Victaulic®
An iso 9001 certified company

Series 366
Vic-Plug™ Valves

PRODUCT DESCRIPTION

**Series 366
with Gear Operator**

The Series 366 Vic-Plug™ is a grooved end eccentric plug valve with IPS ends primarily for water and wastewater treatment services. Series 366 is available in 14 - 18" (355,6 - 457,2 mm) sizes.

Grooved ends allow easy installation with Victaulic® IPS couplings or with Style 741 Vic-Flange® adapters.

Various types of manual and automatic operators are available. Vic-Plug valves feature adjustable chevron packing and various body and plug coatings to meet specific service requirements. The standard outside coating is an alkyd phenolic primer unless otherwise specified. The eccentric plug design assures bubble-tight sealing up to 150 PSI (1034 kPa) as the plug cams into the seat. Bi-directional sealing to 50 PSI (345 kPa) is standard with full bidirectional sealing to 150 PSI (1034 kPa) optionally available. Self-lubricated stainless steel bearings with protective o-rings resist corrosion to prevent binding and prolong valve life.

Series 366 Plug Valve Numbering System

P - 140 1 2 1 1 - 71

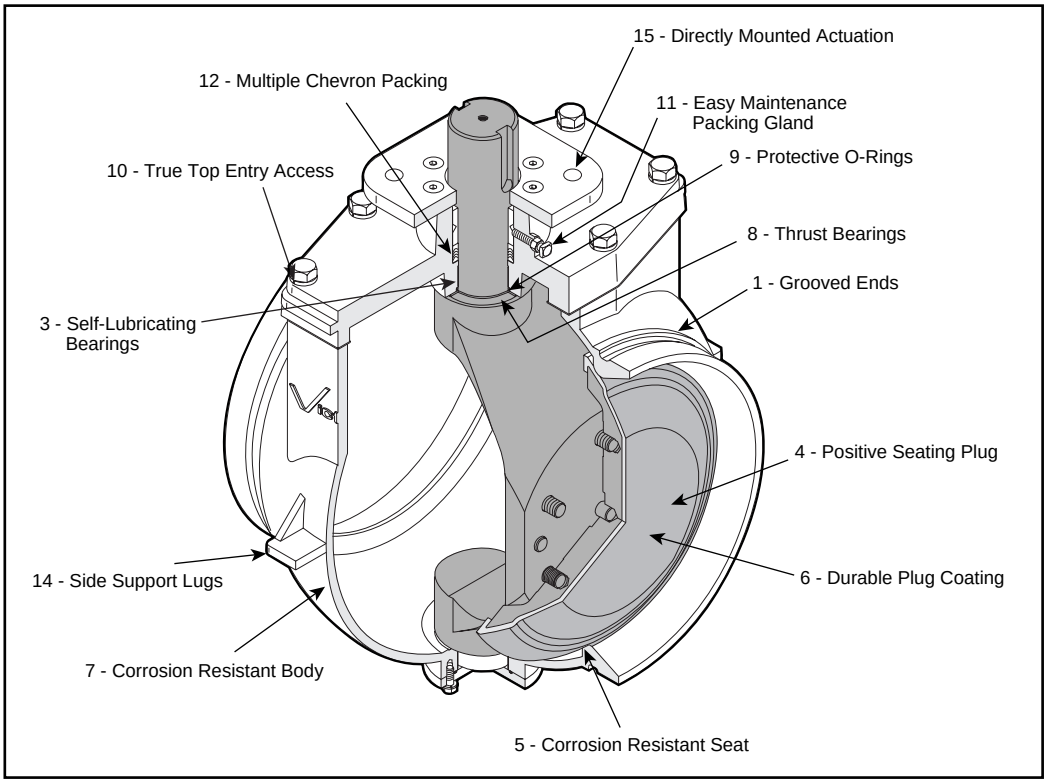
Type	Size	Pressure Rating	Body Material	Plug Coating**	Seat	Operator*
P	140 160 180	1-150 PSI 7-150 PSI full bi-directional 9-Special	2-Iron with IPS ends 4-Coated iron with IPS ends 8-Glass with IPS ends 9-Special	1-Nitrile 2-EPDM 3-Fluoroelastomer 4-Neoprene 9-Special	1-Nickel 7-Glass Lined 9-Special	00-Bare 01-2" Square Nut Only 10-Standard Handle 11-Standard Handle with memory stop 70-AWWA standard gear operator w/hand wheel, Model MZ 73-Model MA 74-Model MC 76-MFF 79-Non-standard gear operator* 81-Gear operator with memory stop (non-AWWA) 93-MA with Chain Wheel 94-MC with Chain Wheel 96-MFF with Chain Wheel VV- Pneumatic* WW- Electric* YY- Hydraulic*

*Details of operator must be supplied with order.

