

AGS Vic[®]-300 Butterfly Valves



(300 PSI/2065 KPA)

The AGS (Advanced Groove System) Vic-300 grooved end butterfly valve offers an easily installed choice to cumbersome, multi-bolt wafer or lug-type flanged valves. The valve offers excellent flow characteristics with low torque operation. The resilient EPDM seat is rated for water services up to +230°F/+110°C. For services with oil content, the valve is available with Grade "T" nitrile seat, rated for petroleum, air with oil vapors, vegetable and mineral oils up to +180°F/+82°C.

The offset disc is polyphenylene sulfide (PPS) coated for corrosion resistance. It securely retains the resilient seat for bi-directional working pressure to 300 psi/2065 kPa.

The single piece body is cast of durable ductile iron (ASTM A-536, grade 65-45-12), as is the narrow profile disc. The disc rides on a stout stainless steel (age hardened 17-4PH) cross bolt and upper and lower stems with all other wetted hardware of Series 300 stainless steel construction.

AGS Vic-300 butterfly valves 14 – 24"/350 – 600mm are available with a standard hand wheel gear operator. Memory stops and chain wheels are available options, as are electric, pneumatic or hydraulic actuators in two or three-way configurations.

AGS Vic-300 valves are designed for direct connection with Victaulic AGS grooved couplings. Request publication 20.02 for W07 AGS rigid or 20.03 for W77 AGS flexible coupling information.



WARNING

WARNING

- Victaulic AGS products use a patented groove profile that requires the use of special AGS rolls. AGS products must not be used on pipe that has been grooved using original grooving rolls.

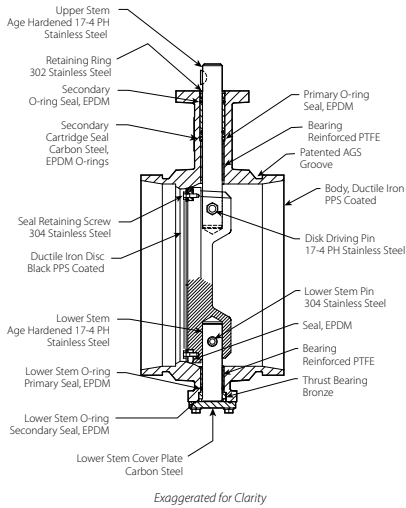
Failure to use AGS products on AGS grooved pipe could result in serious personal injury, property damage, joint leakage or joint separation.

| | | |
|------------------|--------------------|----------------------------|
| JOB/OWNER | CONTRACTOR | ENGINEER |
| System No. _____ | Submitted By _____ | Spec Sect _____ Para _____ |
| Location _____ | Date _____ | Approved _____ |
| | | Date _____ |

AGS Vic[®]-300 Butterfly Valves

(300 PSI/2065 KPA)

MATERIAL SPECIFICATIONS



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

Body Coating:

- **Exterior:** Polyphenylene sulfide (PPS) prime coat
- **Interior:** PPS top coat, UL classified in accordance with ANSI/NSF 61 for cold +86°F/+30°C and hot +180°F/+82°C potable water service

Disc: Ductile iron conforming to ASTM A-536, black PPS coated

Seat: PPS coated

Disc/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. **NOT RECOMMENDED FOR PETROLEUM SERVICES.**
- **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.

* 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-Upper/Lower: Stainless steel age hardened 17-4 PH

Bearing: Reinforced PTFE

Thrust Washer: Bronze

Disc Driving Pin: 17-4 PH stainless steel

Stem Seal: EPDM

- **Optional:** Nitrile

Bottom Cover Plate O-ring: EPDM

- **Optional:** Nitrile

Cover Plate: Steel

Gasket Retaining Segment: 304 stainless steel

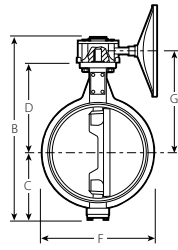
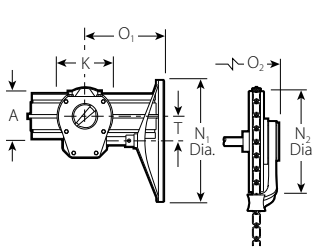
Seal Retaining Screw: 304 stainless steel

