

Victaulic® AGS Flexible Coupling

Style W77



14 – 24"/DN350 – DN600 sizes
Patented



26 – 60"/DN650 – DN1500 sizes
Patented



62 – 78"/DN1550 – DN1950 sizes
Patented



1.0 PRODUCT DESCRIPTION

Available Sizes

- 14 – 78"/DN350 - DN1950

Maximum Working Pressure

- 14 – 24"/DN350 – DN600: 350 psi/2413 kPa
- 26 – 42"/DN650 – DN950: 300 psi/2068 kPa
- 44 – 50"/DN1100 – DN1250: 232 psi/1599 kPa
- 54 – 62"/DN1350 – DN1550: 175 psi/1206 kPa
- 72"/DN1800: 125 psi/861 kPa
- 78"/DN1950: 100 psi/689 kPa

Function

- Unique wedge-shaped key profile increases allowable pipe end separation, resulting in easier assembly
- Style W77 AGS coupling in 26 – 78"/DN650 – DN1950 sizes, features lifting lugs integrated into the housings to help ease handling during installation.
- Provide limited linear and angular pipe movement at the pipe joint that can be used to compensate for thermal growth of piping systems, vibration attenuation, seismic, differential settlement and other applications requiring flexibility.

NOTES

- Style W77 AGS couplings are provided with FlushSeal™ gaskets for a variety of services. Please specify gasket grade when ordering. Please refer to [publication 05.01](#) for gasket service ratings.
- Style W77 AGS flexible couplings can also be used on abrasive/slurry services in combination with an AGS *Vic-Ring*. See [publication 16.12](#).

2.0 CERTIFICATION/LISTINGS



NOTES

- Sizes 377mm, 426mm and 480mm are not UL, NSF and FM approved.
- See [publication 02.06](#): Victaulic Potable Water Approvals ANSI/NSF for potable water approvals if applicable.
- Download [publication 10.01](#) for Fire Protection Certifications/Listings Reference Guide.

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

Housing: Ductile iron conforming to ASTM A536, Grade 65-45-12. Ductile iron conforming to ASTM A395, Grade 65-45-15 available upon special request.

Housing Coating: (specify choice)

- Standard: Orange enamel.
- Optional: Hot dipped galvanized and others.
- Optional: Fusion Bonded Epoxy.

NOTE

- For additional coating options contact Victaulic.

Coupling Gasket: (specify choice¹)

Victaulic Grade “E” FlushSeal™ EPDM

EPDM (Green stripe color code). Temperature range –30°F to +230°F/–34°C to +110°C. May be specified 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 +73°F/+23°C and hot +180°F/+82°C potable water service and ANSI/NSF 372. **NOT COMPATIBLE FOR USE WITH PETROLEUM SERVICES OR STEAM SERVICES.**

Victaulic Grade “T” FlushSeal™ Nitrile

Nitrile (Orange color code). Temperature range –20°F to +180°F/–29°C to +82°C. May be specified for oil related services, including air with oil vapor, this gasket may be specified for temperatures rated up to +180°F/+82°C. For water related services, this gasket may be specified for temperatures rated up to +150°F/+66°C. For oil free, dry air services, this gasket may be specified for temperatures rated up to +140°F/+60°C. **NOT COMPATIBLE FOR USE WITH HOT WATER SERVICES OR STEAM SERVICES.**

Victaulic Grade “L” FlushSeal™ Silicone

Silicone (Red color code). Temperature range –30°F to +350°F/–34° C to +177° C. May be specified for dry heat, air without hydrocarbons to +350°F/+177°C and certain chemical services.

Others

For alternate gasket selection, reference [publication 05.01](#): Victaulic Seal Selection Guide - Elastomeric Seal Construction.

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 Seal Selection Guide](#) for specific gasket service guidelines and for a listing of services which are not compatible.

Bolts/Nuts: (specify choice²)

Standard: Carbon steel oval neck track bolts meeting the mechanical property requirements of ASTM A449 (imperial) and ISO 898-1 Class 9.8 (M10-M16) Class 8.8 (M20 and greater). Carbon steel hex nuts meeting the mechanical property requirements of ASTM A563 Grade B (imperial - heavy hex nuts) and ASTM A563M Class 9 (metric - hex nuts). Track bolts and hex nuts are zinc electroplated per ASTM B633 FE/ZN5, finish Type III (imperial) or Type II (metric).