2657 Rev.A 9/99

Series 366

Vic-Plug Valve



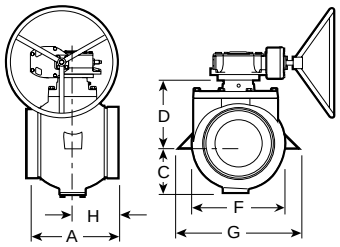
1. **Grooved Ends**: Fast assembly with two Victaulic couplings.
2. **Excellent Flow Characteristics:** (not shown) Minimum 90% diameter (81% area) free flow circular port.
3. **Self-Lubricating Bearings:** Glass-filled teflon with Type 316 stainless steel upper and lower bearings maintain plug alignment.
4. **Positive Seating Plug**: Ductile plug/stem for cam-action sealing.
5. **Corrosion Resistant Seat:** Welded-in nickel seat overlay.
6. **Durable Plug Coating**: Plug encapsulated with resilient elastomers.
7. **Corrosion Resistant Body:** Durable iron body is 100% tested to 300 PSI (2065 kPa).
8. **Thrust Bearings**: Eccentric plug rides on low friction thrust washers.
9. **Protective O-rings:** Grit seals keep media from bearing areas.
10. **True Top Entry Access**: Rugged ductile iron bonnet allows bolted access.
11. **Easy Maintenance Packing Gland**: Easy access for packing adjustment.
12. **Multiple Chevron Packing**: Provides a reliable, durable stem seal.
13. **Adjustable Shaft Brake**: External brake (not shown) is adjustable for non-slamming action or to lock plug in-place for throttle settings.
14. **Side Support Lugs**: Integral mounting lugs provide installation support.
15. **Directly Mounted Actuation:** Top flange allows direct mount of operator to body of valve. Eliminates bracket, stem adapter and provides a lower profile, while reducing total valve weight.

DIMENSIONS

Valve with Gear Operator †

The torque required to open Vic-Plug valves will vary with pressure differential across the closed valve. Using the maximum pressure differential select the correct gear operator from the chart on page 4.

A complete range of automatic operators and accessories are available with the Vic-Plug valve. Please contact Victaulic with your requirements.

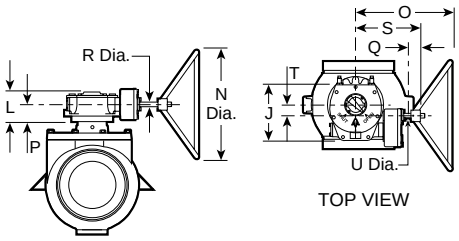


23.11-1A

SIZE Nominal Inches Actual mm	Dimensions Inches/millimeters End to End A	C	D	F	G	H	M	Approx. Weight Each Lbs./kg
14 355,6	19.00 482,6	11.25 286	15.56 395	20.44 519	23.94 608	9.50 241,3	– –	375.0 170,0
16 406,4	19.75 501,7	11.95 304	16.71 424	21.94 557	26.00 660	9.88 251,0	– –	450.0 204,0
18 457,2	23.50 596,9	13.97 355	20.05 509	26.06 662	30.58 777	11.75 298,5	– –	670.0 304,0

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

Gear Operator



23.11-2A

Gear Oper. Style No.	Dimensions Inches/millimeters										No. Turns to Close	Aprx. Wgt. Each Lbs./kg
	J	L	N Dia.	O	P	Q	R Dia.	S	T	U Dia.		
MA	8.24 209	3.55 90	18.00 457	10.00 254	1.75 45	2.25 57	0.88 22	7.00 178	3.38 86	0.25 6	7.8	33.0 15,0
MC	11.12 283	4.03 102	18.00 457	10.38 264	1.87 48	2.25 57	1.00 25	7.38 188	5.38 137	0.25 6	18	68.0 30,8
MFF-36	13.78 350	5.04 128	30.00 762	9.53 242	2.60 66	1.77 45	1.00 25	15.00 381	5.43 138	0.25 6	45	148.6 67,4

For "Rim-Pull" information on gear operators, contact Victaulic.

Gear Operator Ratings

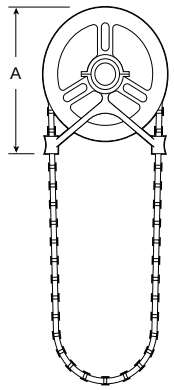
23.11-3A

SIZE Nominal Inches Actual mm	Manual Gear Operating Rating PSI/kPa		
	MA	MC	MFF-36
14 355,6	0 - 50 0 - 300	50 - 100 345 - 700	100 - 150 † 700 - 1034
16 406,4	– –	0 - 50 0 - 300	50 - 150 † 345 - 1034
18 457,2	– –	0 - 50 0 - 300	50 - 150 † 345 - 1034

† Full bi-directional service included.

