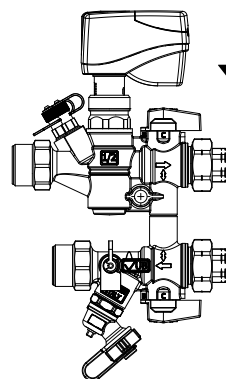


Victaulic® Series UBP Unibody PICV Balancing Valve

PROJECT INFORMATION

Project
Contractor
Job
Engineer
Date



Victaulic®
106.15

1.0 PRODUCT DESCRIPTION

Available Sizes: ½ – 1"/DN15 – DN25 (Series UH1 Hose Ready and Non-Hose Ready)

Function: Compact, multi-function coil hookup device includes a multi-directional flushing bypass for ease of commissioning and maintenance, flow control, straining, draining, isolation, and pressure/temperature/flow verification.

Application: Hydronic heating and cooling systems containing treated water.

Maximum Working Pressure: 365 psi / 2500 kPa / 25 bar

Operating Temperature Range: -4°F to 250°F / -20°C to +120°C

2.0 MATERIALS AND DESIGN

Unibody Manifold Valve

Body: Dezincification-Resistant (DZR) Brass

Union Nut: DZR Brass

Union Face Seal: EPDM O-Ring

Tailpiece: DZR Brass

Adapters: DZR Brass

Ball Valve Stem: DZR Brass (304 Stainless Steel Optional)

Ball Valve Stem O-Ring Seals: EPDM

Ball: Plated DZR Brass (304 Stainless Steel Optional)

Ball Seat: PTFE

Handles: Aluminum

Handle Restraint Screw: Plated Carbon Steel

Handle Stop Screw: Stainless Steel

Strainer: Stainless Steel, 20 Mesh (800 µm)

Body Seals: EPDM

Unibody Manifold Valve (Continued)

Drain Valve Seat: PTFE

Drain Valve Stem: DZR Brass

Drain Valve Cap: Nylon

Drain Valve External Body: Glass-Filled Nylon

Drain Valve Outlet Manifold: Glass-Filled Nylon

Drain Valve Outlet Cap: Nylon

Drain Valve Outlet Cap Seal: TPE

Drain Valve Outlet Cap Tether: Elastomer

PICV Cartridge

Insert: Glass-Reinforced PSU/POM/PPS

Internal Metal Components: Stainless Steel

O-Rings and Diaphragm: EPDM

Head Nut: Brass

3.0 ACCESSORIES

- See [Section 9.1 Reference Materials](#) for Accessory and Replacement Components and Part Codes

4.0 PICV CARTRIDGE SELECTION GUIDE

Control Characteristic	PICV Code	Visual Identification	Flow Range GPM	Flow Range LPM	Pressure Differential Range psid	Pressure Differential Range kPaD	Part Code
Linear	AA	Gray O-Ring, Green Background	0.163 to 2.53	0.62 to 9.57	2.3 to 87	16 to 600	P000UBPPAA
	AB	Black O-Ring, Green Background	0.282 to 4.89	1.07 to 18.51	4.4 to 116	30 to 800	P000UBPPAB
	AC	Black O-Ring, White Background	2.73 to 11.70	10.34 to 44.28	5.1 to 116	35 to 800	P000UBPPAC
Equal Percentage	BA	Gray O-Ring, Gray Background	0.0763 to 2	0.29 to 7.57	2.3 to 87	16 to 600	P000UBPPBA
	BB	Black O-Ring, Gray Background	0.121 to 3.54	0.46 to 13.40	4.4 to 116	30 to 800	P000UBPPBB

NOTE: All cartridges have an M30 × 1.5 actuator connection.

