

Victaulic® Pressure Valves

Series 867-7UL and 867-7UF



867-7UL

867-7UF

1.0 PRODUCT DESCRIPTION

Available Sizes:

- 1 ½ – 16"/DN40 – DN400

Function:

- **867-7UL:** Pilot Operated, Pressure Reducing Valve
- **867-7UF:** Pilot Operated, Pressure Relief Valve

Operating Temperature by Material:

- **Standard: Natural Rubber:** 122°F/50°C
- **Optional: Nitrile/NBR:** 176°F/80°C
- **Optional: EPDM:** 194°F/90°C

End Connections:

- Grooved (OGS)
- Flanged
- Threaded

Application:

- Fire Protection Pump Rooms
- Floor Control Assemblies

Codes and Requirements:

- NFPA 13
- NFPA 14
- NFPA 20
- NFPA 25

ALWAYS REFER TO ANY NOTIFICATIONS AT THE END OF THIS DOCUMENT REGARDING PRODUCT INSTALLATION, MAINTENANCE OR SUPPORT.

System No.		Location	
Submitted By		Date	

Spec Section		Paragraph	
Approved		Date	

1.1 PRODUCT DESCRIPTION

Available Sizes, Pressure Ratings and Agency Approvals¹

Product Configuration	Nominal Size Range inches DN	FM Approval psi bar	UL Listed psi bar	Pilot Set Range psi bar
867-7UL	2 – 6 DN50 – DN150	NO FM APPROVAL	300 21	30 – 165 2 – 11.5
	8 DN200	NO FM APPROVAL	175 12	30 – 165 2 – 11.5
867-7UF	2 – 6 DN50 – DN150	200 14	350 24	30 – 175 2 – 12
	8 DN200	200 14	175 12	30 – 175 2 – 12
867-7UL/UF	10 – 16 ² DN250 – DN400	NO FM APPROVAL	NO UL LISTING	30 – 175 2 – 12

¹ Valve body material may change listing or approval. See Victaulic for details.

² Style 867-7UL/UF sizes 10 - 16"/DN250 - DN400 can be used on pressures up to 200 psi/14 bar.

1.2 PRODUCT DESCRIPTION

Available Sizes by Material and End Connection

Body Material	Ductile Iron Body				Cast Steel & Stainless Steel			Ni-Al Bronze Body	
Valve Connection	Flanged ANSI B16.42		Threaded	Flanged ANSI B16.5		Threaded	Flanged ANSI B16.24		
Valve Configuration	Grooved inches mm	Flanged ANSI Class 150 inches mm	Flanged ANSI Class 300 inches mm	NPT / BSP inches mm	Flanged ANSI Class 150 inches mm	Flanged ANSI Class 300 inches mm	NPT / BSP inches mm	Flanged ANSI Class 150 inches mm	Flanged ANSI Class 300 inches mm
867-7UL 867-7UF	1 ½ – 8 40 – 200	1 ½ – 16 40 – 400	2 – 6 50 – 150	1 ½, 2, 2 ½, 3 40, 50, 65, 80	2 – 8 50 – 200	2 – 6 50 – 150	2, 2 ½, 3 50, 65, 80	2 – 8 50 – 200	2 – 6 50 – 150

