

AWWA Plug Valves

Series 365



Lever Lock Handle



Gear Operator

1.0 PRODUCT DESCRIPTION

Available Sizes

- 3 – 12"/80 – 300 mm

Function

- Typically used for flow modulation and shut off in water and wastewater systems.
- For use on AWWA C606 DIP cut grooves. See Victaulic [I-300](#) for installation requirements. Can be joined with Victaulic Style 31 Couplings, Style 307 Transition Couplings, and Style 341 *Vic-Flange* Adapters.

Maximum Working Pressure

- 175 psi/1200 kPa/12 Bar Bi-Directional

Temperature

- Based on "Plug Coating/Seal" under Section 3.0 Specifications – Material. For additional gasket information, reference [publication 05.01](#).

End Preparation

- Grooved ends in accordance with AWWA C606, AWWA rigid radius cut grooves for ductile iron pipes. (Reference [publication 25.05](#))

2.0 CERTIFICATIONS/LISTINGS

- Conforms to AWWA C517 and MSS SP-108

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

3.0 SPECIFICATIONS - MATERIAL

Body: Ductile iron conforming to ASTM A536, grade 65-45-12.

Body Coating/Lining: (specify choice)

- ☐ Standard: Liquid epoxy in accordance with AWWA C210
- ☐ Optional: Glass lining conforming to ASTM B-1000.
- ☐ Optional: Other Coating (internal/external) are available. Please provide the coating specification at the time of ordering. Contact Victaulic for details.

Seat: Welded nickel

Bonnet: Ductile iron conforming to ASTM A536, grade 65-45-12.

Plug/Shaft: Ductile iron conforming to ASTM A536, grade 65-45-12..

Plug Coating/Seal: (specify choice¹)

NOTE: Additional gasket styles are available. Contact Victaulic for details.

- ☐ **Nitrile**
Nitrile (Orange color code). Temperature range –20°F to +180°F/–29°C to +82°C. Not compatible for hot water services over +150°F/+66°C or for hot dry air over +140°F/+60°C.
- ☐ **Neoprene**
Neoprene (Yellow color code). Temperature range from +30° to +180°F/+34°C to +82°C. Oxidation resistance. Will not support combustion.
- ☐ **EPDM**
EPDM (Green color code). Temperature range –30°F to +230°F/–34°C to +110°C. NOT COMPATIBLE FOR PETROLEUM SERVICES.
- ☐ **Fluoroelastomer**
Fluoroelastomer (Blue color code). Temperature range from +20°F to +300°F/–6°C to +149°C.

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

Stem Packing: Adjustable chevron style – nitrile standard, same as Plug Coating/Seal available upon request.

Upper/Lower Bearing: Type 316 stainless steel backed TFE – self lubricating

Upper/Lower O-ring: Nitrile standard, same as Plug Coating/Seal available upon request.

Upper/Lower Thrust Washer: Teflon/glass filled

Bonnet Gasket: Graphite

Packing Gland: (specify choice)

- ☐ **3 – 4"/80 – 100 mm:** Ductile iron conforming to ASTM A536, grade 65-45-12.
- ☐ **6 – 12"/150 – 300 mm:** Steel zinc plated.

Packing Gland Studs/Nuts: Steel, zinc plated

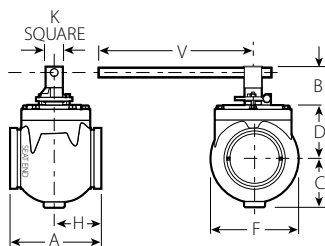
Operator: (specify choice)

- ☐ Shaft mounted 2" AWWA square nut (3 – 6"/80 – 150 mm only).²
- ☐ Manual lever handle (3 – 6"/80 – 150 mm only)
 - ☐ Optional: Memory stop
- ☐ AWWA standard gear operator with handwheel
 - ☐ Optional: Memory stop
 - ☐ Optional: Chain wheel
 - ☐ Optional: AWWA 2"/50 mm square nut (in lieu of handwheel)
- ☐ Non-standard gear operator
- ☐ Stem/Handle extensions

