

# 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 adaptors.

#### Maximum Working Pressure

- 175 psi/1200kPa Bi-Directional.

#### Temperature

- Based on gasket selection found in "Plug Coating/Seal" section of this submittal. For additional gasket information reference [submittal 05.01](#).

#### End Preparation

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

### 2.0 CERTIFICATION/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.

System No.		Location	
Submitted By		Date	

Spec Section		Paragraph	
Approved		Date	

### 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 choice<sup>1</sup>)**

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.

<sup>1</sup> 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).<sup>2</sup>

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)

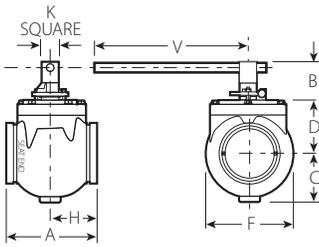
Non-standard gear operator

Stem/Handle extensions

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

## 4.0 DIMENSIONS

### Manual Handle

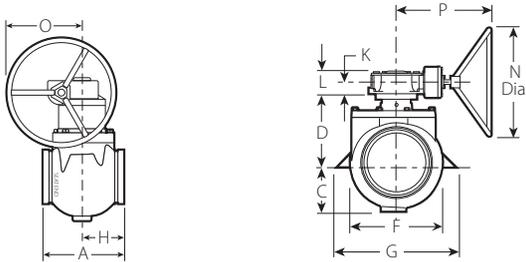


Size		Dimensions								Weight
Nominal	Actual Outside Diameter	A End to End	B	C	D	F	H	V	K	Approximate (Each)
inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	lb
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg
3	3.960	8.00	4.06	3.75	4.25	6.40	4.00	18.50	2.00	25.0
80	100.6	203	103	95	108	163	102	470	51	11.3
4	4.800	9.00	4.06	4.44	4.75	7.52	4.50	18.50	2.00	35.0
100	121.9	229	103	113	121	191	114	470	51	15.9
6	6.900	10.50	3.20	5.50	7.50	10.32	5.25	18.50	2.00	70.0
150	175.3	267	81	140	191	262	133	470	51	31.8

## 4.1 DIMENSIONS

### Valve with Gear Operator<sup>3</sup>

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	N.Dia.	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 <sup>4</sup>	3.960	8.00	3.75	4.25	6.56	–	4.00	1.65	3.19	6.00	5.63	6.60	32.0
80	100.6	203	95	108	167	–	102	42	81	152	143	168	14.5
4 <sup>4</sup>	4.800	9.00	4.44	4.75	7.74	–	4.50	1.65	3.19	6.00	5.63	6.60	42.0
100	121.9	229	113	121	197	–	114	42	81	152	143	168	19.1
6 <sup>4</sup>	6.900	10.50	5.50	7.50	10.32	–	5.25	1.65	3.19	10.00	7.63	8.41	80.0
150	175.3	267	140	191	262	–	133	42	81	254	194	214	36.3
8	9.050	11.50	6.87	10.80	12.30	16.38	5.75	1.65	3.19	18.00	11.63	10.25	120.0
200	229.9	292	175	274	312	416	145	42	81	457	295	261	55.0
10	11.100	13.00	8.00	12.00	14.78	18.75	6.50	2.00	3.68	18.00	12.50	11.00	185.0
250	281.9	330	203	305	375	476	165	50	93	457	318	278	84.0
12	13.200	14.00	9.50	13.75	17.00	21.00	7.00	2.00	4.15	18.00	13.88	13.00	240.0
300	335.3	356	241	349	432	533	178	50	105	457	352	331	109.0

<sup>3</sup> Gear operators can be installed in various positions. Contact Victaulic for details.

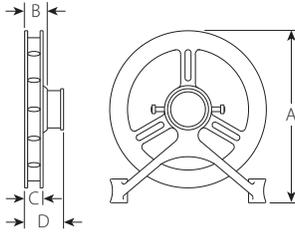
<sup>4</sup> 3, 4, 6"/80, 100, 150 mm valves do not include side support lugs.

