Victaulic® Balancing Valve
TA Series 78BL

08.50

Female NPT

Sweat

1.0 PRODUCT DESCRIPTION

Available Sizes

- ½ – 2"/DN15 – DN50

Maximum Working Pressure

- 400 psi/2800 kPa/28 bar

Operating Temperature

- -4°F to +248°F/-20°C to +120°C

Function

- Shut-off, throttling, and measuring ball valve with adjustable memory stop.

2.0 CERTIFICATIONS/LISTINGS

LEAD FREE
NSF/ANSI 61
IAPMO R&T

IAPMO Certified in accordance with ANSI/NSF 61 for cold +73°F/+23°C and hot +180°F/+82°C potable water service and ANSI/NSF 372.

3.0 SPECIFICATIONS – MATERIAL

Body and End Face: Low-lead brass equivalent to UNS C69300.

O-Rings: EPDM suitable for service with propylene and ethylene glycol mixtures up to 50% by volume in water.

Valve Handle: Zinc-plated low carbon steel with a vinyl dip.

Blowout Proof Stem and Ball: Stainless steel.

Ball Retainer: Low-lead brass equivalent to UNS C69300.

Ball Seats: Polytetrafluoroethylene (PTFE).

Indexing Handle with Adjustable Memory Stop: Zinc-plated carbon steel.

Positioning Pin and Dial Scale: UNS S30400.

Fixed Connection: Female NPT or sweat.

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

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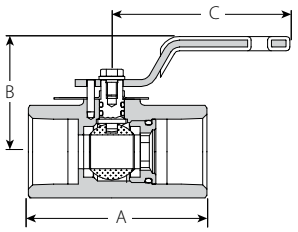
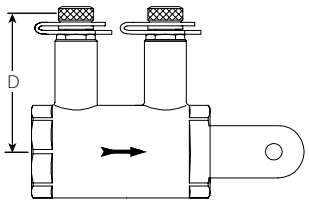
4.0 DIMENSIONS

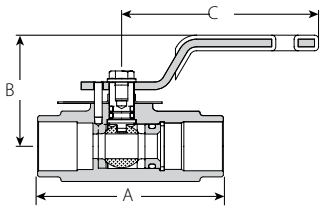
Female NPT

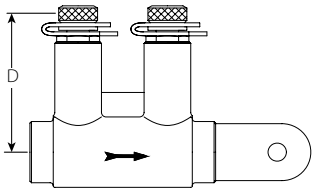




Nominal inches DN	Actual Outside Diameter inches mm	Dimensions A Female x Female inches mm	Dimensions A Female x Copper Press inches mm	Dimensions B inches mm	Dimensions C inches mm	Dimensions D inches mm	Full Open C_v K_v	Flow Range GPM L/H	Weight Approx. (Each) lb kg
½ DN15	0.840 21.3	2.35 60	3.53 90	1.43 36	2.49 63	1.80 46	2.83 2.45	0.38 - 5.30 86.3 - 1204	0.6 0.3
¾ DN20	1.050 26.9	2.50 64	3.88 99	1.61 41	2.49 63	1.89 48	6.67 5.77	0.94 - 12.48 213.5 - 2835	0.8 0.4
1 DN25	1.315 33.7	3.03 77	4.52 115	1.95 50	4.00 102	2.05 52	10.32 8.93	1.56 - 19.30 354.3 - 4384	1.3 0.6
1 ¼ DN32	1.660 42.4	3.32 84	4.97 126	2.15 55	4.00 102	2.21 56	16.31 14.11	2.11 - 30.50 479.2 - 6927	2.0 0.9
1 ½ DN40	1.900 48.3	3.60 91	5.58 142	2.41 61	4.78 121	2.34 59	24.30 21.02	2.68 - 45.40 608.7 - 10311	2.8 1.3
2 DN50	2.375 60.3	4.09 104	6.40 163	2.69 68	4.78 121	2.58 66	45.30 39.18	6.18 - 85.00 1403.6 - 19304	4.4 2.0

