

# Vic-Plug™ Balancing Valve

## SERIES 377

Series 377 Vic-Plug balancing valve is the only eccentric grooved end plug valve made specifically for throttling services. For 3 – 12”/80 – 300mm systems, Victaulic Style 307 transition couplings are available to directly connect Vic-Plug valves to grooved end steel and other IPS pipe (Refer to Section 23.03 for details.)

Vic-Plug valves are cast of durable ductile iron and coated with alkyl enamel. The eccentric plug is cast of high strength ductile iron, as is the bonnet. The plug is encapsulated with Grade “E” EPDM rubber, suitable for water, potable water and similar services. Nitrile plug coating is also available. The eccentric design also assures shut-off sealing up to 175 psi/1200 kPa on 3 – 12”/80 – 300mm sizes. The seat is a welded-in nickel overlay for corrosion resistance and long sealing life.

The plug rests on PTFE glass-filled thrust washers which reduce the opening torque. Stainless steel anti-seize bearings are self-lubricating.

The Vic-Plug is supplied with a lever operator in 3 – 6”/80 – 150mm sizes. Gear operators available for all sizes. Memory stops are standard. A full range of actuators, stem extensions and chain wheels are available. The valves can also be power operated when required.



### MATERIAL SPECIFICATIONS

**Body:** Ductile iron conforming to ASTM A-536, grade 65-45-12. Ductile iron conforming to ASTM A-395, grade 65-45-15, is available upon special request.

**Body Coating:** Black enamel

**Seat:** Welded in nickel

**Bonnet and Packing Gland:** Ductile iron conforming to ASTM A-536.

**Shaft:** (8 – 12”/200 – 300mm only) Ductile iron conforming to ASTM A-536, grade 65-45-12. Ductile iron conforming to ASTM A-395, grade 65-45-15, is available upon special request.

**Plug:** Ductile iron conforming to ASTM A-536, grade 65-45-12

#### Plug Coating/Seal

- **Grade “E” EPDM**

EPDM (Green color code). Temperature range –30°F to +230°F/–34°C to +110°C.

Recommended for cold and 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 service. NOT RECOMMENDED FOR PETROLEUM SERVICES.

- **Optional: 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.

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

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

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

**Upper/Lower Thrust Washer:** Teflon/glass filled

### JOB/OWNER

System No. \_\_\_\_\_

Location \_\_\_\_\_

### CONTRACTOR

Submitted By \_\_\_\_\_

Date \_\_\_\_\_

### ENGINEER

Spec Sect \_\_\_\_\_ Para \_\_\_\_\_

Approved \_\_\_\_\_

Date \_\_\_\_\_

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## MATERIAL SPECIFICATIONS

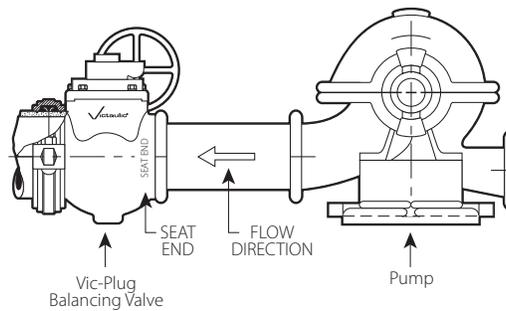
**Bonnet Gasket:** Graphite

**Packing Gland:** Ductile iron conforming to ASTM A-536 or plated steel

**Packing Gland Studs/Nuts:** Steel, zinc plated

**Operator:** (Specify choice on order)

- Manual lever handle (3 – 6<sup>3</sup>/<sub>8</sub> – 150mm only) with memory stop
- Standard gear operator with handwheel with memory stop



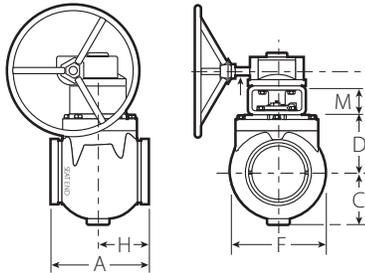
SERIES 377 SHOULD BE INSTALLED WITH THE SEAT UPSTREAM, CLOSEST TO THE PUMP DISCHARGE.  
THE ABOVE SCHEMATIC AND INSTALLATION INFORMATION IS INCLUDED ON A TAG ATTACHED TO EACH VALVE.