## 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 61	1/0	17.5 7.9
6"	9 ¼ – 12 ½ 235.0 – 317.5	2 ½	12.50 318	1.75 45	1.25 32	2.63 67	4/0	30 13.6
8, 10, 12"	15 ¾ – 19 400.1 – 482.6	3 ½	18.50 470	1.88 48	1.25 32	3.13 80	4/0	30 13.6

## 5.0 AUTOMATION

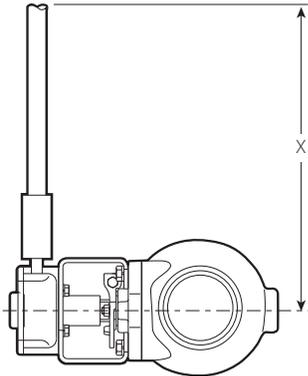


Plug valves are designed to accommodate a variety of remote actuators – electric, pneumatic, and hydraulic. The design featuring PTFE thrust washers, self-lubricating bearings and eccentric plug design, serves to reduce break-away torque requirements.

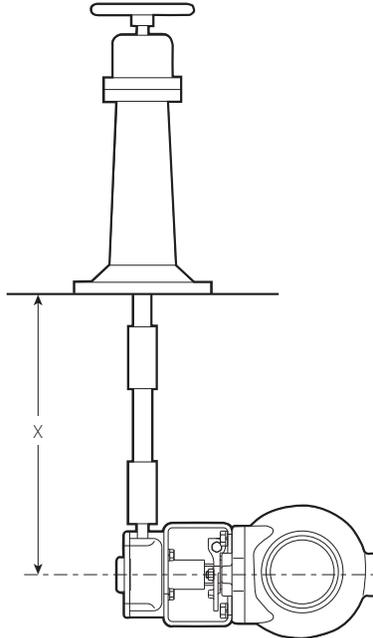
Actuators must be sized for the specific operating conditions of each service and may be used up to the full valve rating. Contact your local Value Automation Center for pricing and availability.

## 6.0 VALVE CONFIGURATIONS

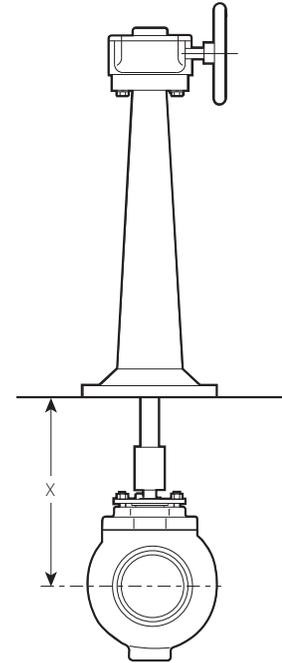
Please specify dimension “X” and other accessories required, i.e. stem guide, floor box, floor stand, etc., when ordering valves with extension handles.



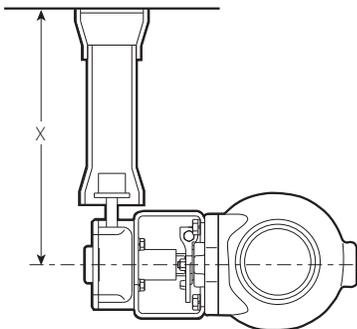
Input Shaft Extension  
Operator Mounted  
on Valve



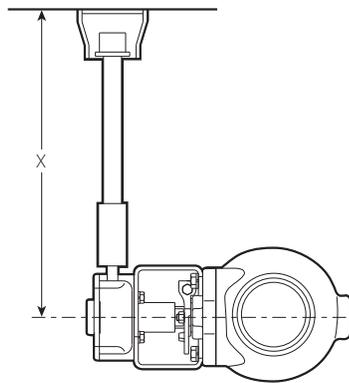
Floor Stand Input  
Shaft Extension Operator  
Mounted on Valve



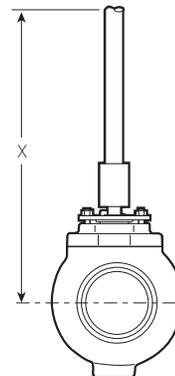
Floor Stand and  
Stem Extension Operator  
Mounted on Stand



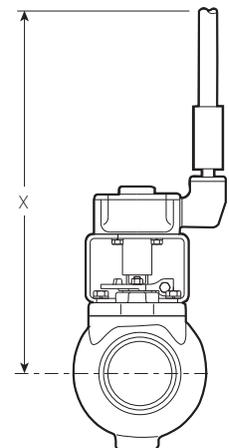
Valve Box  
Valve Supplied with  
Operator and Square Nut



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.