Sweat





Size Nominal inches DN	Size Actual Outside Diameter inches mm	Dimensions A Sweat x Sweat inches mm	Dimensions B inches mm	Dimensions C inches mm	Dimensions D inches mm	Full Open C_v K_v	Flow Range GPM L/H	Weight Approx. (Each) lb kg
½ DN15	0.840 21.3	2.35 60	1.43 36	2.49 63	1.74 44	2.74 2.37	0.36 - 5.13 81.8 - 1165	0.5 0.2
¾ DN20	1.050 26.9	3.05 77	1.61 41	2.49 63	1.87 47	6.21 5.37	1.07 - 11.61 243.0 - 2637	0.7 0.3
1 DN25	1.315 33.7	3.61 92	1.95 50	4.00 102	2.03 52	10.29 8.90	1.24 - 19.20 281.6 - 4361	1.2 0.5
1 ¼ DN32	1.660 42.4	3.99 101	2.15 55	4.00 102	2.15 55	16.38 14.17	2.20 - 30.60 499.7 - 6950	1.7 0.7
1 ½ DN40	1.900 48.3	4.53 115	2.41 61	4.78 121	2.29 58	23.80 20.59	2.61 - 44.50 592.8 - 10107	2.4 1.1
2 DN50	2.375 60.3	5.47 139	2.69 68	4.78 121	2.55 65	44.60 38.58	6.30 - 83.00 1430.9 - 18851	3.9 1.6

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4.1 OPTIONAL PARTS

PT Ports & Handle Extension (Optional)

Description	Victaulic Part Code
Kit of (2) Extended PT Ports	K00078B2XT
Extended Stem for ½" or ¾" Valve	P00478B2HL
Extended Stem for 1" or 1 ¼" Valve	P01078B2HL
Extended Stem for 1 ½" or 2" Valve	P01478B2HL

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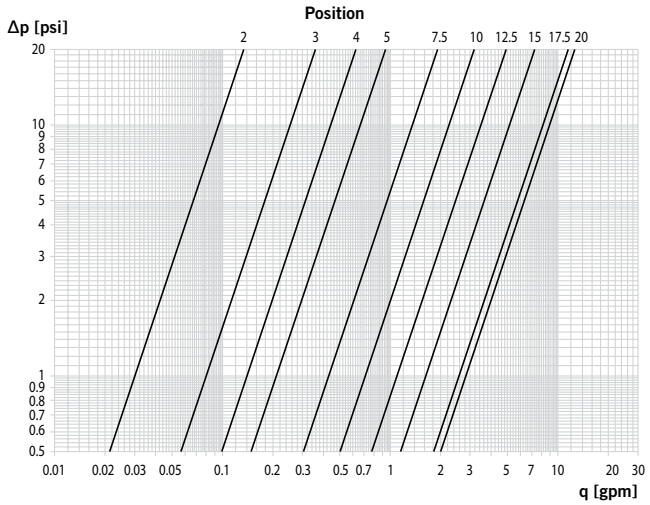
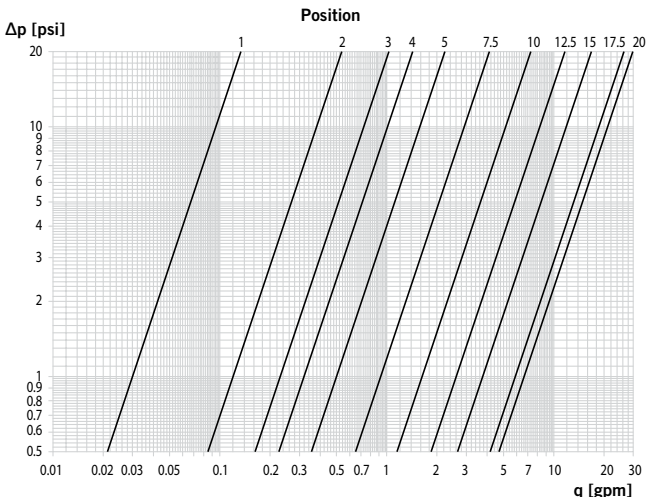
5.0 PERFORMANCE

Configuration Information
C_v VERSUS HANDLE POSITION CHARTS - THREADED

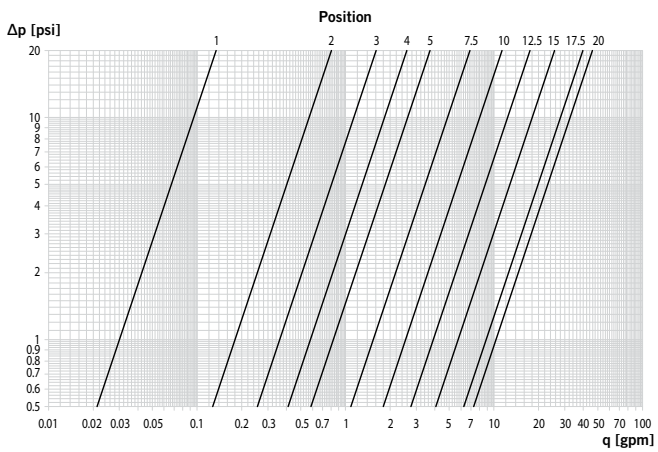
C_v Versus Handle Position for ½-inch Manual Balancing Ball Valves (Threaded)