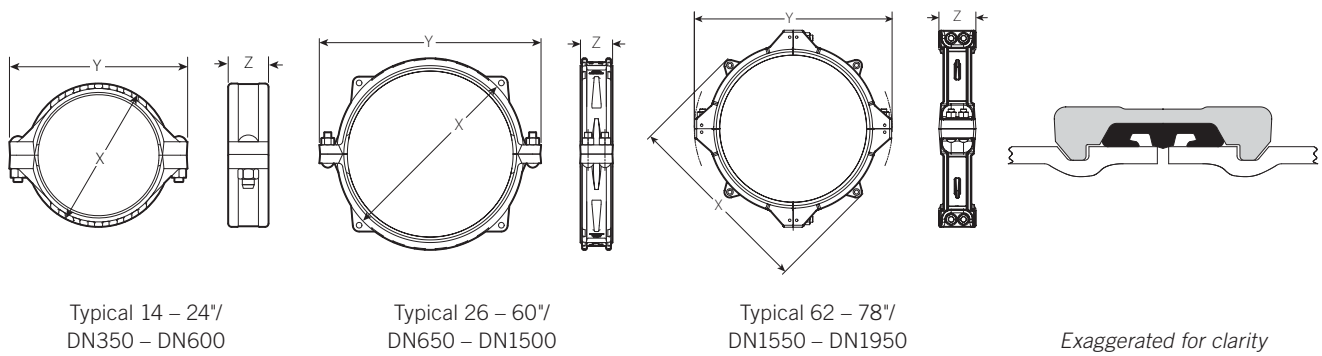
Optional: Stainless steel oval neck track bolts or studs meeting the mechanical property requirements of ASTM A193 Grade B8M, Class 2 (316 stainless steel). Stainless steel heavy hex nuts meeting the mechanical property requirements of ASTM A194 Grade 8M (316 stainless steel) with galling reducing coating.

For 26 – 78”/DN650 – DN1950 sizes:

Washers: Plated carbon steel, flat. SAE high strength conforming to ASTM F436 or high strength stainless steel.

² Optional bolts/nuts are available in imperial and metric sizes.