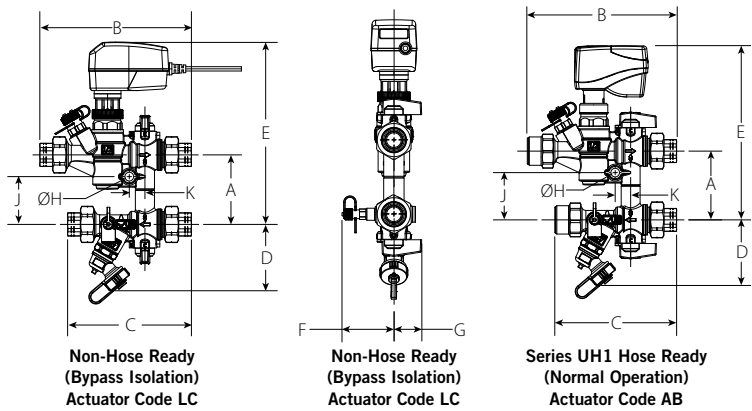
THE INFORMATION CONTAINED ON THIS PAGE IS NOT INTENDED TO REPLACE THE FULL PRODUCT DATA LISTED LATER IN THIS DOCUMENT. THOROUGHLY READ AND UNDERSTAND ALL INSTALLATION INSTRUCTIONS AND PRODUCT SAFETY INFORMATION BEFORE INSTALLING THIS PRODUCT.

5.0 CERTIFICATIONS/LISTINGS

Product manufactured by Victaulic and/or certified suppliers in accordance with ISO-9001.

6.0 DIMENSIONS

Series UBP



Size			Dimensions																	Weight
Nom.	IPS	CTS	A	B	B	C	C	D	E					F	G	H	J	K	Approx. (Each)	
	Actual	Actual							Actuator Code											
	Outside	Outside							LC	AB	3J	LD	EL							
	Dia.	Dia.																		
inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	lb		
DN	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg		
½	0.840	0.625	3.15	6.84	6.87	5.58	5.61	3.13	8.38	8.00	8.00	7.75	7.75	2.21	0.92	0.39	2.17	0.71	5.1	
DN15	21.3	15.9	80	174	174	142	142	77	210	202	202	196	196	56	23	10	55	18	2.3	
¾	1.050	0.875	3.15	6.89	6.92	5.59	5.62	3.13	8.38	8.00	8.00	7.75	7.75	2.21	0.92	0.39	2.17	0.71	6.0	
DN20	26.9	22.2	80	175	176	142	143	77	210	202	202	196	196	56	23	10	55	18	2.7	
1	1.315	1.125	3.15	7.35	7.84	6.05	6.54	3.13	8.38	8.00	8.00	7.75	7.75	2.21	0.92	0.39	2.17	0.71	6.4	
DN25	33.7	28.6	80	187	199	154	166	77	210	202	202	196	196	56	23	10	55	18	2.9	

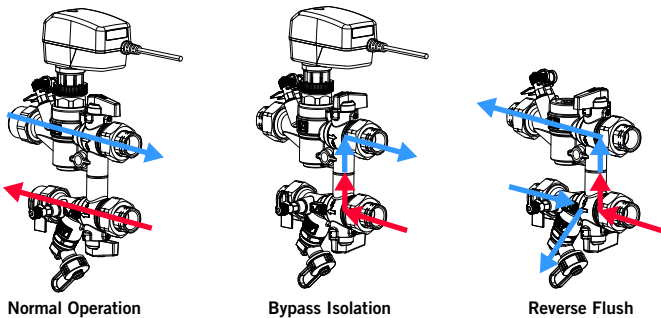
NOTES:

- Dimensions are for Female NPT connections; other choices may affect lengths, such as copper press adapters or sweat tailpieces.
- Visit victaulic.com for design software downloads.

