

Venturi Check Valve and Flow Measuring Kit

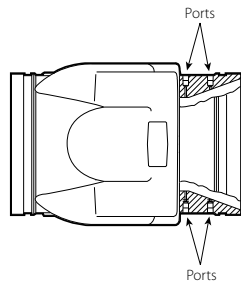


08.10

Series 779



SIZES 4 – 12"/100 – 300MM



electroless nickel plated seat and optionally available drain taps up and downstream.

Every valve is factory tested and rated to 300 psi/2065 kPa working pressure. All sizes can be installed in horizontal or vertical position and provide leak-free sealing under conditions as low as five feet (1.5 m) of head pressure.

The Victaulic Series 779 Venturi check valve with flow measuring kit provides a variety of functions unlike any other flow measuring device. The CAD-designed hydrodynamic inlet profile provides a natural venturi as part of the valve. The inlet is drilled, tapped and plugged, ready to receive the flow kit (optional in Canada).

The venturi-like taps provide much greater measurement accuracy than taps placed across the valve seat. Valve turbulence and interference across the valve seat need not be a consideration. Twin taps on both sides of the valve provide positioning of measurement outlets for convenient meter connection and accurate flow measurement independent of the style of throttling valve or the position of the throttling element (ball, plug, disc, etc.).

Grooved end design allows direct connection to either Vic®-300 butterfly valves or Series 377 Vic-Plug™ valves for triple service throttling and shutoff with non-slam check service and flow measurement capability. Vic-300 butterfly valves field connect with a single Style 07 Zero-Flex® coupling to form a single triple service unit. Series 377 Vic-Plug valve, an AWWA size component, connects directly with a Style 307 Transition coupling.

Series 779 Venturi check valves are available in sizes from 4 – 12"/100 – 350 mm. (Note: For 2 ½ and 3" triple service combinations, the Series 716 Vic-Check® valve, without measurement ports, can be combined with a Vic-300 butterfly valve.) The valve features a single spring-loaded, non-slamming disc, totally encapsulated in EPDM or nitrile (specify coating) for superior corrosion resistance. The valves have a

Material Specifications:

Body:

Ductile iron conforming to ASTM A-536, grade 65-45-12, painted black enamel. Ductile iron conforming to ASTM A-395, grade 65-45-15, is available upon special request.

Disc Coating: (specify choice)

Grade "E" EPDM

EPDM (Green color code). Temperature range –30°F to +230°F/ –34°C to +110°C. Recommended for hot water service within the specified temperature range plus a variety of dilute acids, oil-free air and many chemical services. UL classified in accordance with ANSI/NSF 61 for cold +86°F/+30°C and hot +180°F/+82°C potable water service. NOT RECOMMENDED FOR PETROLEUM SERVICES.

Grade "T" nitrile

Nitrile (Orange color code). Temperature range –20°F to +180°F/–29°C to +82°C. Recommended for petroleum products, air with oil vapors, vegetable and mineral oils within the specified temperature range; except hot, dry air over +140°F/+60°C and water over +150°F/+66°C. NOT RECOMMENDED FOR HOT WATER SERVICES.

Grade "O" fluoroelastomer

Fluoroelastomer (Blue color code). Temperature range +20°F to +300°F/–7°C to +149°C. Recommended for many oxidizing acids, petroleum oils, halogenated hydrocarbons, lubricants, hydraulic fluids, organic liquids and air with hydrocarbons to +300°F/+149°C.

¹ Services listed are General Service Recommendations only. It should be noted that there are services for which these gaskets are not recommended. Reference should always be made to the latest Victaulic Gasket Selection Guide for specific gasket service recommendations and for a listing of services which are not recommended.

Job/Owner

System No.	
Location	

Contractor

Submitted By	
Date	

Engineer

Spec Section	
Paragraph	
Approved	
Date	



Discs:

Ductile iron conforming to ASTM A-536, grade 65-45-12, fully encapsulated in Grade “E”, “T”, or “O” elastomer. (See disc coating)

Shaft:

Type 316 stainless steel.