2.0 CERTIFICATION/LISTINGS

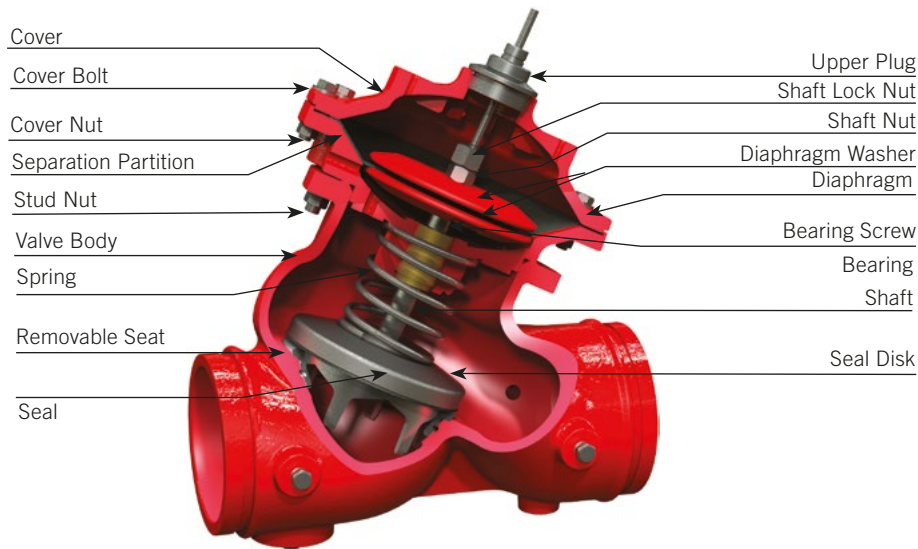


NOTE

- Refer to Available Sizes by Material and End Connection in section 1.2 for specific units and materials.

3.0 SPECIFICATIONS - MATERIAL

Series 867-7UL, 867-7UF Body Style



Cover: (specify choice)

Standard: Ductile Iron ASTM A536 65-45-12

Optional: Cast Steel
ASTM A216 Grade WCB (coated)

Optional: Nickel Aluminum Bronze
ASTM B148 C95800

Optional: Stainless Steel 316
ASTM A351 Grade CF8M

Cover Bolt: (specify choice)

Standard: Zinc Plated Steel

Optional: Stainless Steel 316
ASTM A320 Grade B8F

Cover Nut: (specify choice)

Standard: Zinc Plated Steel

Optional: Stainless Steel 316 ASTM A320 Grade B8F

Separation Partition: (specify choice)

Standard: Ductile Iron ASTM A536 65-45-12

Optional: Cast Steel
ASTM A216 Grade WCB (coated)

Optional: Nickel Aluminum Bronze
ASTM B148 C95800

Optional: Stainless Steel 316
ASTM A351 Grade CF8M

Stud: (specify choice)

Standard: Zinc Plated Steel

Optional: Stainless Steel 316 ASTM A320 Grade B8F

Stud Nut: (specify choice)

Standard: Zinc Plated Steel

Optional: Stainless Steel 316 ASTM A320 Grade B8F

Valve Body: (specify choice)

Standard: Ductile Iron ASTM A536 65-45-12

Optional: Cast Steel
ASTM A216 Grade WCB (coated)

Optional: Nickel Aluminum Bronze
ASTM B148 C95800

Optional: Stainless Steel 316
ASTM A351 Grade CF8M

Spring: Stainless Steel 302

Removable Seat: Stainless Steel 304 ASTM A743 Grade CF8

Seal: NBR, Polyamide fabric reinforced Nitrile (Buna-N)

Upper Plug: Brass

Shaft Lock Nut: Stainless Steel 303 ASTM A582 95B S30300A

Shaft Nut: Stainless Steel 316 ASTM A320 Grade B8F

Diaphragm Washers: Stainless Steel 431 ASTM A743 Grade CA15M

Diaphragm: NBR, Polyamide fabric reinforced Nitrile (Buna-N)