² AWWA 2"/50 mm square nut provided for 3 – 6"/80 – 150 mm sizes only

4.0 DIMENSIONS

Manual Handle

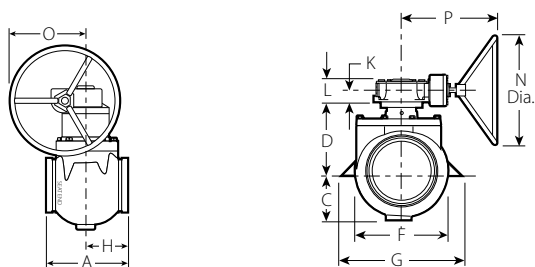


Size		Dimensions										Weight	
Nominal	Actual Outside Diameter	A End to End	B	C	D	F	H	V	K	Stem Dia.	Stem Flat Width	Approx. (Each)	
inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	lb	
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	
3	3.960	8.00	3.38	3.75	3.75	6.50	3.88	18.50	2.00	1	0.5	26.0	
80	100.6	204	85	95	94	163	99	470	50	1.00	0.50	12.0	
4	4.800	9.00	3.38	4.50	4.25	7.63	4.38	18.50	2.00	1.25	0.75	37.0	
100	121.9	229	85	112	106	191	114	470	50	32	20	17.0	
6	6.900	10.50	2.00	5.63	7.50	10.38	5.13	18.50	2.00	1.38	-	73.0	
150	175.3	267	51	142	191	263	129	470	50	35	-	33.0	

4.1 DIMENSIONS

Valve with Gear Operator³

The torque required to open plug valves will vary with pressure differential across the closed valve.



Typical 3–6"/80–100 mm sizes

Typical 8–12"/200–300 mm sizes

Size		Dimensions											Weight	
Nominal	Actual Outside Diameter	A End to End	C	D	F	G	H	K	L	Ø N	O	P	Approximate (Each)	
inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	lb	
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	
3 ⁴	3.960	8.00	3.75	3.75	6.50	—	3.88	1.38	2.38	6.00	5.13	6.88	33.0	
80	100.6	204	95	94	163	—	99	34	59	153	130	173	15.0	
4 ⁴	4.800	9.00	4.50	4.25	7.63	—	4.38	1.63	2.88	6.00	5.63	7.38	44.0	
100	121.9	229	112	106	192	—	111	41	72	153	143	186	20.0	
6 ⁴	6.900	10.50	5.63	7.50	10.38	—	5.13	2.13	3.50	12.00	9.38	9.00	83.0	
150	175.3	267	142	191	263	—	129	54	89	305	237	227	37.5	
8	9.050	11.50	6.88	9.50	12.38	16.50	5.75	3.13	3.75	18.00	13.00	13.00	125.0	
200	229.9	292	175	240	313	417	147	79	94	458	328	331	56.5	
10	11.100	13.00	8.00	10.75	15.13	18.75	6.50	3.13	4.00	18.00	14.00	13.25	195.0	
250	281.9	330	204	271	383	477	166	79	102	458	354	336	88.5	
12	13.200	14.00	9.50	12.50	17.00	21.00	7.00	3.13	3.75	18.00	16.00	14.13	250.0	
300	335.3	356	241	317	432	534	178	79	94	458	407	359	113.5	

³ Gear operators can be installed in various positions. Contact Victaulic for details.

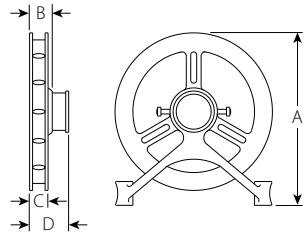
⁴ 3, 4, 6"/80, 100, 150 mm valves do not include side support lugs.

4.2 DIMENSIONS

Accessories

Chain Wheels

Chain wheels with guides and chain are available mounted to gear operators in place of handwheels. Sprocket is cast iron. Guide arms are malleable iron. The chain is galvanized steel.



Sizes			Dimensions				Chain	Weight
Valve inches mm	Hand Wheel inches mm	Chain Wheel inches mm	A inches mm	B inches mm	C inches mm	D inches mm	inches mm	Approximate (Each) lb kg
3, 4"	6 – 7 ¼ 152.4 – 190.5	1 ½	7.75 197	1.44 37	1.13 29	2.38 60	1/0	5.2 2.4
6"	9 ¼ – 12 ½ 235.0 – 317.5	2 ½	12.50 318	1.75 44	1.25 32	2.63 67	4/0	16 7.3
8, 10, 12"	15 ¾ – 19 400.1 – 482.6	3 ½	18.50 470	1.88 48	1.25 32	3.13 79	4/0	29 13.0

5.0 AUTOMATION

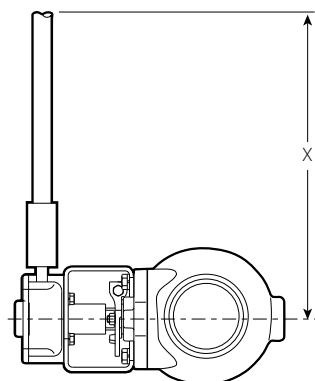


Plug valves are designed to accommodate a variety of remote actuators – electric, pneumatic, and hydraulic. The design featuring PTFE thrust washers, self-lubricating bearings and eccentric plug design, serves to reduce break-away torque requirements.