7.0 PERFORMANCE

Valve Handle Operation Positions

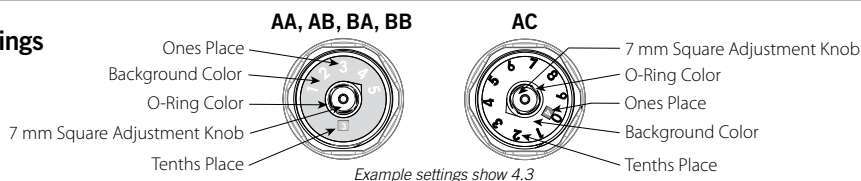
Series UBP



Valve	Normal Operation	Bypass Isolation	Reverse Flush
Upstream (Red)	B	C	C
Downstream (Blue)	B	C	A

7.1 PERFORMANCE

PICV Cartridge Flow Performance and Settings



Control Characteristic	Linear						Equal Percentage			
Cartridge Model	AA ¹		AB ²		AC ²		BA ³		BB ³	
Visual Indication	Gray O-Ring, Green Background		Black O-Ring, Green Background		Black O-Ring, White Background		Gray O-Ring, Gray Background		Black O-Ring, Gray Background	
Pressure Differential Range psid kPaD	2.3 to 87 16 to 600		4.4 to 116 30 to 899		5.1 to 116 35 to 800		2.3 to 87 16 to 600		4.4 to 116 30 to 800	
Flow Setting	GPM	LPM	GPM	LPM	GPM	LPM	GPM	LPM	GPM	LPM
1.0	–	–	0.282	1.07	–	–	0.076	0.29	0.121	0.46
1.1	0.163	0.62	0.624	2.36	–	–	0.087	0.33	0.139	0.53
1.2	0.37	1.40	0.92	3.48	–	–	0.10	0.38	0.162	0.61
1.3	0.51	1.93	1.18	4.47	–	–	0.115	0.44	0.188	0.71
1.4	0.664	2.51	1.41	5.34	–	–	0.132	0.50	0.219	0.83
1.5	0.792	3.00	1.61	6.09	2.73	10.33	0.153	0.58	0.255	0.97
1.6	0.902	3.41	1.80	6.81	3.17	12	0.176	0.67	0.296	1.12
1.7	1.03	3.90	1.96	7.42	3.61	13.67	0.202	0.76	0.342	1.29
1.8	1.14	4.32	2.12	8.03	4.10	15.52	0.231	0.87	0.392	1.48
1.9	1.24	4.69	2.27	8.59	4.67	17.68	0.263	1.00	0.448	1.70
2.0	1.33	5.03	2.42	9.16	5.15	19.49	0.298	1.13	0.509	1.93
2.1	1.41	5.34	2.56	9.69	5.55	21.01	0.336	1.27	0.576	2.18
2.2	1.49	5.64	2.69	10.18	5.95	22.52	0.377	1.43	0.647	2.45
2.3	1.55	5.87	2.82	10.67	6.28	23.77	0.421	1.59	0.723	2.74
2.4	1.63	6.17	2.95	11.17	6.61	25.02	0.467	1.77	0.805	3.05
2.5	1.68	6.36	3.08	11.66	6.96	26.35	0.517	1.96	0.891	3.37
2.6	1.73	6.55	3.21	12.15	7.27	27.52	0.569	2.15	0.982	3.72
2.7	1.79	6.78	3.33	12.61	7.62	28.84	0.624	2.36	1.08	4.09
2.8	1.82	6.89	3.45	13.06	7.93	30.02	0.681	2.58	1.18	4.47
2.9	1.88	7.12	3.56	13.48	8.28	31.34	0.741	2.80	1.28	4.85
3.0	1.93	7.31	3.68	13.93	8.59	32.52	0.803	3.04	1.39	5.26
3.1	1.98	7.50	3.79	14.35	8.72	33.01	0.866	3.28	1.50	5.68
3.2	2.02	7.65	3.89	14.73	8.85	33.5	0.931	3.52	1.61	6.09
3.3	2.06	7.80	3.99	15.10	8.99	34.03	0.998	3.78	1.73	6.55
3.4	2.10	7.95	4.08	15.44	9.12	34.52	1.07	4.05	1.84	6.97
3.5	2.14	8.10	4.17	15.79	9.25	35.02	1.13	4.28	1.96	7.42
3.6	2.17	8.21	4.25	16.09	9.47	35.85	1.20	4.54	2.08	7.87
3.7	2.21	8.37	4.32	16.35	9.69	36.68	1.27	4.81	2.21	8.37
3.8	2.25	8.52	4.39	16.62	9.91	37.51	1.34	5.07	2.33	8.82
3.9	2.28	8.63	4.46	16.88	10.10	38.23	1.41	5.34	2.45	9.27
4.0	2.31	8.74	4.51	17.07	10.40	39.37	1.48	5.60	2.57	9.73
4.1	2.34	8.86	4.57	17.30	10.50	39.75	1.54	5.83	2.69	10.18
4.2	2.37	8.97	4.61	17.45	10.60	40.13	1.61	6.09	2.80	10.60
4.3	2.39	9.05	4.66	17.64	10.70	40.50	1.67	6.32	2.91	11.02
4.4	2.42	9.16	4.70	17.79	10.90	41.26	1.73	6.55	3.02	11.43
4.5	2.43	9.20	4.73	17.90	11.00	41.64	1.78	6.74	3.13	11.85
4.6	2.46	9.31	4.77	18.06	11.10	42.02	1.84	6.97	3.22	12.19
4.7	2.48	9.39	4.80	18.17	11.30	42.78	1.88	7.12	3.32	12.57
4.8	2.50	9.46	4.83	18.28	11.40	43.15	1.93	7.31	3.40	12.87
4.9	2.51	9.50	4.86	18.40	11.50	43.53	1.97	7.46	3.48	13.17
5.0	2.52	9.54	4.89	18.51	11.70	44.29	2.00	7.57	3.54	13.40