Spring:

Type 302/304 stainless steel.

Shaft Plug:

Carbon steel zinc plated to ASTM B-633.

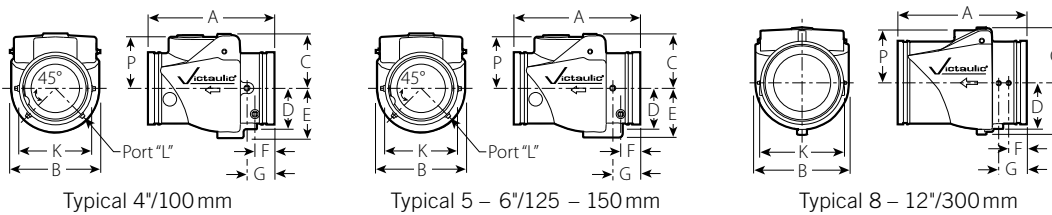
Pipe Plug:

Carbon steel zinc plated to ASTM B-633.

Kit:

See page 6.

Dimensions:



Nominal Size inches mm	Actual Outside Diameter inches mm	Dimensions									Approx. Weight Each lbs. kg
		E-E A inches mm	B inches mm	C inches mm	D inches mm	E inches mm	F inches mm	G inches mm	K inches mm	P inches mm	
4 † 100	4.500 114.3	9.63 245	5.88 149	3.88 99	2.75 70	3.50 89	1.50 38	2.38 60	4.50 114	3.50 89	16.0 7.3
5 † 125	5.563 141.3	10.50 267	6.75 171	4.50 114	4.25 108	4.25 108	1.65 42	2.38 60	5.88 149	4.08 104	20.0 9.1
139.7 mm †	5.500 139.7	10.50 267	6.75 171	4.50 114	4.25 108	4.25 108	1.65 42	2.38 60	5.88 149	4.08 104	20.0 9.1
6 † 150	6.625 168.3	11.50 292	8.00 203	5.00 127	4.50 114	4.50 114	1.58 40	2.68 68	6.68 170	4.75 121	28.0 12.7
165.1 mm †	6.500 165.1	11.50 292	8.00 203	5.00 127	4.50 114	4.50 114	1.58 40	2.68 68	6.68 170	4.75 121	28.0 12.7
8 * 200	8.625 219.1	14.00 356	9.88 251	6.06 154	5.06 129	5.68 144	1.75 44	3.25 83	8.88 226	5.75 146	40.0 18.1
10 * 250	10.750 273.0	17.00 432	12.00 305	7.12 181	6.00 152	6.68 170	1.82 46	3.94 100	10.94 278	6.94 176	100.0 45.4
12 * 300	12.750 323.9	19.50 495	14.00 356	8.06 205	6.91 176	7.68 195	1.82 46	3.32 84	12.82 326	7.93 201	140.0 63.5

† Port “L” located 45° off centerline of valve body.

* Both ports on centerline of valve body.

Performance:

C_v/K_v values for flow of water at +60°F/+16°C are shown in the table below.

Formulas for C_v and K_v values

$\Delta P = Q^2/C_v^2$ $\Delta P = Q^2/K_v^2$

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

Where:

Q = Flow (GPM)

ΔP = Pressure Drop (psi)