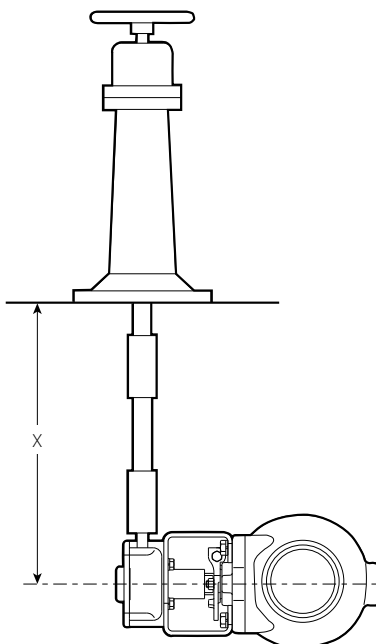
Actuators must be sized for the specific operating conditions of each service and may be used up to the full valve rating. Contact your local Valve Automation Center for pricing and availability.

6.0 VALVE CONFIGURATIONS

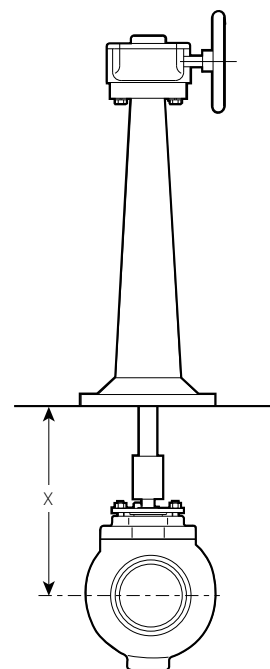
Please specify dimension “X” and other accessories required, i.e. stem guide, floor box, floor stand, etc., when ordering valves with extension handles.



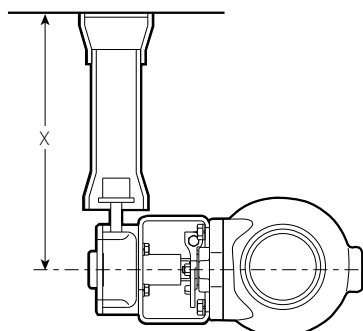
Input Shaft Extension
Operator Mounted
on Valve



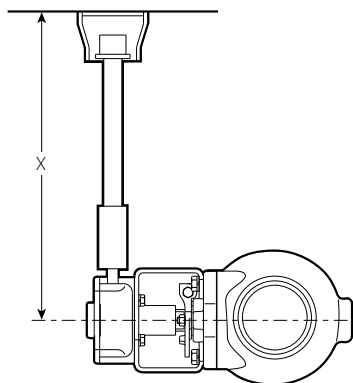
Floor Stand Input
Shaft Extension Operator
Mounted on Valve



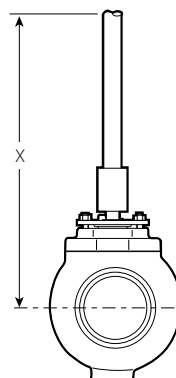
Floor Stand and
Stem Extension Operator
Mounted on Stand



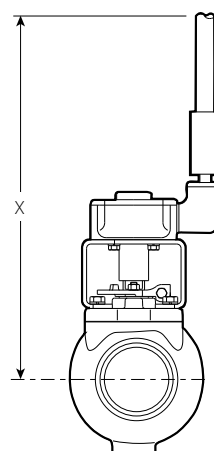
Valve Box
Valve Supplied with
Operator and Square Nut



Floor Box and
Input Shaft Extension



Stem Extension
Operator not Included



Input Shaft Extension
90° Miter Operation
Mounted on Valve

7.0 PERFORMANCE

Plug valves are typically used for on/off and for throttling of liquids, semi-solids, and slurries. The flow pattern provides a nearly straight line flow characteristic. Both lever and gear operators can be used for throttling service. Memory stops are also available for both.