Bearing Screw: Stainless Steel 303 ASTM A582 95B S30300A

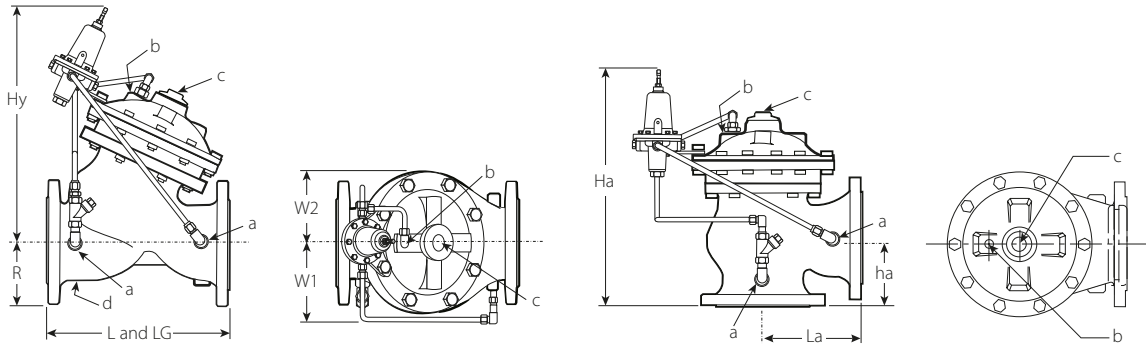
Bearing: Bronze ASTM B505 Grade C83600

Shaft: Stainless Steel 303 ASTM A582 95B S30300A

Seal Disk: Stainless Steel 431 ASTM A743 Grade CA15M

4.0 DIMENSIONS

Series 867-7UL, 867-7UF



Size		Grooved	Flanged ANSI Class 150	ANSI #150, ISO PN16 Flanged and Grooved								Flanged		Grooved
		Dimensions											Weight ³	
Nominal inches DN	Actual Outside Diameter inches mm	LG ⁴ inches mm	L inches mm	W1 inches mm	W2 inches mm	R inches mm	La inches mm	ha inches mm	Hy inches mm	Ha inches mm	Y Approx. (Each) lb kg	A Approx. (Each) lb kg	Y Approx. (Each) lb kg	
1 1/2 DN40	1.900 48.3	– –	8.07 205	6.10 155	3.05 83	3.05 78	4.88 124	3.35 85	12.15 309	13.03 331	23.0 10.6	22.0 10.0	20.0 9.1	
2 DN50	2.375 60.3	8.07 205	8.07 205	6.10 155	3.05 83	3.25 83	4.88 124	3.35 85	11.36 289	13.03 331	23.0 10.6	22.0 10.0	25.0 11.3	
2 1/2	2.875 73.0	8.27 210	8.27 210	6.10 155	3.50 89	3.74 95	5.82 148	4.02 102	12.15 309	13.70 348	29.0 13.0	27.0 12.0	25.0 11.3	
3 DN80	3.500 88.9	9.84 250	9.84 250	6.69 170	3.95 100	3.94 100	5.98 152	4.29 109	14.29 363	15.39 391	49.0 22.0	47.0 21.5	49.0 22.2	
4 DN100	4.500 114.3	12.60 320	12.60 320	7.09 180	4.40 112	4.39 112	7.48 190	5.00 127	15.71 399	17.22 438	82.0 37.0	77.0 35.0	82.0 37.2	
6 DN150	6.625 168.3	16.34 415	16.34 415	7.87 200	6.30 160	5.63 143	8.86 225	5.98 152	20.03 509	19.70 501	165.0 75.0	157.0 71.0	165.0 74.8	
8 DN200	8.625 219.1	19.69 500	19.69 500	9.29 236	7.68 195	6.77 172	10.43 265	7.99 203	21.75 553	23.21 590	276.0 125.0	260.0 118.0	276.0 125.2	
10 DN250	10.750 273.0	– –	23.82 605	11.05 281	9.45 240	8.03 204	12.60 320	8.62 219	24.91 633	26.24 667	478.0 217.0	452.0 205.0	– –	
12 DN300	12.750 323.9	– –	28.54 725	12.43 316	10.83 275	9.51 242	15.59 396	10.83 273	28.14 715	30.69 780	816.0 370.0	772.0 350.0	– –	
14 DN350	14.000 355.6	– –	28.86 733	12.43 316	10.83 275	10.53 268	15.75 400	10.98 279	28.14 715	30.85 784	840.0 381.0	216.0 370.0	– –	
16 DN400	16.000 406.4	– –	38.98 990	16.14 410	14.57 370	11.81 300	17.72 450	14.53 369	35.17 893	39.41 1001	1865.0 846.0	1764.0 800.0	– –	

³ Weight based on standard ASTM A536 65-45-12 Ductile Iron Body.