¹ Accuracy of -20%/+0% applies in 29 to 87 psid/200 to 600 kPaD range; otherwise, greatest of either +/- 10% of controlled flow rate or +/- 5% of maximum flow rate

² Accuracy of -20%/+0% applies in 58 to 116 psid/400 to 800 kPaD range; otherwise, greatest of either +/- 10% of controlled flow rate or +/- 5% of maximum flow rate

³ Accuracy of +/- 10% controlled flow rate

7.2 PERFORMANCE

Cv/Kv values for flow of water at +60°F/+16°C are shown in the table.

Formulas for Cv and Kv Values

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

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

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

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

Where:

Flow Coefficient	C _v	K _v
Q (Flow)	GPM	m ³ /hr
ΔP (Pressure Drop)	psi	bar

Strainer Branch Flow Coefficient

Nominal inches DN	Size		Flow Coefficient C _v K _v
	IPS Actual Outside Diameter inches mm	CTS Actual Outside Diameter inches mm	
1/2 DN15	0.840 21.3	0.625 15.9	4.13 3.58
3/4 DN20	1.050 26.9	0.875 22.2	4.13 3.58
1 DN25	1.315 33.7	1.125 28.6	4.13 3.58

Return Shut-Off Valve Flow Coefficient

Nominal inches DN	Size		Flow Coefficient C _v K _v
	IPS Actual Outside Diameter inches mm	CTS Actual Outside Diameter inches mm	
1/2 DN15	0.840 21.3	0.625 15.9	13.50 11.68
3/4 DN20	1.050 26.9	0.875 22.2	13.50 11.68
1 DN25	1.315 33.7	1.125 28.6	13.50 11.68

7.3 PERFORMANCE

PICV Actuator Options

Actuator Code	Supply Voltage	Type	Control Signal	Feedback Signal	Fail-Safe	Auto-Stroke	Actuator Travel Speed	Part Code
AB	24VAC/DC	Motorized	Analog 0(2)-10V DC, Linear	Analog 0(2)-10V DC	Fail in Place	Yes	75 sec/cycle	P000UBPMAB
LC	24VAC/DC	Motorized	Analog 0-10V DC, Linear	None	Fail in Place	No	19 sec/cycle	P000UBPMLC
LD	24VAC/DC	Motorized	Analog 0-10V DC, Linear	Analog 0-10V DC	Closed or Open	No	28 sec/cycle	P000UBPMLD
EL	24VAC/DC	Motorized	Analog 0-10V DC, Equal Percentage	Analog 0-10V DC	Closed or Open	No	28 sec/cycle	P000UBPMEL
3J	24VAC/DC	Motorized	Digital 2-Position/3-Point floating	None	Fail in Place	Yes	75 sec/cycle	P000UBPM3J

NOTE:

- All cartridges have an M30 × 1.5 actuator connection.