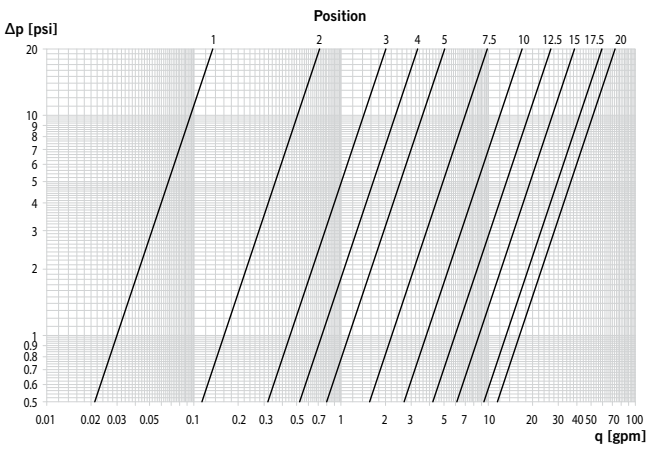
C_v Versus Handle Position for ¾-inch Manual Balancing Ball Valves (Threaded)



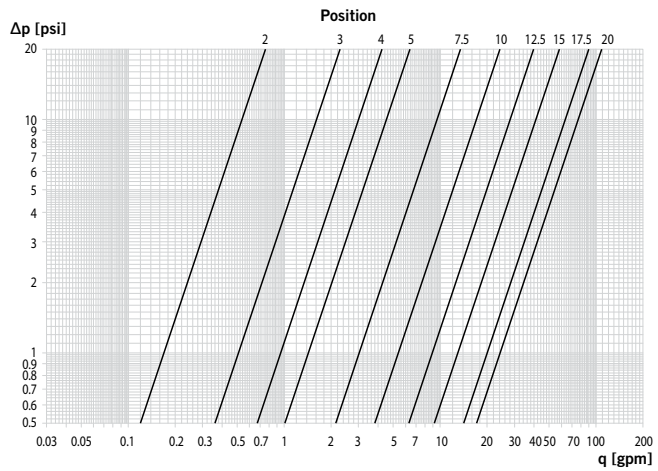
C_v Versus Handle Position for 1-inch Manual Balancing Ball Valves (Threaded)



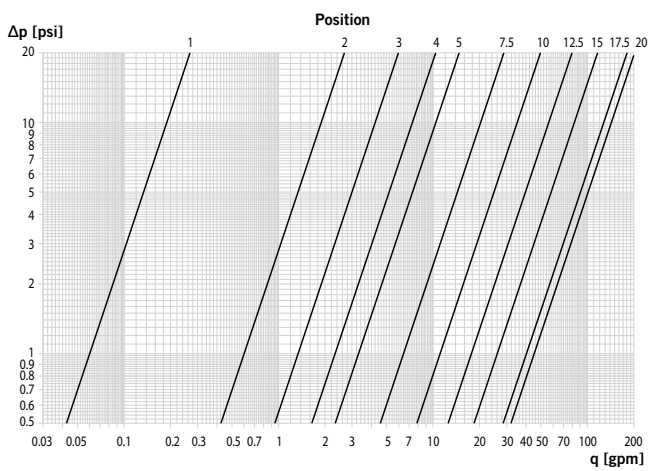
C_v Versus Handle Position for 1¼-inch Manual Balancing Ball Valves (Threaded)



C_v Versus Handle Position for 1½-inch Manual Balancing Ball Valves (Threaded)



C_v Versus Handle Position for 2-inch Manual Balancing Ball Valves (Threaded)