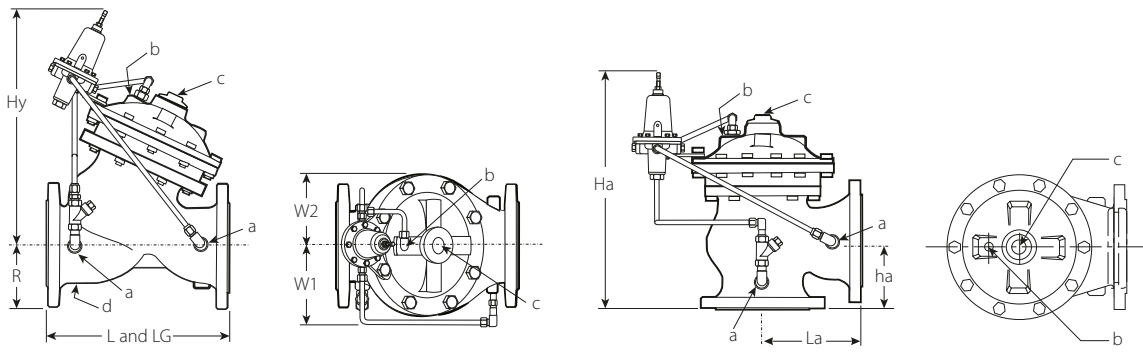
⁴ LG is for Grooved Ends (see available sizes).

NOTE

- Dimensions and port dimensions (a, b, c, d) continued in section 4.1.

4.1 DIMENSIONS

Series 867-7UL, 867-7UF

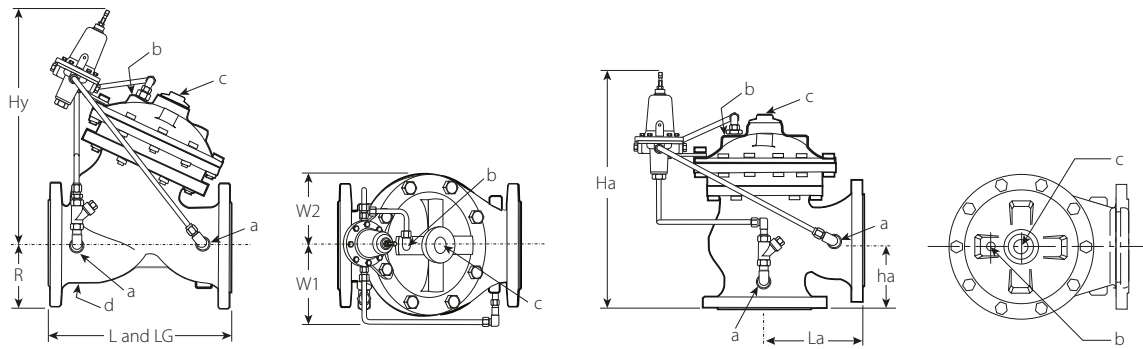


Size		ANSI #300, ISO PN25 Flanged								Weight ⁵	
		Dimensions								Y Approx. (Each)	A Approx. (Each)
Nominal inches DN	Actual Outside Diameter inches mm	L inches mm	W1 inches mm	W2 inches mm	R inches mm	La inches mm	ha inches mm	Hy inches mm	Ha inches mm	lb kg	lb kg
1 ½ DN40	1.900 48.3	8.07 205	6.10 155	3.25 83	3.05 78	4.88 124	3.35 85	12.15 309	13.03 331	27.0 12.2	25.0 11.5
2 DN50	2.375 60.3	8.27 210	6.10 155	3.25 83	3.25 83	4.88 124	3.35 85	11.36 289	13.03 331	27.0 12.2	25.0 11.5
2 ½	2.875 73.0	8.74 222	6.10 155	3.65 93	3.64 93	5.86 149	4.29 109	12.15 309	13.98 355	33.0 15.0	30.0 13.5
3 DN80	3.500 88.9	10.39 264	6.69 170	4.09 104	4.13 105	6.26 159	4.29 109	14.29 363	15.39 391	55.0 25.0	51.0 23.0
4 DN100	4.500 114.3	13.19 335	7.09 180	4.92 125	5.00 127	7.87 200	5.31 135	15.71 399	17.54 446	95.0 43.0	90.0 41.0
6 DN150	6.625 168.3	17.05 433	7.87 200	6.30 160	6.26 159	9.21 234	6.50 165	20.03 509	20.22 514	187.0 85.0	179.0 81.0