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.

23.11-4A

VALVE SIZE Nominal In. Actual mm	Chain Wheel Dimensions Inches/mm			Approx. Wgt. Each Lbs./kg
	Sprocket Size	Handwheel Size (Diameter)	A	
14 355,6	4.50 114	24.00 610	25.75 654	46.0 20,8
16 406,4	4.50 114	24.00 610	25.75 654	46.0 20,8
18 457,2	5.00 127	30.00 762	30.00 762	60.00 27,2

+ 18" handwheel is used for 8" valve 101 - 175 PSI (695 - 1205 kPa) service.

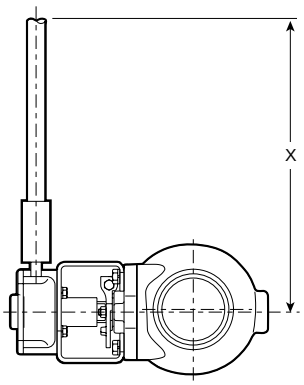
Automation

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

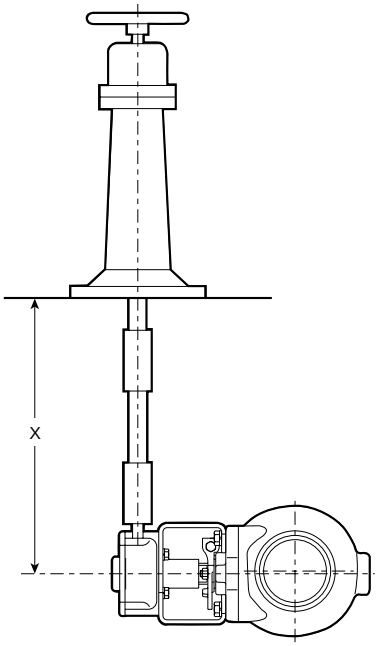
Actuators must be sized for the specific operating conditions of each service and may be used up to the full valve rating. Please include the direction of pressure against the plug (into the seat area or against the seat area) and expected test pressure.

VALVE CONFIGURATIONS

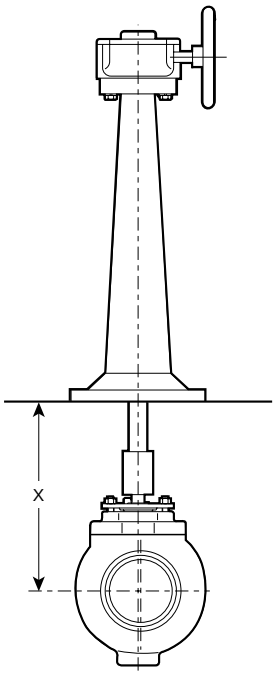
Please specify dimension "X" and other accessories required, i.e. stem guide, floor box, floor stand, etc., when ordering valves with extension handles.



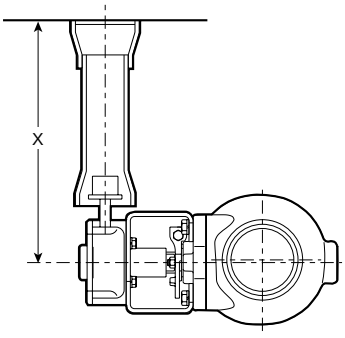
Input Shaft Extension Operator Mounted on Valve



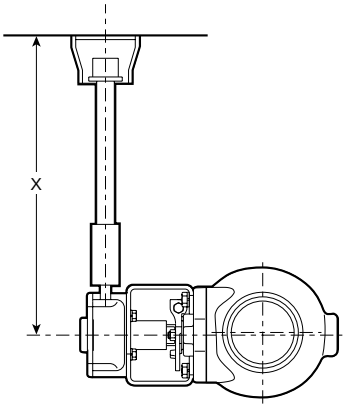
Floor Stand Input Shaft Extension Operator Mounted on Valve



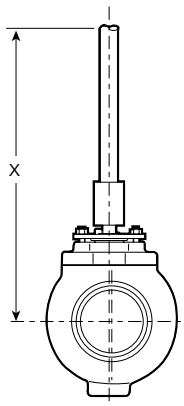
Floor Stand and Stem Extension Operator Mounted on Stand



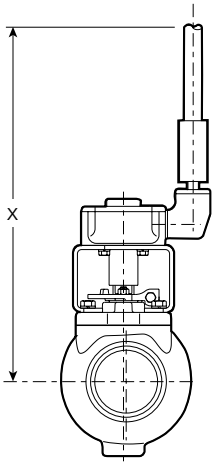
Valve Box Valve Supplied with Operator and Square Nut



Floor Box and Input Shaft Extension



Stem Extension Operator not Included



Input Shaft Extension 90° Miter Operation Mounted on Valve

PERFORMANCE

Vic-Plug valve is well suited for throttling of liquids, semi-solids, and slurries. The straight-through 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.