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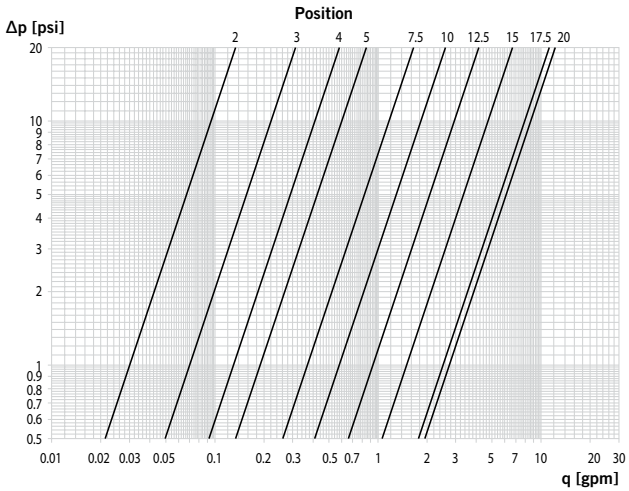
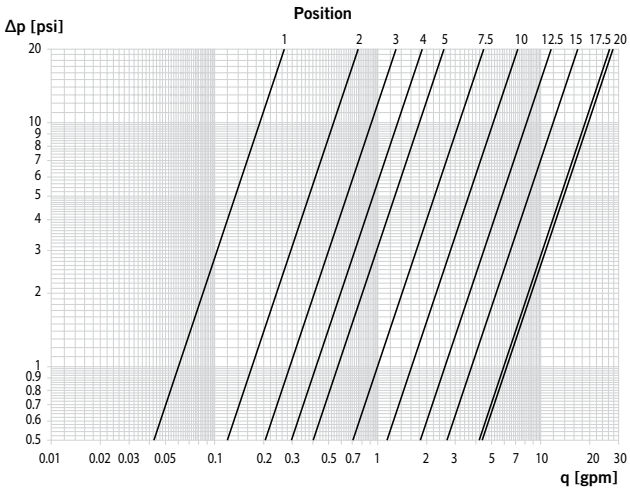
5.0 PERFORMANCE (CONTINUED)

Configuration Information
C_v VERSUS HANDLE POSITION CHARTS - SWEAT

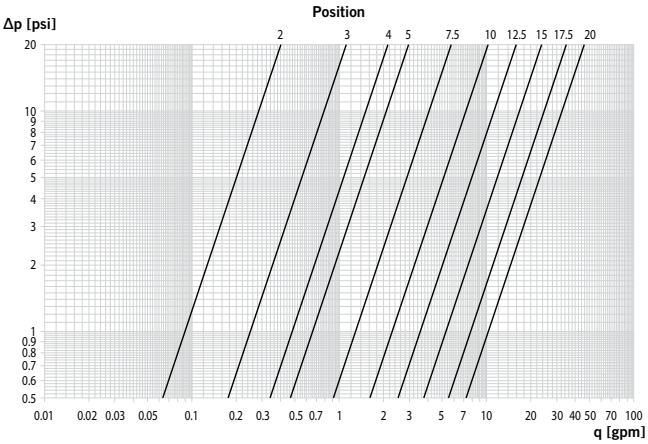
C_v Versus Handle Position for ½-inch Manual Balancing Ball Valves (Sweat)



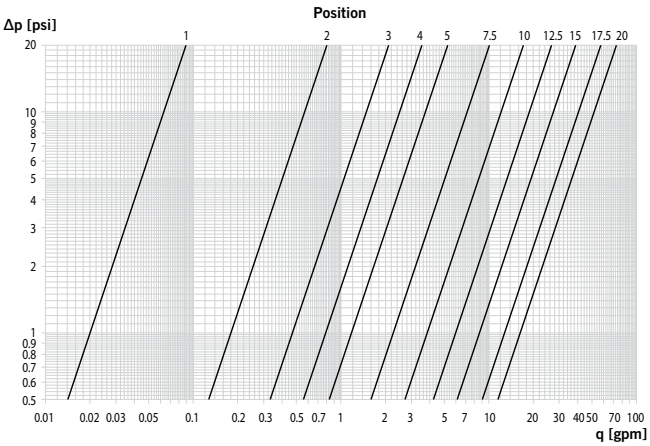
C_v Versus Handle Position for ¾-inch Manual Balancing Ball Valves (Sweat)



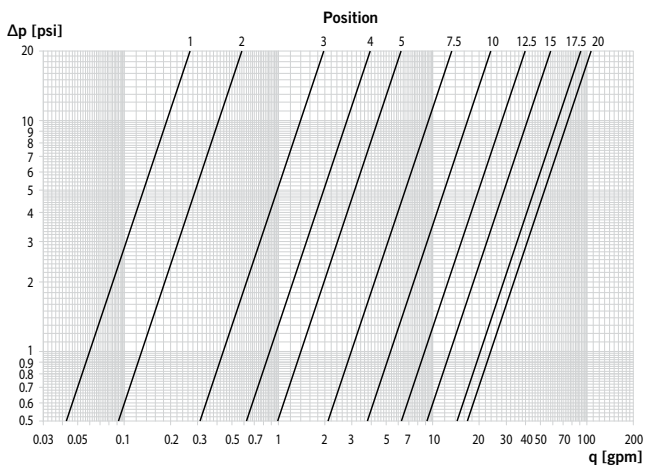
C_v Versus Handle Position for 1-inch Manual Balancing Ball Valves (Sweat)