Actuator Power Consumption

Actuator Code	Power Consumption
AB	24V AC: 0.9VA Standby/2.5VA Operating/4.7VA Maximum 24V DC: 0.75W Standby/1.2W Operating/2.2W Maximum
LC	24V AC: 1VA Standby/6VA Operating/6VA Maximum 24V DC: 0.5W Standby/4W Operating/4W Maximum
LD	24V AC: 2.5VA Standby/2.5VA Operating/5VA Maximum 24V DC: 1.5W Standby/1.5W Operating/3W Maximum
EL	24V AC: 2.5VA Standby/2.5VA Operating/5VA Maximum 24V DC: 1.5W Standby/1.5W Operating/3W Maximum
3J	24V AC: 0.9VA Standby/2.5VA Operating/4.7VA Maximum 24V DC: 0.75W Standby/1.2W Operating/2.2W Maximum

8.0 NOTIFICATIONS

⚠️ WARNING

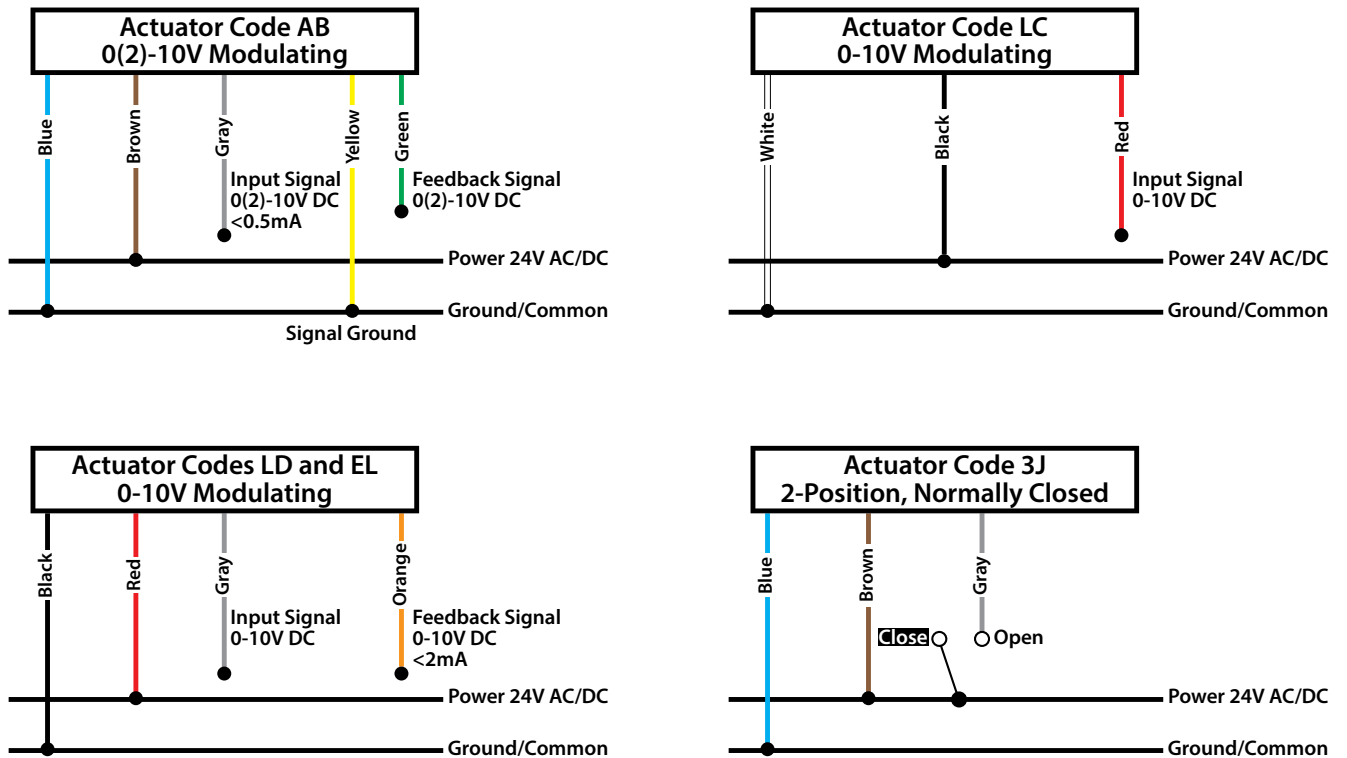


- Read and understand all instructions before attempting to install any Victaulic products.
- Always verify that the piping system has been completely depressurized and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic products.
- Confirm that any equipment, 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.

9.0 REFERENCE MATERIALS

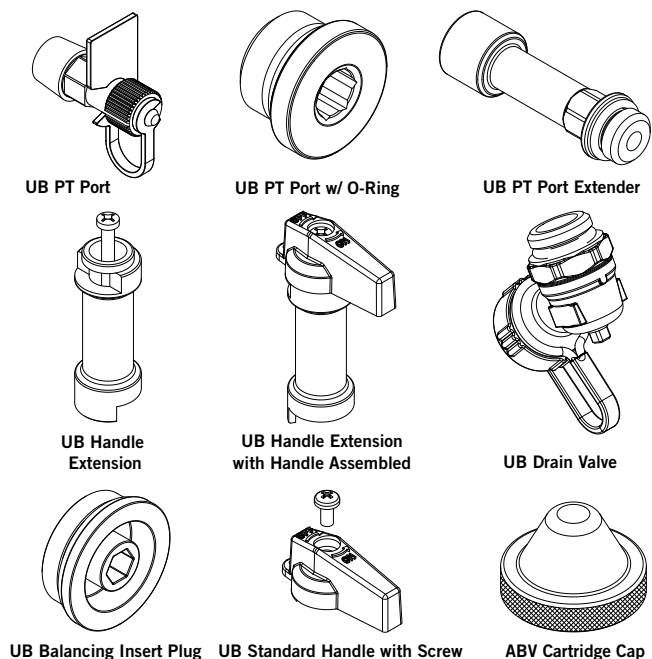
Actuator Wiring Diagrams



9.1 REFERENCE MATERIALS

Accessories

Description	Part Code
UB PT Port Standard Length ¼" BSPT BLUE	P002UBPPTB