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DIMENSIONS

| Size | | Dimensions – Inches/mm | | | | | | | | | | | | Number Turns to Close | Approx. Wgt. Each lbs. kg |
|------------------------|-----------------------------------|------------------------|---------------------|--------------|--------------|--------------|--------------|--------------|----------------|----------------|----------------|----------------|-------------|-----------------------|---------------------------------|
| Nominal Size In./mm | Actual Outside Diameter In./mm | E - E A | Overall Height B | C | D | F | G | K | Handwheel | | Chain Wheel | | T | | |
| | | | | | | | | | N ₁ | O ₁ | N ₂ | O ₂ | | | |
| 14 350 | 14.000 355.6 | 10.00 254 | 26.17 665 | 9.68 246 | 12.89 327 | 16.00 406 | 14.54 369 | 7.87 200 | 19.70 500 | 12.86 327 | 21.50 546 | 16.00 406 | 3.02 77 | 9.5 | 156.0 70.8 |
| 16 400 | 16.000 406.4 | 10.50 267 | 29.00 737 | 10.94 278 | 14.10 358 | 18.00 457 | 15.99 406 | 8.66 220 | 19.70 500 | 14.34 364 | 21.50 546 | 17.47 444 | 3.38 86 | 13.75 | 201.0 91.2 |
| 18 450 | 18.000 457.0 | 11.00 279 | 32.17 817 | 12.31 313 | 15.00 381 | 20.00 508 | 17.17 436 | 11.22 285 | 27.60 700 | 15.55 395 | 30.00 762 | 18.68 474 | 4.38 111 | 21 | 269.5 122.2 |
| 20 500 | 20.000 508.0 | 11.50 292 | 36.23 920 | 14.06 357 | 16.10 409 | 23.00 584 | 18.27 464 | 11.22 285 | 27.60 700 | 18.43 468 | 30.00 762 | 21.60 549 | 5.38 137 | 52 | 384.2 174.3 |
| 24 600 | 24.000 610.0 | 12.00 305 | 42.41 1017 | 16.06 408 | 20.10 511 | 26.70 678 | 22.42 569 | 14.57 370 | 27.60 700 | 20.51 521 | 30.00 762 | 23.60 599 | 5.38 137 | 79.25 | 605.0 274.4 |



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DIMENSIONS

| Size | | Dimensions – Inches/mm | | | | | | | | | | | Approx. Wgt. Each |
|------------------------|-------------------------------|------------------------|---------------------|--------------|--------------|-------------|--------------|--------------|----------------|----------------|------------|----------------|-------------------|
| Nominal Size In./mm | Actual Outside Dia. In./mm | End to End A | Overall Height B | C | D | E | F | G | Mounting | | | lbs. kg | |
| | | | | | | | | | H ₁ | H ₂ | I Dia. | | |
| 14 350 | 14.000 355.6 | 10.00 254 | 24.45 621 | 9.68 246 | 12.89 327 | 1.16 29 | 16.00 406 | 14.77 375 | 4.96 126 | 0.578 15 | 1.38 35 | 125.0 56.7 | |
| 16 400 | 16.000 406.4 | 10.50 267 | 27.14 689 | 10.94 278 | 14.10 358 | 1.90 48 | 18.00 457 | 16.20 412 | 4.96 126 | 0.578 15 | 1.50 38 | 153.0 69.4 | |
| 18 450 | 18.000 457.0 | 11.00 279 | 29.56 751 | 12.31 313 | 15.00 381 | 2.64 59 | 20.00 508 | 17.25 438 | 4.96 126 | 0.578 15 | 1.75 45 | 199.0 90.3 | |
| 20 500 | 20.000 508.0 | 11.50 292 | 32.64 829 | 14.06 357 | 16.10 409 | 3.42 87 | 23.00 584 | 18.58 472 | 5.51 140 | 0.672 17 | 2.00 51 | 285.0 129.3 | |
| 24 600 | 24.000 610.0 | 12.00 305 | 38.89 988 | 16.06 408 | 20.10 511 | 5.17 131 | 26.70 678 | 22.83 580 | 6.50 165 | 0.844 21 | 2.25 57 | 451.0 204.6 | |