C_v = Flow Coefficient

K_v = Flow Coefficient

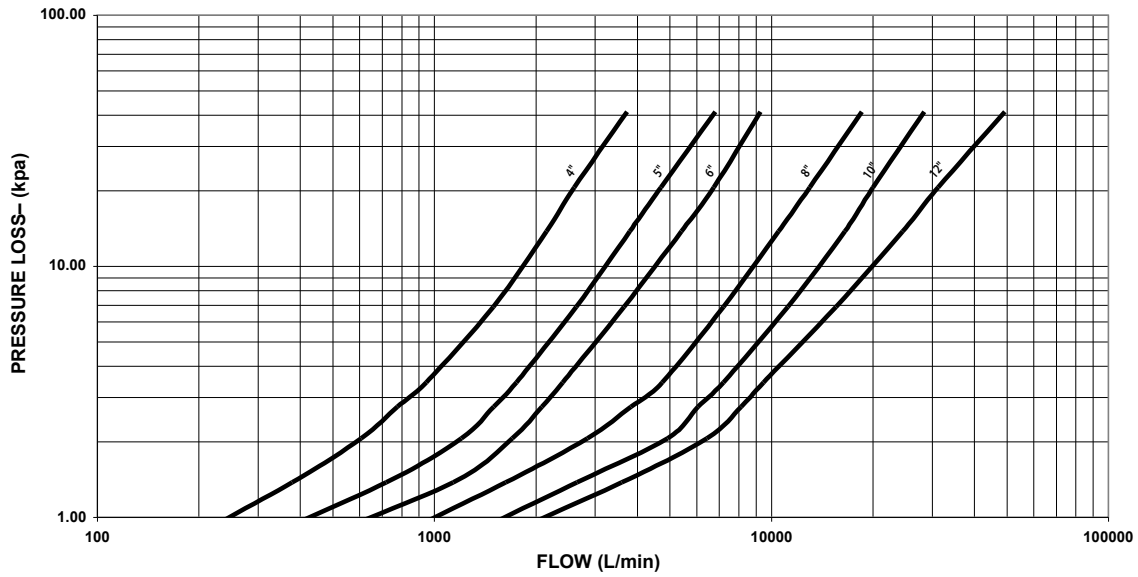
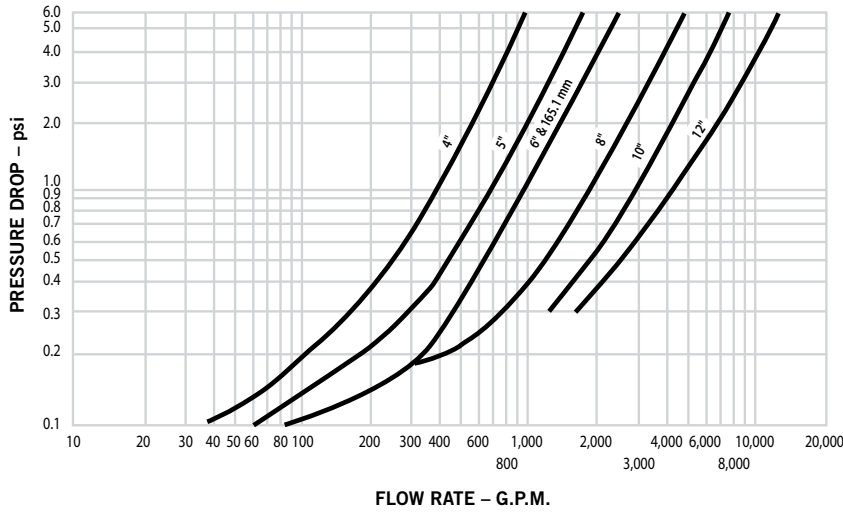
Valve Size		C_v/K_v	Valve Size		C_v/K_v	Valve Size		C_v/K_v	Valve Size		C_v/K_v
Nominal Size	Actual Outside Diameter	(Full Open)	Nominal Size	Actual Outside Diameter	(Full Open)	Nominal Size	Actual Outside Diameter	(Full Open)	Nominal Size	Actual Outside Diameter	(Full Open)
inches	inches		inches	inches		inches	inches		inches	inches	
mm	mm		mm	mm		mm	mm		mm	mm	
4	4.500	390	139.7 mm	5.500	707	165.1 mm	6.500	1000	10	10.750	3000
100	114.3	337		139.7	606		165.1	865	250	273.0	2595
5	5.563	700	6	6.625	1000	8	8.625	1800	12	12.750	4200
125	141.3	606	150	168.3	865	200	219.1	1557	300	323.9	3633

Note:

Placement of check valves too close to sources of unstable flow will shorten the life of the valve and potentially may damage the system. To extend valve life, valves should be installed a reasonable distance downstream from pumps, elbows, expanders, reducers or other similar devices. Sound piping practices dictate a minimum of five (5) times the pipe diameter for general use. Distances between three (3) and five (5) diameters are allowable provided the flow velocity is less than eight (8) feet per second. Distances less than three (3) diameters are not recommended and will violate the Victaulic product warranty.