Vic-Plug valve provides exceptional flow with the round port and eccentric plug design. With the plug moving out of the flow path in the full open position excellent C_V values are obtained. Vic-Plug valve provides a minimum 90% diameter (81% area) free flow area. Turbulence is reduced due to the eccentric plug resting out of the flow area in the open position.

C_V Values

C_V values for flow of water at +60°F (+16°C) with a fully open valve are shown in the table at right.

Formulas for C_V Values:

$$\Delta P = \frac{Q^2}{C_V^2}$$

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

Where:

Q = Flow (GPM)

C_V = Flow Coefficient

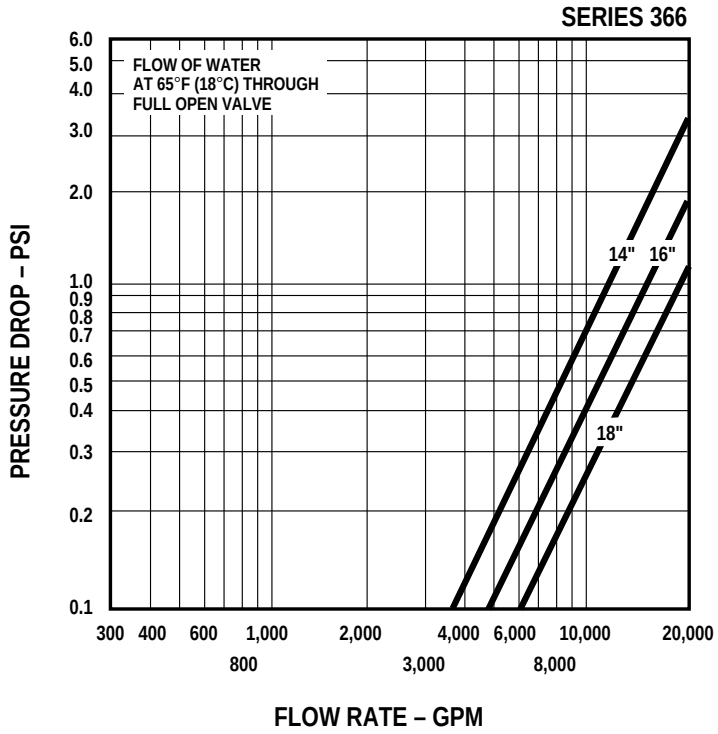
ΔP = Pressure Drop (PSI)

23.11-5A

Valve Size Inches/mm	C_V (Full Open)
14 355,6	12000
16 406,4	15000
18 457,2	19000

+ Contact Victaulic for details.

Flow Characteristics



MATERIAL SPECIFICATIONS

Body: Ductile iron conforming to ASTM A-536.

Body Coating: Alkyd phenolic primer

❑ **Optional:** Other coatings (internal and/or external) available. Coating specification must be supplied with order.

Seat: Welded nickel

Bonnet: Ductile iron conforming to ASTM A-536

Plug: Cast iron conforming to ASTM A-126 B.

Shaft: Ductile iron conforming to ASTM A-536.

Plug Coating/Seal: (Specify choice on order)

❑ **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. Not recommended for hot water services over +150°F (+66°C) or for hot dry air over +140°F (+60°C).

❑ **Optional: Grade "V" neoprene**
Neoprene (Yellow color code). Temperature range from +30° to +180°F (+34°C to +82°C). Recommended for hot lubricating oils and certain chemicals. Good oxidation resistance. Will not support combustion.

❑ **Optional: 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 services. NOT RECOMMENDED FOR PETROLEUM SERVICES.

❑ **Optional: Grade "O" fluoroelastomer**
Fluoroelastomer (Blue color code). Temperature range from +20°F to +300°F (–6°C to +149°C). Recommended for many oxidizing acids, petroleum oils, halogenated hydrocarbons, lubricants, hydraulic fluids, organic liquids and air with hydrocarbons +300°F (+149°C).

*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.

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: Nylon

Bonnet Gasket: Non-asbestos

Packing Gland: Steel zinc plated.

Packing Gland Studs/Nuts: Steel, zinc plated

Operator: (Specify choice on order)

❑ **AWWA 2" (60,3 mm) square nut**

❑ **AWWA standard gear operator with handwheel**
- ❑ **Optional:** Memory stop
- ❑ **Optional:** Chain wheel

❑ **Non-standard gear operator**

❑ **Actuators:** Electric, pneumatic, hydraulic – contact Victaulic for details.

❑ **Stem/Handle extensions**