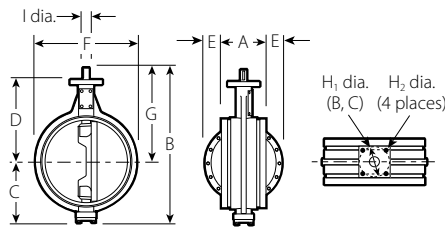
† MOUNTING KEY:

- 14"/350 mm – 3/8 Sq. x 1 7/8
- 16"/400 mm – 3/8 Sq. x 2 1/2
- 18"/450 mm – (2) 3/8 Sq. x 2
- 20"/500 mm – (2) 1/2 Sq. x 2 1/4
- 24"/600 mm – (2) 5/8 Sq. x 3

IMPORTANT NOTES:

Dimensions provided without operator are for sizing data only. The AGS Vic-300 should never be installed without operators.

The AGS Vic-300 valves have longer E to E dimensions and AGS groove dimensions and cannot be used to replace existing Series 706 butterfly valves.



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PERFORMANCE

The AGS Vic-300 butterfly valves have excellent flow characteristics due to the narrow profile disc design with separate upper and lower stems.

C_v values for flow of water at +60°F/+16°C with various disc positions are shown in the tables 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)

ΔP = Pressure Drop (psi)

C_v = Flow Coefficient

| Size | | C _v (Full Open) | Size | | C _v (Full Open) | Size | | C _v (Full Open) |
|---------------------|----------------------------|-------------------------------|---------------------|----------------------------|-------------------------------|---------------------|----------------------------|-------------------------------|
| Nominal Size In./mm | Actual Outside Dia. In./mm | | Nominal Size In./mm | Actual Outside Dia. In./mm | | Nominal Size In./mm | Actual Outside Dia. In./mm | |
| 14 350 | 14.000 355.6 | 9360 | 18 450 | 18.000 457.0 | 15900 | 24 600 | 24.000 610.0 | 28900 |
| 16 400 | 16.000 406.4 | | 20 500 | 20.000 508.0 | | 19800 | | |