⁵ Weight based on standard ASTM A536 65-45-12 Ductile Iron Body

4.1 DIMENSIONS (CONTINUED)

Series 867-7UL, 867-7UF



Size		Threaded NPT or BSP									Ports – All End Connections				
		Dimensions									Dimensions				
Nominal	Actual Outside Diameter	L	W1	W2	R	La	ha	Ha	Hy	Weight	a ⁶	b ⁶	c ⁶	d ⁷ (optional)	Control Volume ⁸
inches DN	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	lbs kg	inches mm	inches mm	inches mm	inches mm	gallons liters
1 1/2 DN40	1.9 00 48.3	6.10 155	6.10 155	3.05 78	1.48 38	4.75 121	3.25 83	12.94 329	12.15 309	20.0 9.1	0.50 15	0.50 15	0.75 20	0.75 20	0.04 0.13
2 DN50	2.375 60.3	6.10 155	6.10 155	7.50 191	1.57 40	4.75 121	3.25 83	12.94 329	11.36 289	25.0 11.3	0.50 15	0.50 15	0.75 20	0.75 20	0.04 0.13
2 1/2	2.875 73.0	8.35 212	6.10 155	7.50 191	1.88 48	5.50 140	4.02 102	13.71 348	12.15 309	25.0 11.3	0.50 15	0.50 15	0.75 20	1.50 40	0.04 0.13
3 DN80	3.500 88.9	9.40 250	6.69 170	8.05 207	2.20 56	6.26 159	4.53 115	15.63 397	14.29 363	49.0 22.2	0.50 15	0.50 15	0.75 20	1.50 40	0.08 0.30
4 DN100	4.500 114.3	-	-	-	-	-	-	-	-	-	0.50 15	0.50 15	0.75 20	2.00 50	0.12 0.45
6 DN150	6.625 168.3	-	-	-	-	-	-	-	-	-	0.50 15	0.50 15	2.00 50	2.00 50	0.57 2.15
8 DN200	8.625 219.1	-	-	-	-	-	-	-	-	-	0.50 15	0.50 15	2.00 50	2.00 50	1.19 4.50
10 DN250	10.750 273.0	-	-	-	-	-	-	-	-	-	0.50 15	0.50 15	2.00 50	2.00 50	2.25 8.50
12 DN300	12.750 323.9	-	-	-	-	-	-	-	-	-	0.50 15	0.50 15	2.00 50	2.00 50	3.28 12.40
14 DN350	14.000 355.6	-	-	-	-	-	-	-	-	-	0.50 15	0.50 15	2.00 50	2.00 50	3.28 12.40
16 DN400	16.000 406.4	-	-	-	-	-	-	-	-	-	0.50 15	0.50 15	2.00 50	2.00 50	7.88 29.90