Flow Characteristics:

The chart below expresses the flow of water at 65°F/16°C through valve.



Flow Balancing Data:

4"/100 mm Series 779 Flow Measuring Check Valve

ΔP PSI kPa	ΔP In. H ₂ O kPa	Velocity* Ft./Sec m/s	Flow GPM L/min.	ΔP PSI kPa	ΔP In. H ₂ O kPa	Velocity* Ft./Sec m/s	Flow GPM L/min.
0.16 1.1	4.4 1.1	3 0.91	119 450	0.16 1.1	4.4 1.1	3 0.91	119 450
0.28 1.9	7.7 1.9	4 1.22	159 602	0.28 1.9	7.7 1.9	4 1.22	159 602
0.61 4.2	16.9 4.2	6 1.83	238 901	0.61 4.2	16.9 4.2	6 1.83	238 901
1.10 7.6	30.8 7.6	8 2.44	320 1211	1.10 7.6	30.8 7.6	8 2.44	320 1211

10"/250 mm Series 779 Flow Measuring Check Valve

ΔP PSI kPa	ΔP In. H ₂ O kPa	Velocity* Ft./Sec m/s	Flow GPM L/min.	ΔP PSI kPa	ΔP In. H ₂ O kPa	Velocity* Ft./Sec m/s	Flow GPM L/min.
0.13 0.9	3.6 0.9	3 0.91	741 2805	1.36 9.4	37.7 9.4	10 3.05	2457 9300
0.23 1.6	6.4 1.6	4 1.22	983 3721	1.96 13.5	54.4 13.5	12 3.66	2948 11158
0.49 3.4	13.6 3.4	6 1.83	1474 5579	2.70 18.6	74.8 18.6	14 4.27	3440 13020
0.88 6.1	24.4 6.1	8 2.44	1966 7441	3.50 24.1	97.1 24.1	16 4.88	4000 15140

5"/125 mm Series 779 Flow Measuring Check Valve

ΔP PSI kPa	ΔP In. H ₂ O kPa	Velocity* Ft./Sec m/s	Flow GPM L/min.	ΔP PSI kPa	ΔP In. H ₂ O kPa	Velocity* Ft./Sec m/s	Flow GPM L/min.
0.20 1.4	5.5 1.4	3 0.91	186 704	2.23 15.4	61.8 15.4	10 3.05	624 2362
0.35 2.4	9.7 2.4	4 1.22	249 942	3.13 21.6	86.8 21.6	12 3.66	744 2816
0.76 5.2	21.0 5.2	6 1.83	372 1408	4.25 29.3	117.8 29.3	14 4.27	868 3285
1.40 9.7	38.8 9.7	8 2.4	499 1889				

12"/300 mm Series 779 Flow Measuring Check Valve

ΔP PSI kPa	ΔP In. H ₂ O kPa	Velocity* Ft./Sec m/s	Flow GPM L/min.	ΔP PSI kPa	ΔP In. H ₂ O kPa	Velocity* Ft./Sec m/s	Flow GPM L/min.
0.08 0.6	2.2 0.6	2 0.61	697 2638	1.12 2.7	30.9 7.7	8 2.44	3438 13013
0.18 1.2	5.0 1.2	3 0.91	1046 3959	1.80 12.4	50.0 12.4	10 3.05	4298 16266
0.33 2.3	9.1 2.3	4 1.22	1396 5284	2.67 18.4	74.1 18.4	12 3.66	5157 19519
0.71 4.9	19.7 4.9	6 1.83	2092 7918				