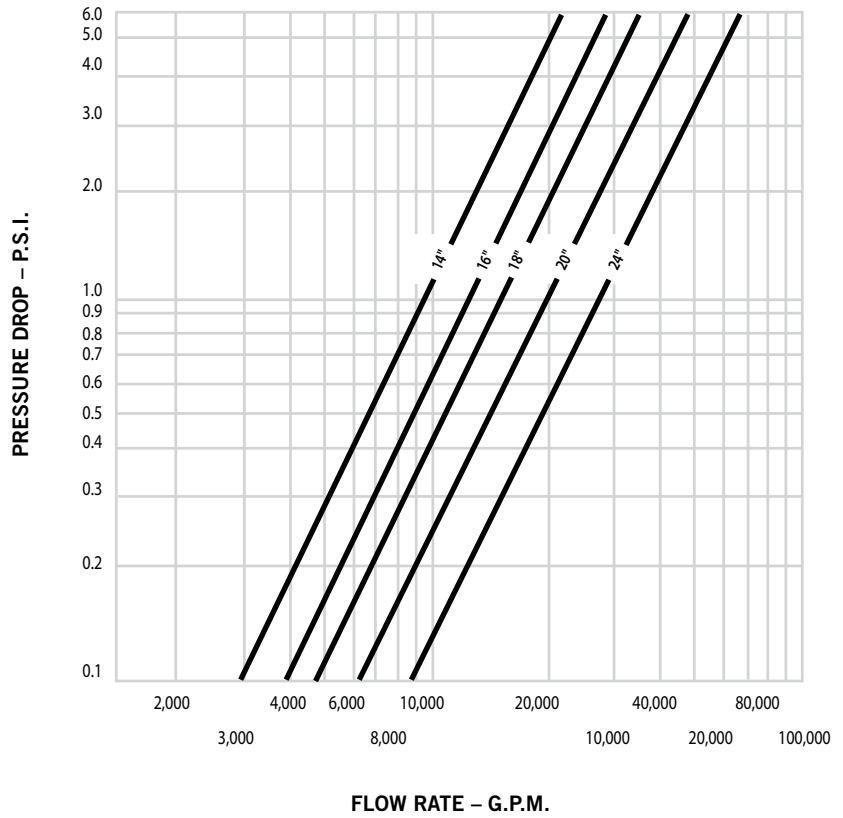
| Size | | FLOW COEFFICIENTS – C _v | | | | | | | | | |
|------------------------|-------------------------------|---|---|---|---|---|-------|------|------|------|------|
| Nominal Size Inches/mm | Actual Outside Dia. Inches/mm | Disc Position (Degrees open) | | | | | | | | | |
| | | 70° | 60° | 50° | 40° | 30° | | | | | |
| 14 350 | 14.000 355.6 |  |  |  |  |  | 4350 | 3040 | 2130 | 1490 | 900 |
| 16 400 | 16.000 406.4 | | | | | | 5680 | 3940 | 2730 | 1880 | 1130 |
| 18 450 | 18.000 457.2 | | | | | | 7200 | 4970 | 3420 | 2340 | 1400 |
| 20 500 | 20.000 508.0 | | | | | | 8810 | 6010 | 4080 | 2740 | 1610 |
| 24 600 | 24.000 609.6 | | | | | | 12700 | 8580 | 5760 | 3800 | 2210 |

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FLOW CHARACTERISTICS

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



AGS Vic[®]-300 Butterfly Valves

(300 PSI/2065 KPA)

MAXIMUM ALLOWABLE PRESSURE DROPS

| Size | | Maximum Allowable Pressure Drops – psi/kPa | | | | | |
|---------------------------|--------------------------------------|--|-----|-----|-----|-----|-----|
| Nominal Size Inches/mm | Actual Outside Diameter Inches/mm | Disc Position (Degrees Open) | | | | | |
| | | 90° | 70° | 60° | 50° | 40° | 30° |
| 14 | 14.000 | 0.54 | 2.5 | 5.1 | 10 | 21 | 59 |
| 350 | 355.6 | 4 | 17 | 35 | 69 | 145 | 407 |
| 16 | 16.000 | 0.54 | 2.6 | 5.4 | 11 | 24 | 65 |
| 400 | 406.4 | 4 | 18 | 37 | 76 | 165 | 448 |
| 18 | 18.000 | 0.54 | 2.6 | 5.5 | 12 | 25 | 70 |
| 450 | 457.0 | 4 | 18 | 38 | 83 | 172 | 483 |
| 20 | 20.000 | 0.54 | 2.7 | 5.8 | 13 | 28 | 81 |
| 500 | 508.0 | 4 | 19 | 40 | 90 | 193 | 558 |
| 24 | 24.000 | 0.54 | 2.8 | 6.1 | 14 | 31 | 82 |
| 600 | 610.0 | 4 | 19 | 42 | 97 | 214 | 565 |

WARNING



WARNING

Failure to follow instructions, operating restrictions and warnings can result in serious personal injury and damage to the equipment.

- Do not exceed the maximum allowable pressure drop (psi) as described in the table above.

