. / 20 to 40 mbar
- 16 to 32 inches w.c. / 40 to 80 mbar
- 0.25 to 3 psig / 0.02 to 0.21 bar

#### Type Y611A or Y611AP

- 3 to 4 inches w.c. / 7 to 10 mbar
- 3.75 to 6 inches w.c. / 9 to 15 mbar
- 5 to 8 inches w.c. / 12 to 20 mbar
- 7 to 16 inches w.c. / 17 to 40 mbar
- 10 to 30 inches w.c. / 25 to 75 mbar
- 0.75 to 1.5 psig / 0.05 to 0.10 bar
- 1 to 2.5 psig / 0.07 to 0.17 bar

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