⁶ (a), (b), (c) are NPT Thread ports

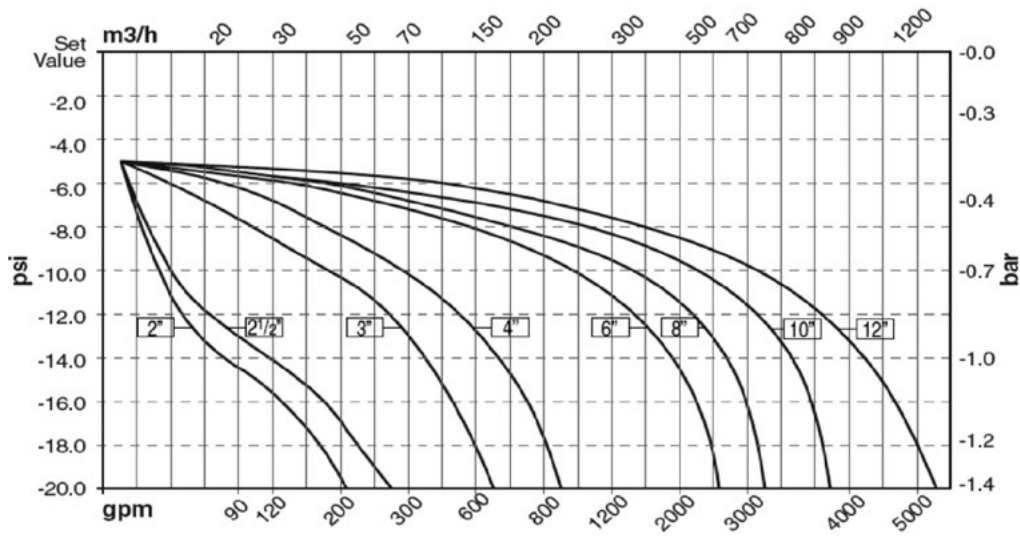
⁷ (d) is BSPT threaded optional drain port

⁸ (Control Volume) is Control Chamber Displacement Volume of Liquid pushed when valve opens

5.0 PERFORMANCE

Pressure Fall-off Chart

Series 867-7UL

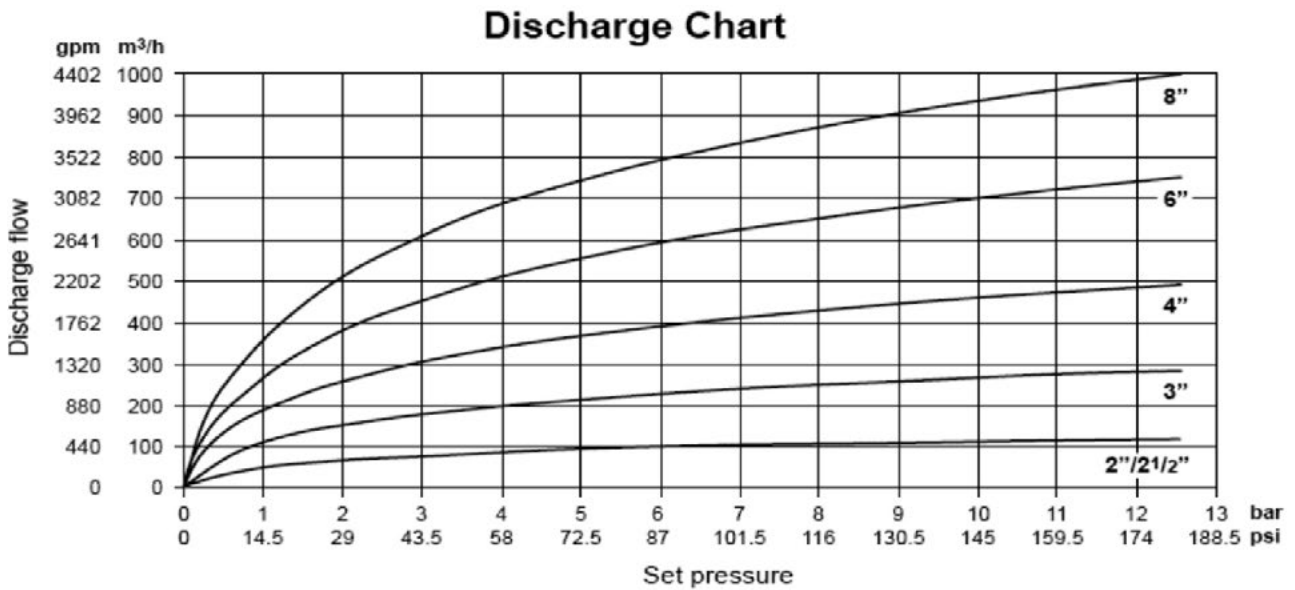


NOTE

- Contact Victaulic for information on sizes not shown.