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MAXIMUM ALLOWABLE FLOW RATES

The maximum allowable flow rate has been determined using the maximum allowable pressure drop and the C_v values. The AGS Vic-300 butterfly valves are rated to the full valve working pressure for ON-OFF service. To ensure proper operation of the valves when the valves are open, flow through the valves should not exceed the values in the tables below.

| Size | | Maximum Allowable Flow Rates – gpm/lpm | | | | | |
|---------------------------|--------------------------------------|--|-------|-------|-------|-------|-------|
| Nominal Size Inches/mm | Actual Outside Diameter Inches/mm | Disc Position (Degrees Open) | | | | | |
| | | 90° | 70° | 60° | 50° | 40° | 30° |
| 14 | 14.000 | 6880 | 6890 | 6900 | 6910 | 6910 | 6890 |
| 350 | 355.6 | 26050 | 26090 | 26130 | 26160 | 26160 | 26090 |
| 16 | 16.000 | 9120 | 9120 | 9130 | 9140 | 9130 | 9140 |
| 400 | 406.4 | 34530 | 34530 | 34570 | 34610 | 34570 | 34610 |
| 18 | 18.000 | 11700 | 11700 | 11700 | 11700 | 11700 | 11800 |
| 450 | 457.0 | 44300 | 44300 | 44300 | 44300 | 44300 | 44680 |
| 20 | 20.000 | 14600 | 14600 | 14600 | 14600 | 14600 | 14600 |
| 500 | 508.0 | 55280 | 55280 | 55280 | 55280 | 55280 | 55280 |
| 24 | 24.000 | 21300 | 21300 | 21200 | 21200 | 21200 | 17400 |
| 600 | 610.0 | 80650 | 80650 | 80270 | 80270 | 80270 | 65880 |

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VALVE TORQUE REQUIREMENTS

AGS Vic-300 valves have low torque requirements for operating the valve. This results in less manual effort, smaller gear operators or smaller actuators to open and close the valve.

| Size | | Operation Torques Inch Pounds psi/Newton Meters per kPa | | | | | |
|---------------------------|--------------------------------------|--|------|------|------|-----|-----|
| Nominal Size Inches/mm | Actual Outside Diameter Inches/mm | Disc Position (Degrees Open) | | | | | |
| | | 90° | 70° | 60° | 50° | 40° | 30° |
| 14 | 14.000 | 620 | 460 | 270 | 140 | 110 | 90 |
| 350 | 355.6 | 10.2 | 7.5 | 4.4 | 2.3 | 1.8 | 1.5 |
| 16 | 16.000 | 970 | 710 | 420 | 220 | 160 | 130 |
| 400 | 406.4 | 15.9 | 11.6 | 6.9 | 3.6 | 2.6 | 2.1 |
| 18 | 18.000 | 1430 | 1050 | 620 | 330 | 240 | 200 |
| 450 | 457.0 | 23.5 | 17.2 | 10.2 | 5.4 | 3.9 | 3.3 |
| 20 | 20.000 | 2050 | 1500 | 890 | 470 | 340 | 280 |
| 500 | 508.0 | 33.6 | 24.6 | 14.6 | 7.7 | 5.6 | 4.6 |
| 24 | 24.000 | 3700 | 2700 | 1600 | 830 | 600 | 490 |
| 600 | 610.0 | 60.7 | 44.3 | 26.2 | 13.6 | 9.8 | 8.0 |



WARNING

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- Do not exceed the maximum allowable pressure drop (psi) as described in the table above.

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VALVE TORQUE REQUIREMENTS

Source:

These torque values were derived from test data with non-lubricated valves in water at ambient temperatures with EPDM seals. For other material and service conditions, apply a suitable service factor.

Torque Factors:

All torque values are for normal conditions (i.e. the valve is operated at least once a quarter, disc corrosion is expected to be minor, the media is clean and non-abrasive, and the chemical effects upon the elastomer are minor).

Typical fluid torque factors commonly used in the industry are:

Water: 1.0; Lubricated service: 0.8; Dry gases: Lubricated nitrile "T" seat seals are recommended for dry gases wherever chemically appropriate. See material torque factor below.

Material Torque Factors:

"E" = 1.0; "O" = 1.2; "T" = 0.8

Cycling Factor:

Torque will typically increase as the valve is cycled. A factor of 1.5 should be applied for the first 5000 cycles and another 1.5 applied for all additional cycles. The higher number should be used if there are more than one cycle per hour.