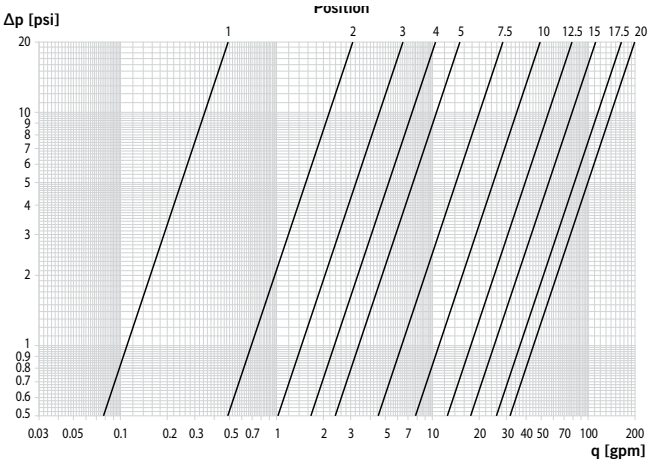
C_v Versus Handle Position for 1¼-inch Manual Balancing Ball Valves (Sweat)



C_v Versus Handle Position for 1½-inch Manual Balancing Ball Valves (Sweat)



C_v Versus Handle Position for 2-inch Manual Balancing Ball Valves (Sweat)



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5.1 PERFORMANCE

Sizing

When Δp and design flow is known, calculate the Cv by using the formula provided. Select the valve size so the setting will be approximately 75% of total opening.

$$Cv = 1.52 \frac{q}{\sqrt{\Delta p}}$$ q in GPM, Δp in ft WG

$$Cv = \frac{q}{\sqrt{\Delta p}}$$ q in GPM, Δp in psi

Cv Versus Handle Position Table - Threaded

Handle Position	Average Cv					
	½"	¾"	1"	1 ¼"	1 ½"	2"
0	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.03	0.03	0.03	0.00	0.06
2	0.03	0.12	0.18	0.16	0.17	0.60
3	0.08	0.23	0.36	0.45	0.51	1.34
4	0.14	0.32	0.58	0.74	0.95	2.33
5	0.21	0.50	0.83	1.13	1.43	3.30
7.5	0.43	0.92	1.54	2.21	3.03	6.45
10	0.71	1.63	2.54	3.80	5.41	11.13
12.5	1.10	2.61	3.90	5.95	8.91	17.77
15	1.63	3.76	5.73	8.65	13.02	26.12
17.5	2.58	5.89	8.86	13.25	20.14	40.36
20	2.83	6.67	10.32	16.31	24.27	45.31

Cv Versus Handle Position Table - Sweat

Handle Position	Average Cv					
	½"	¾"	1"	1 ¼"	1 ½"	2"
0	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.06	0.00	0.02	0.06	0.11
2	0.03	0.17	0.09	0.18	0.13	0.69
3	0.07	0.29	0.25	0.47	0.44	1.45
4	0.13	0.42	0.48	0.79	0.88	2.35
5	0.19	0.57	0.66	1.18	1.40	3.37
7.5	0.37	1.00	1.29	2.26	2.97	6.36
10	0.58	1.62	2.29	3.84	5.34	11.03
12.5	0.93	2.59	3.56	5.97	8.88	17.67
15	1.50	3.77	5.30	8.68	13.02	25.01
17.5	2.51	5.93	7.80	12.84	20.37	36.52
20	2.74	6.21	10.29	16.38	23.78	44.63

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6.0 NOTIFICATIONS

⚠ WARNING

- **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.**
- **Confirm that any equipment, branch lines, or sections of piping that may have been isolated for/during testing or due to valve closures/positioning are identified, depressurized, and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic products.**
- **Wear safety glasses, hardhat, foot protection, and hearing protection.**

Failure to follow these instructions could result in death or serious personal injury and property damage.

7.0 REFERENCE MATERIALS

08.16: Victaulic Balancing Valves TA Series 786/787H/788/789 and Series 78KH

08.51: Victaulic ICSS- Low Lead Balancing Valve TA Series 76X

08.64: Victaulic Series 78Y/78U Manual Koil-Kit™ Coil Pack with TA Series 78BL Balancing Ball Valve

08.65: Victaulic Series 78T/78U Manual Koil-Kit™ Coil Pack with TA Series 78BL Balancing Ball Valve

User Responsibility for Product Selection and Suitability
Each user bears final responsibility for determining the suitability of Victaulic products for their end-use application, in accordance with industry standards, project specifications, and Victaulic's published performance, maintenance, and safety data, as well as all warnings and installation 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, warranty, installation instructions, or this disclaimer.

Installation
Always refer to and follow the Victaulic Installation Handbook or installation instructions for 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 victaulic.com.

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

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