Discharge Chart

Series 867-7UF



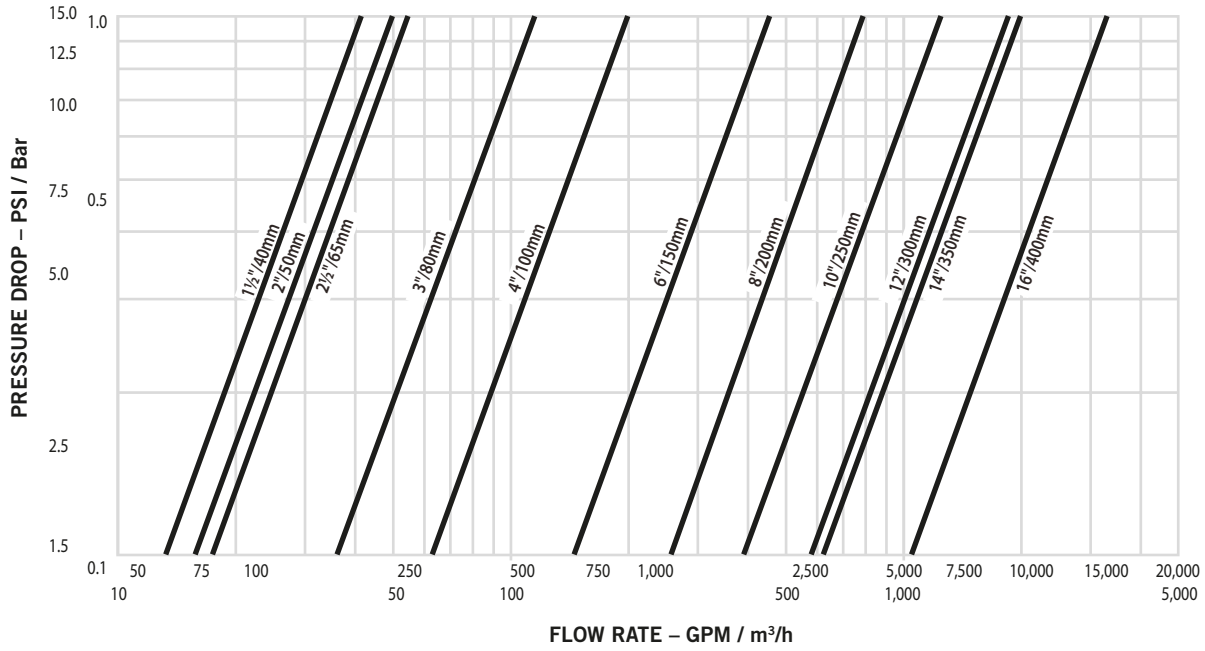
NOTES

- Contact Victaulic for information on sizes not shown.
- Systems must be designed with adequate downstream pressure relief to protect components from over pressurization during pump operation. To maintain FM Approvals, minimum 1/2"/15mm pressure relief must be provided downstream of all pressure reducing valves.

5.1 PERFORMANCE

Flow Chart

Series 867-7UL, 867-7UF



5.2 PERFORMANCE

Series 867-7UL, 867-7UF

Cv Values:

Cv values for flow of water at +60°F/+16°C through a fully open valve are shown in the table below.

Formulas for Cv and Kv values

$$\Delta P = \frac{Q^2}{C_v^2} \quad \text{or} \quad \Delta P = \frac{Q^2}{K_v^2}$$

$$Q = C_v \times \sqrt{\Delta P} \quad Q = K_v \times \sqrt{\Delta P}$$

Where:







Flow Coefficient	Cv	Kv
Q (Flow)	GPM	m ³ /hr
ΔP (Pressure Drop)	psi	bar

Frictional Resistance

The chart below expresses the frictional resistance of Victaulic Series 867-7UL and 867-7UF Pressure Reducing and Pressure Relief Valves in equivalent feet of straight pipe.