# Vic-Plug™ Balancing Valve

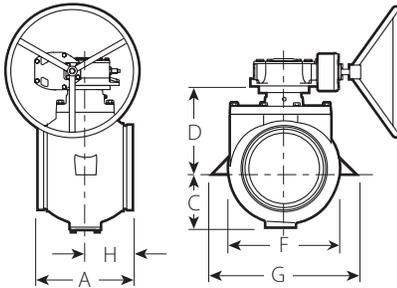
SERIES 377

## DIMENSIONS

Valve †



3 - 4"/80 - 100 MM SIZES



6 - 12"/150 - 300mm SIZES

Size		Dimensions - Inches/millimeters							Approx. Weight Ea.
Nominal Size Inches mm	AWWA Outside Diameter Inches mm	End to End A	C	D	F	G	H	M	Lbs. kg
3# 80	3.96 100.6	8.00 203	3.75 95	4.25 108	6.56 167	—	4.00 102	4.00 102	32.0 14.5
4# 100	4.80 121.9	9.00 229	4.44 113	4.75 121	7.74 197	—	4.50 114	4.00 102	42.0 19.1
6# 150	6.90 175.3	10.50 267	5.50 140	7.50 191	10.32 262	—	5.25 133	—	80.0 36.3
8# 200	9.05 229.9	11.50 292	6.87 175	10.80 274	12.30 312	16.38 416	5.75 145	—	120.0 55.0
10# 250	11.10 281.9	13.00 330	8.00 203	12.00 305	14.78 375	18.75 476	6.50 165	—	185.0 84.0
12# 300	13.20 335.3	14.00 356	9.50 241	13.75 349	17.00 432	21.00 533	7.00 178	—	240.0 109.0

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

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

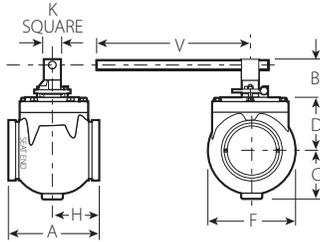
# Nominal AWWA size.

# Vic-Plug™ Balancing Valve

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## DIMENSIONS

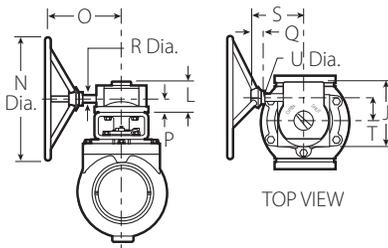
Manual Handle



Size		Dimensions – Inches/millimeters									Approx. Wgt. Ea.
Nominal Size Inches mm	AWWA Outside Diameter Inches mm	End to End A	B	C	D	F	H	K	V	Lbs./kg	
3 80	3.96 100.6	8.00 203	4.06 103	3.75 95	4.25 108	6.56 167	4.00 102	2.00 51	18.50 470	32.0 14.5	
4 100	4.80 121.9	9.00 229	4.06 103	4.44 113	4.75 121	7.74 197	4.50 114	2.00 51	18.50 470	39.0 17.7	
6 150	6.90 175.3	10.50 267	5.63 143	5.56 141	7.50 190	10.32 262	5.25 133	2.00 51	18.50 470	74.0 33.6	

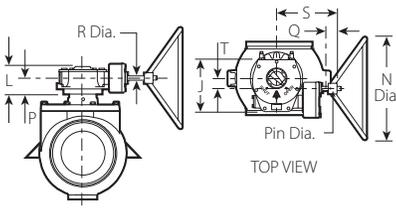
## DIMENSIONS

Gear Operator



3 – 4"/80 – 100MM SIZES

Gear Oper.	Dimensions – Inches/millimeters											Approx. Wgt. Ea.
Style No.	J	L	N Dia.	O	P	Q	R Dia.	S	T	U Dia.	No. Turns to Close	Lbs./kg
MX	4.76 121	2.07 53	6.00 152	4.00 102	1.13 29	1.30 33	0.63 16	4.00 102	1.95 50	0.19 5	7.5	7.5 3.4
MZ	5.50 140	2.62 67	10.00 250	5.00 127	1.25 32	1.30 33	0.63 16	4.50 114	2.36 60	0.19 5	7.5	15.0 6.8
MV	7.25 184	3.29 84	18.00 457	9.00 229	1.62 41	2.25 57	0.88 22	6.00 152	2.63 67	0.25 6	7.8	20.0 9.1
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



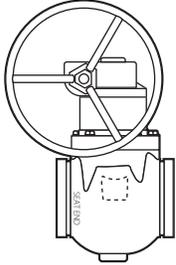
6 – 18"/150 – 450MM SIZES

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## PRESSURE RATINGS

Operators

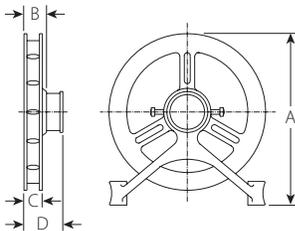


SERIES 377 WITH GEAR OPERATOR

Size		Manual Gear Operating Rating – psi/kPa							
Nominal Size Inches mm	AWWA Outside Diameter Inches mm	MX GO & HW	MX GO & CW	MZ GO & HW	MZ GO & CW	MV GO & HW	MV GO & CW	MC GO & HW	MC GO & CW
3 80	3.96 100.6	0 - 175 0 - 1200	0 - 175 0 - 1200	—	—	—	—	—	—
4 100	4.80 121.9	0 - 175 0 - 1200	0 - 175 0 - 1200	—	—	—	—	—	—
6 150	6.90 175.3	—	—	0 - 175 0 - 1200	0 - 175 0 - 1200	—	—	—	—
8 200	9.05 229.9	—	—	0 - 175 0 - 1200	0 - 100 0 - 700	100 - 175 700 - 1200	100 - 175 700 - 1200	—	—
10 250	11.10 281.9	—	—	—	—	0 - 100 0 - 700	0 - 100 0 - 700	100 - 175 700 - 1200	100 - 175 700 - 1200