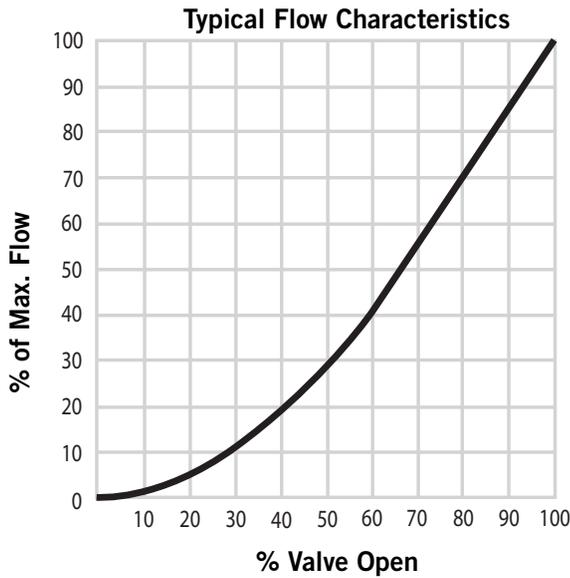
Plug valve provides a minimum 90% diameter (81% area) free flow area.

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

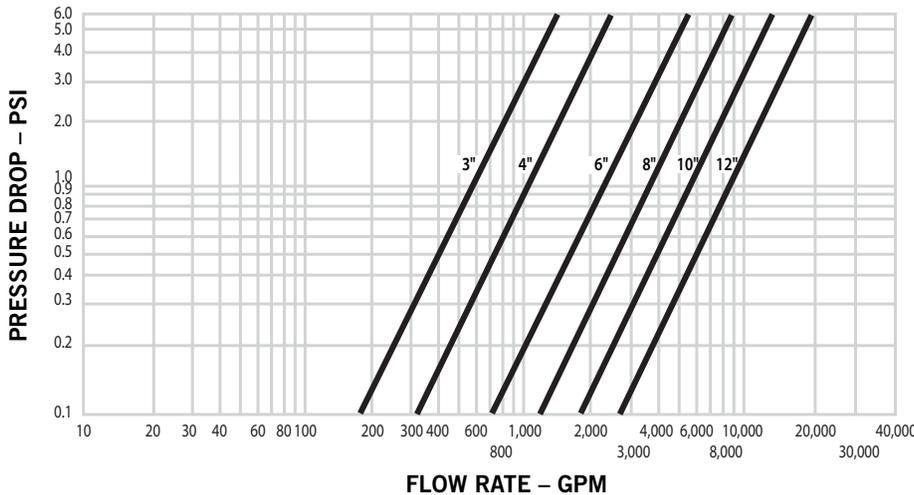
$$\Delta P = Q^2 / C_v^2$$

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



Valve Size		Full Open
Nominal inches mm	Actual Outside Diameter inches mm	Flow Coefficient C <sub>v</sub>
3	3.960	600
80	100.6	
4	4.800	1040
100	121.9	
6	6.900	2100
150	175.3	
8	9.050	3850
200	229.9	
10	11.100	5500
250	281.9	
12	13.200	8400
300	335.3	

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	030	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, remove, adjust, or maintain any Victaulic piping products.
- Depressurize and drain the piping system before attempting to install, remove, adjust, or maintain any Victaulic piping 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 making a determination as to the suitability of Victaulic products for a particular end-use application, in accordance with industry standards and project specifications, 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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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](http://www.victaulic.com).

### Warranty

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

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