Valve Size		Full Open Y-Pattern	Equivalent Length of Y-Pattern Pipe feet meters	Full Open Angle Pattern	Equivalent Length of Angle Pattern Pipe feet meters
Nominal inches DN	Actual Outside Diameter inches mm	Flow Coefficient Cv Kv		Flow Coefficient Cv Kv	
1 1/2 DN40	1.900 48.3	58 50	33.8 10.3	64 55	28.0 8.5
2 DN50	2.375 60.3	58 50	33.8 10.3	64 55	28.0 8.5
2 1/2	2.875 73.0	64 55	109.5 33.4	70 61	90.5 27.6
3 DN80	3.500 88.9	133 115	70.8 21.6	146 127	58.5 17.8
4 DN100	4.500 114.3	230 200	75.6 23.0	250 220	62.5 19.0
6 DN150	6.625 168.3	530 460	123.0 37.5	580 506	101.6 37.0
8 DN200	8.625 219.1	940 815	176.9 53.9	1040 897	146.2 44.6
10 DN250	10.750 273.0	1440 1250	229.5 70.0	1590 1375	189.7 57.8
12 DN300	12.750 323.9	2140 1850	280.8 85.6	2350 2035	232.0 70.7
14 DN350	14.000 355.6	2300 1990	524.5 159.9	2530 2189	433.4 132.1
16 DN400	16.000 406.4	3820 3310	369.6 112.7	4210 3641	305.5 93.1

6.0 NOTIFICATIONS

 WARNING	
    	<ul style="list-style-type: none"> • Read and understand all instructions before attempting to install any Victaulic products. • Always verify that the piping system has been completely depressurized and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic products. • Wear safety glasses, hardhat, and foot protection. <p>Failure to follow these instructions could result in death or serious personal injury and property damage.</p>
<ul style="list-style-type: none"> • These products shall be used only in fire protection systems that are designed and installed in accordance with current, applicable National Fire Protection Association (NFPA 13, 13D, 13R, etc.) standards, or equivalent standards, and in accordance with applicable building and fire codes. These standards and codes contain important information regarding protection of systems from freezing temperatures, corrosion, mechanical damage, etc. • The installer shall understand the use of this product and why it was specified for the particular application. • The installer shall understand common industry safety standards and potential consequences of improper product installation. • It is the system designer's responsibility to verify suitability of materials for use with the intended fluid media within the piping system and external environment. • The material specifier shall evaluate the effect of chemical composition, pH level, operating temperature, chloride level, oxygen level, and flow rate on materials to confirm system life will be acceptable for the intended service. <p>Failure to follow installation requirements and local and national codes and standards could compromise system integrity or cause system failure, resulting in death or serious personal injury and property damage.</p>	

7.0 REFERENCE MATERIALS

[10.64: Victaulic® Firelock™ Rigid Coupling Style 009N](#)

[I-100: Field Installation Handbook](#)

[I-009N: Field Installation and Maintenance Style 009N](#)

[29.01: Victaulic® Terms and Conditions](#)

[I-867-7UL: Installation, Operation and Maintenance Manual Series 867-7UL](#)

[I-867-7UF: Installation, Operation and Maintenance Manual Series 867-7UF](#)

User Responsibility for Product Selection and Suitability

Each user bears final responsibility for making a determination as to the suitability of Victaulic products for a particular end-use application, in accordance with industry standards and project specifications, and the applicable building codes and related regulations as well as Victaulic performance, maintenance, safety, and warning instructions. Nothing in this or any other document, nor any verbal recommendation, advice, or opinion from any Victaulic employee, shall be deemed to alter, vary, supersede, or waive any provision of Victaulic Company's standard conditions of sale, installation guide, or this disclaimer.

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Note

This product shall be manufactured by Victaulic or to Victaulic specifications. All products to be installed in accordance with current Victaulic installation/assembly instructions. Victaulic reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligations.

Installation

Reference should always be made to the Victaulic installation handbook or installation instructions of the product you are installing. Handbooks are included with each shipment of Victaulic products, providing complete installation and assembly data, and are available in PDF format on our website at www.victaulic.com.

Warranty

Refer to the Warranty section of the current Price List or contact Victaulic for details.

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