UB PT Port Standard Length ¼" BSPT RED	P002UBPPTR
UB PT Port Plug w/ O-Ring ¼" BSPP	P002UBPPLG
UB PT Port Extender 2" Length	P004UBP2XT
UB PT Port Extender or 4" Length	P004UBP4XT
UB Standard Handle (with RED screw / kit)	P004UBPRHL
UB Standard Handle (with BLUE screw / kit)	P004UBPBHL
UB Handle Extension 2" Length CW617	P004UBP2HL
UB Handle Extension 4" Length CW617	P004UBP4HL
Replacement Strainer Screen (20 Mesh, 800 µm)	P004UBPSTN
UB Strainer Plug O-Ring	P004UBPORG
UB Drain Valve	P000UBPDRN
Cartridge Keys	P000UBA0KY
Balancing Insert Plug	P004UBPPLG
ABV Cartridge Cap	P004UBP006



9.2 REFERENCE MATERIALS

08.30: [Victaulic KOIL-KIT™ Coil Pack](#)

08.34: [Victaulic Automatic Balancing Valves – Series 76T, 76B, 76K, 76V & 76G](#)

106.30: [Victaulic Series UH1 Braided Flexible Hose](#)

I-KOIL-KIT: [KOIL-KIT™ Coil Pack Installation and Maintenance Instructions](#)

I-UBP: [Victaulic Series UBP Installation and Maintenance Instructions](#)

User Responsibility for Product Selection and Suitability

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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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