Actuation Factor:

There are no actuation safety factors applied. A factor consistent with the consequences of not actuating should be applied. A minimum factor of 1.2 is recommended for directly actuated valves and 1.5 for 3-way assemblies.

Combining Torque Factors:

When multiple torque factors apply, they are combined by multiplying them. Example: For an EPDM seal and a 5000 cycle factor the combined factor would be $1.0 \times (1.5) = 1.5$.

Note:

Under certain high flow conditions, the hydrodynamic torque can exceed the seating torque. Large butterfly valves are not recommended for use in a free discharge condition, such as filling an empty line with fluid at the full rated pressure.

Contact Victaulic for other services.

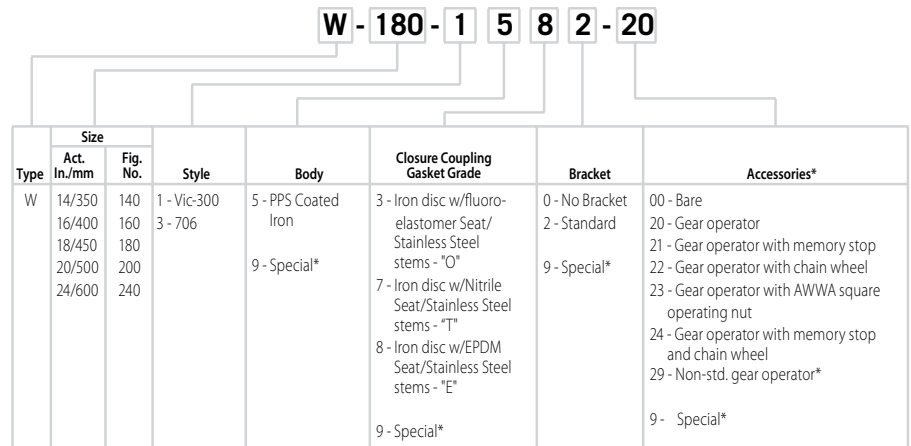
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VALVE TORQUE REQUIREMENTS

| Size | | Seating/Unseating Torque Inch Pounds/Newton Meters | | | | | | |
|------------------------|-----------------------------------|---|--------|---------|----------|----------|----------|----------|
| Nominal Size In./mm | Actual Outside Diameter In./mm | Differential Pressure - psi/kPa | | | | | | |
| | | 0/0 | 50/345 | 100/690 | 150/1035 | 175/1200 | 235/1620 | 300/2070 |
| 14 | 14.000 | 2970 | 3830 | 4600 | 5000 | 5500 | 7400 | 9660 |
| 350 | 355.6 | 335.6 | 432.7 | 519.8 | 565.0 | 621.5 | 836.2 | 1091.6 |
| 16 | 16.000 | 3875 | 4820 | 5620 | 6000 | 6500 | 10000 | 15200 |
| 400 | 406.4 | 437.8 | 544.6 | 635.1 | 678.0 | 734.5 | 1130.0 | 1717.6 |
| 18 | 18.000 | 4900 | 6005 | 6820 | 7100 | 7500 | 14000 | 25000 |
| 450 | 457.0 | 553.6 | 678.5 | 770.7 | 802.3 | 847.5 | 1582.0 | 2825.0 |
| 20 | 20.000 | 6060 | 7310 | 10200 | 14000 | 17500 | 27500 | 46400 |
| 500 | 508.8 | 684.7 | 825.9 | 1152.6 | 1582.0 | 1977.5 | 3107.5 | 5243.2 |
| 24 | 24.000 | 8720 | 10130 | 14800 | 20000 | 24000 | 48000 | 102000 |
| 600 | 610.0 | 985.2 | 1144.5 | 1672.4 | 2260.0 | 2712.0 | 5424.0 | 11526.0 |

NUMBERING SYSTEM



*Details required

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WARRANTY

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

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.



WCAS-75XSEM

For complete contact information, visit www.victaulic.com

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