Size		Manual Gear Operating Rating – psi/kPa					
Nominal Size Inches mm	AWWA Outside Diameter Inches mm	MA GO & HW	MA GO & CW	MC GO & HW	MC GO & CW	MFF GO & HW	MFF GO & CW
12 300	13.20 335.3	0 - 50 0 - 345	0 - 50 0 - 345	51 - 175 352 - 1200	51 - 175 352 - 1200	—	—

## 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.

Hand Wheel	Chain Wheel	Dimensions – Inches/mm				Chain	Approx. Weight Each
Diameter Inches mm	Required	A Inches mm	B Inches mm	C Inches mm	D Inches mm	Size	Lbs. kg
2 – 4 50.8 – 101.6	0	4.63 118	1.13 29	0.88 22	1.75 45	2	10 4.5
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
7 ½ – 9 184.2 – 228.6	2	10.50 267	1.38 35	1.13 29	2.38 61	1/0	17.5 7.9
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
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
19 ¼ – 22 489.0 – 558.8	4	21.50 546	1.88 48	1.50 38	3.13 80	5/0	35 15.9

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## PERFORMANCE

The Vic-Plug valve is well suited for throttling 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 included.

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 valves provide 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 for flow of water at +60°F/+16°C with a fully open valve are shown in the table below.

Formulas for  $C_v$  Values:

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

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

**Where:**

Q = Flow (GPM)

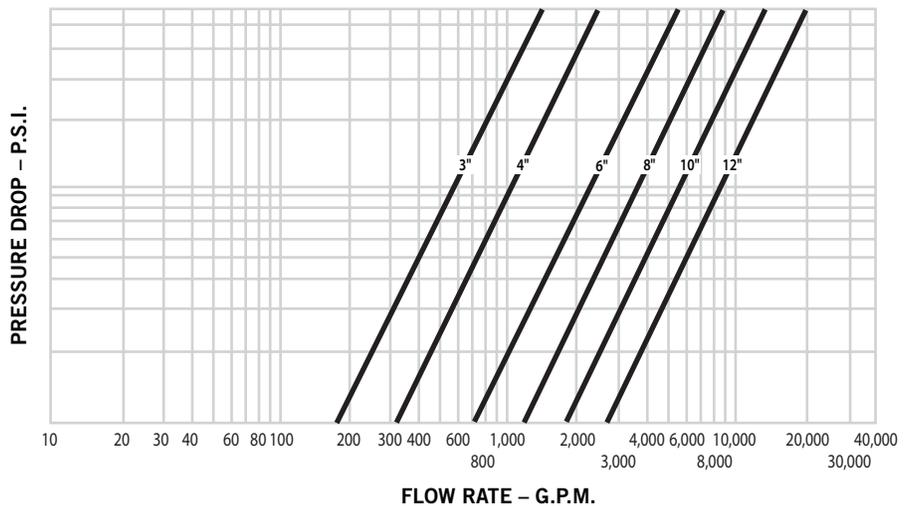
$\Delta P$  = Pressure Drop (psi)

$C_v$  = Flow Coefficient

Size		$C_v$ (Fully Open)	Size		$C_v$ (Fully Open)
Nominal Size Inches mm	AWWA Outside Diameter Inches mm		Nominal Size Inches mm	AWWA Outside Diameter Inches mm	
3 88.9	3 100.6	600	8 219.1	8 229.9	3850
4 114.3	4 121.9	1040	10 273.0	10 281.9	5500
6 168.3	6 175.3	2100	12 323.9	12 335.3	8400

## FLOW CHARACTERISTICS

The chart below expresses the flow of water at 65°F/18°C through a full open valve.



# Vic-Plug™ Balancing Valve

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## SERIES 377 FIGURE NUMBERING CHART

P - 080 - 2 1 1 1 - 81

Type	Size		Pressure Rating	Body Material	Plug Coating	Seat	Operator
	Nom. In./mm	Fig. No.					
P	3/80	030	2 - 175 psi	1 - Iron	1 - Nitrile - "T" 2 - EPDM - "E"	1 - Nickel	00 - Bare
	4/100	040					11 - Std. Handle with memory stop (3)
	6/150	060	9 - Special (1)	9 - Special (1)	3- Fluoroelastomer - "O"  9 - Special (1)	9 - Special (1)	81 - Gear operator with memory stop
	8/200	080					82 - Gear operator with memory stop and chainwheel
	10/250	100					89 - Special gear operator (2)
	12/300	120					

(1) Details must be supplied with order.

(2) Details of operator must be supplied with order.

(3) 3, 4, and 6/80, 100 and 150 mm only.

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**WARRANTY**

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

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**NOTE**

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.



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For complete contact information, visit [www.victaulic.com](http://www.victaulic.com)

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