6"/150 mm Series 779 Flow Measuring Check Valve

ΔP PSI kPa	ΔP In. H ₂ O kPa	Velocity* Ft./Sec m/s	Flow GPM L/min.	ΔP PSI kPa	ΔP In. H ₂ O kPa	Velocity* Ft./Sec m/s	Flow GPM L/min.
0.12 0.8	3.3 0.8	3 0.91	270 1022	1.39 9.6	38.5 9.6	10 3.05	901 3410
0.27 1.9	7.5 1.9	4 1.22	360 1363	2.0 13.8	55.5 13.8	12 3.66	1081 4092
0.51 3.5	14.1 3.5	6 1.83	540 2044	2.78 19.2	77.1 19.2	14 4.27	1261 4773
0.88 6.1	24.4 6.1	8 2.44	720 2725	3.6 24.8	99.8 24.8	16 4.88	1441 5454

8" /200 mm Series 779 Flow Measuring Check Valve

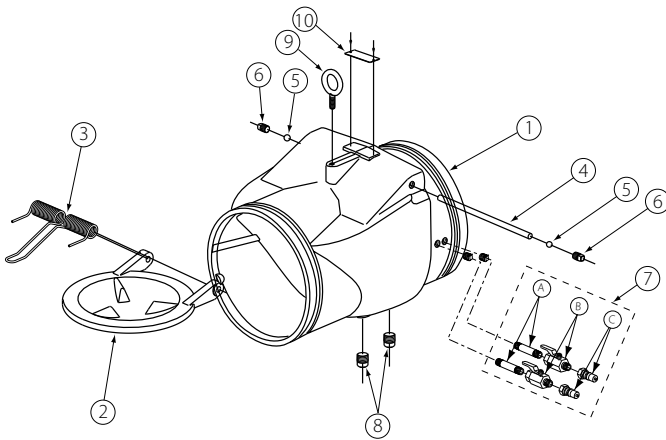
ΔP PSI kPa	ΔP In. H ₂ O kPa	Velocity* Ft./Sec m/s	Flow GPM L/min.	ΔP PSI kPa	ΔP In. H ₂ O kPa	Velocity* Ft./Sec m/s	Flow GPM L/min.
0.10 0.7	2.7 0.7	3 0.91	471 1783	1.05 7.2	29.1 7.2	10 3.05	1559 5901
0.17 1.2	4.7 1.2	4 1.22	623 2358	1.55 10.7	43.0 10.7	12 3.66	1871 7082
0.38 2.6	10.5 2.6	6 1.83	936 3543	2.08 14.3	57.7 14.3	14 4.27	2182 8259
0.68 4.7	18.8 4.7	8 2.44	1247 47	3.45 23.8	95.6 23.8	18 5.49	2800 10598

Venturi Check Valve

Series 779

1. Ductile iron body
2. Rubber encapsulated disc
3. Type 302/304 stainless spring
4. Type 316 stainless steel disc shaft
5. Elastomer shaft lock
6. Zinc plated shaft plug
7. Flow measuring kit*:
 - A. Extension nipples
 - B. Bronze access valves
 - C. Quick disconnect for meter connection (Per ISO 7241-1 Series B)
 - D. Easy-read flow chart and instructions (not shown)
8. Zinc plated, carbon steel drain plugs
9. Lifting ring (8 – 12"/200 – 300 mm valves)
10. Name plate

*Kit hardware is same for all sizes; charts for 4 and 5", 6 and 8", 10 and 12".



Triple Service Valve Combinations

Grooved end design allows direct connection to either Vic®-300 butterfly valves or Series 377 Vic-Plug™ valves for triple service throttling and shutoff with non-slam check service and flow measurement capability.

Vic-300 butterfly valves field connect with a single Style 07 Zero-Flex® coupling to form a single triple service unit. Series 377 Vic-Plug valve (an AWWA size component), connects directly with a Style 307 transition coupling.

See Submittal [08.09](#).



Triple Service Valve Assembly with Series 377 Vic-Plug Valve

Triple Service Valve Assembly with Vic-300 Butterfly Valve

Installation

Reference should always be made to the I-100 Victaulic Field Installation Handbook for the product you are installing. Handbooks are included with each shipment of Victaulic products for 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.

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.

Trademarks

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