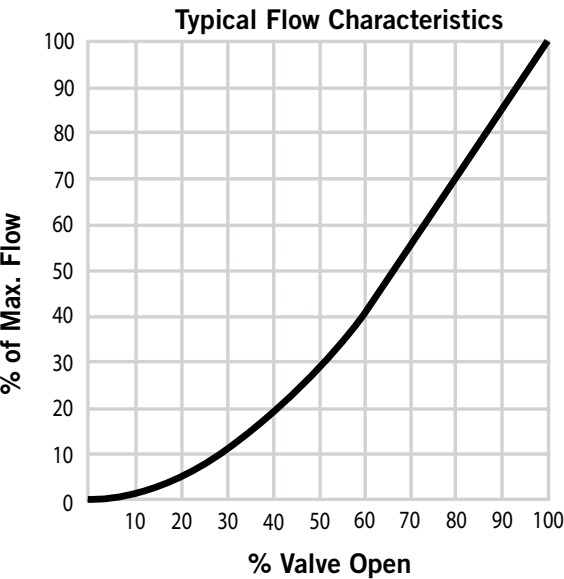
Plug valve provides a minimum 90% diameter (81% area) free flow area.

Cv/Kv values for flow of water at +60°F/+16°C with a fully open valve are shown in tables below.

Formulas for Cv values

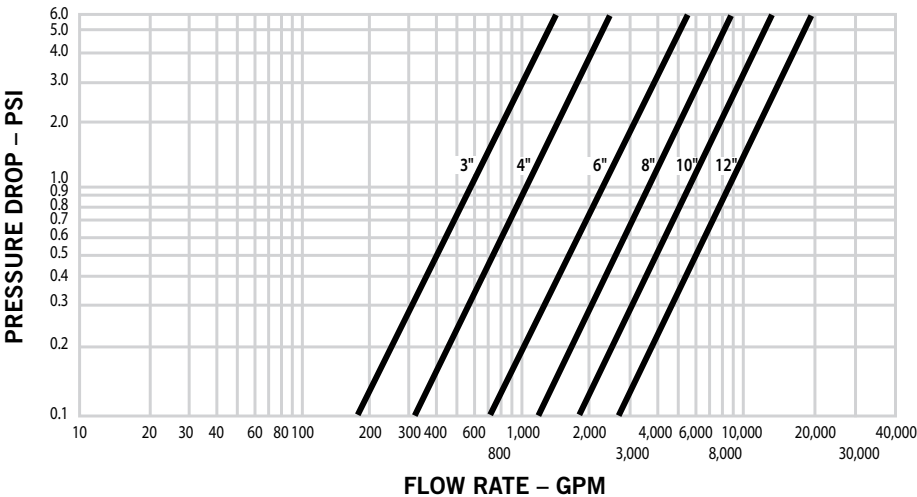
$\Delta P = Q^2 / C_v^2$

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



Valve Size		Full Open
Nominal inches mm	Actual Outside Diameter inches mm	Flow Coefficient C _v K _v
3	3.960	600
80	100.6	519
4	4.800	1040
100	121.9	900
6	6.900	2100
150	175.3	1817
8	9.050	3850
200	229.9	3330
10	11.100	5500
250	281.9	4758
12	13.200	8400
300	335.3	7266

The chart below expresses the flow of water at 60°F/16°C through a full open valve.



8.0 VALVE NUMBERING SYSTEM

Series 365

P - 080 - 7 1 1 1 - 80

Type	Nom. In./mm	Size Code	Pressure Rating	Body Material	Plug Coating	Seat	Operator
P	3"/80 4"/100 6"/150 8"/200 10"/250 12"/300	030 040 060 080 100 120	7 - 175 psi full bi-directional (1)	1 - Iron 3 - Coated iron (2) 7 - Glass lined	1 - Nitrile - "T" 2 - EPDM - "E" 3 - Fluoroelastomer - "O"	1 - Nickel 7 - Glass Lined/ Nickel Seat	00 - Bare 01 - 2" Hub Nut Only 10 - Std. Handle (2) 11 - Std. Handle with memory stop (2) 80 - Gear Op w/Handwheel 81 - Gear Op w/2" Nut 82 - Gear Op w/Chainwheel 99 - Special (1)

(1) Details must be supplied with order.
(2) 3, 4 and 6"/80, 100 and 150 mm only.

9.0 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, and foot protection.

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

10.0 REFERENCE MATERIALS

- 05.01: Seal Selection Guide
- 23.01: Victaulic AWWA Grooved Piping Method
- 23.02: Victaulic Style 31 Couplings
- 23.03: Victaulic Style 307 Transition Coupling
- 23.05: Victaulic AWWA Fittings
- 23.09: Victaulic Style 317 Check Valve
- 29.01: Terms and Conditions/Warranty
- I-300: Victaulic AWWA Field Installation Handbook

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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