4.0 DIMENSIONS

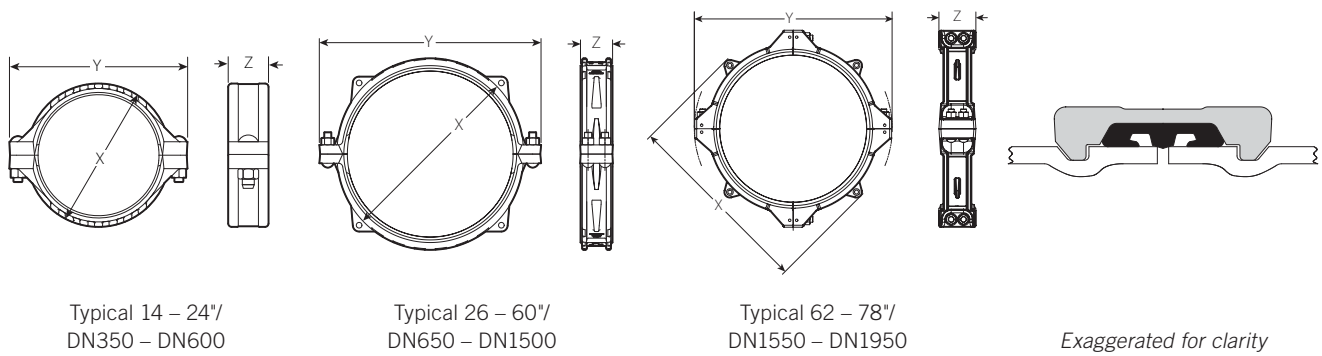


Size		Pipe End Separation	Deflect. From CL		Bolt/Nut		Dimensions			Weight
Nominal inches DN	Actual Outside Diameter inches mm	Allowable inches mm	Per Cplg. Deg.	in/ft mm/m	Qty.	Size inches	X inches mm	Y inches mm	Z inches mm	Approximate (Each) lb kg
14 DN350	14.000 355.6	0.13 - 0.31 3.3 - 7.9	0.73	0.15 13	2	1 x 5 1/2	16.00 406	20.63 524	4.50 114	48.0 21.8
	14.843 377.0	0.13 - 0.31 3.3 - 7.9	0.69	0.14 12	2	M24 X 139.7	16.84 428	21.44 545	4.54 115	52.6 23.9
16 DN400	16.000 406.4	0.13 - 0.31 3.3 - 7.9	0.63	0.13 11	2	1 x 5 1/2	18.25 464	22.00 559	4.50 114	58.0 26.3
	16.772 426.0	0.13 - 0.31 3.3 - 7.9	0.61	0.13 11	2	M24 X 139.7	18.95 481	23.47 596	4.55 116	63.1 28.6
18 DN450	18.000 457.0	0.13 - 0.31 3.3 - 7.9	0.57	0.12 10	2	1 x 5 1/2	20.38 518	25.50 648	4.50 114	65.0 29.5
	18.898 480.0	0.13 - 0.31 3.3 - 7.9	0.54	0.11 9	2	M24 X 139.7	25.72 653	21.26 540	4.55 116	75.7 34.3
20 DN500	20.000 508.0	0.13 - 0.31 3.3 - 7.9	0.50	0.10 9	2	1 1/8 x 5 1/2	22.63 575	27.13 689	4.50 114	82.0 37.2
	22 DN550	22.000 559.0	0.13 - 0.31 3.3 - 7.9	0.50	0.10 9	2	1 1/8 x 6	24.75 629	29.25 743	4.50 114
24 DN600	24.000 610.0	0.13 - 0.31 3.3 - 7.9	0.42	0.09 8	2	1 1/8 x 5 1/2	26.88 683	31.25 794	4.50 114	107.0 48.5
	26 DN650	26.000 660.4	0.15 - 0.53 3.8 - 13.5	0.83	0.18 15	4	1 1/8 x 6	30.13 765	35.25 895	5.75 146
28 DN700	28.000 711.2	0.15 - 0.53 3.8 - 13.5	0.78	0.16 14	4	1 1/8 x 6	32.25 819	37.25 946	5.75 146	220.0 99.8
	30 DN750	30.000 762.0	0.15 - 0.53 3.8 - 13.5	0.73	0.16 13	4	1 1/4 x 7	33.88 863	39.63 1007	5.75 146
32 DN800	32.000 812.8	0.15 - 0.53 3.8 - 13.5	0.68	0.14 11	4	1 1/4 x 7	36.13 918	41.75 1060	5.75 146	242.0 109.8
	34 DN850	34.000 865.0	0.15 - 0.53 3.8 - 13.5	0.69	0.13 11	4	1 1/4 x 7	38.25 972	43.75 1111	5.75 146
36 DN900	36.000 914.4	0.15 - 0.53 3.8 - 13.5	0.60	0.13 11	4	1 1/4 x 7	40.25 1022	45.75 1161	5.75 146	268.0 121.6

NOTES

- WARNING: FOR ONE TIME FIELD TEST ONLY, the Maximum Joint Working Pressure may be increased to 1 1/2 times the figures shown.
- Metric thread size bolts are available (color coded gold) for all coupling sizes upon request. Contact Victaulic for details.
- The outside diameter, ovality, and surface finish including flat spots and imperfections shall not vary more than the limits of API 5L end tolerance.
- See [publication 25.09](#): Advanced Groove System (AGS) Roll Groove Specifications for proper groove specifications.
- Additional wall thicknesses available. For performance on additional pipe wall thicknesses contact Victaulic.
- For additional pipe sizes, please contact Victaulic.

4.0 DIMENSIONS (Continued)



Typical 14 – 24"
DN350 – DN600

Typical 26 – 60"
DN650 – DN1500

Typical 62 – 78"
DN1550 – DN1950

Exaggerated for clarity

Size		Pipe End Separation	Deflect. From CL		Bolt/Nut		Dimensions			Weight
Nominal inches DN	Actual Outside Diameter inches mm	Allowable inches mm	Per Cplg. Deg.	in/ft mm/m	Qty.	Size inches	X inches mm	Y inches mm	Z inches mm	Approximate (Each) lb kg
38 DN950	38.000 965.0	0.15 – 0.53 3.8 – 13.5	0.57	0.13 11	4	1 ¼ x 7	44.00 1117	50.50 1283	6.50 165	340.0 154.2
40 DN1000	40.000 1016.0	0.21 – 0.59 5.3 – 15.0	0.55	0.12 10	4	1 ½ x 8	44.00 1117	50.50 1283	6.50 165	340.0 154.2
42 DN1050	42.000 1066.8	0.21 – 0.59 5.3 – 15.0	0.52	0.11 9	4	1 ½ x 8	46.00 1168	52.50 1334	6.50 165	360.0 163.3
44 DN1100	44.000 1117.6	0.21 – 0.59 5.3 – 15.0	0.49	0.10 8	4	1 ½ x 8	50.25 1277	56.50 1435	6.50 165	390.0 176.9
46 DN1150	46.000 1168.4	0.21 – 0.59 5.3 – 15.0	0.47	0.10 8	4	1 ½ x 8	50.25 1277	56.50 1435	6.50 165	415.0 188.2
48 DN1200	48.000 1219.2	0.21 – 0.59 5.3 – 15.0	0.45	0.10 8	4	1 ½ x 8	52.25 1328	58.50 1486	6.50 165	425.0 192.8
50 DN1250	50.000 1270.0	0.21 – 0.59 5.3 – 15.0	0.43	0.09 8	4	1 ½ x 8	53.63 1362	60.88 1546	10.00 254	500.0 227.0
54 ³ DN1350	54.000 1371.6	0.28 – 0.66 7.1 – 16.8	0.40	0.08 7	4	1 ½ x 7	59.00 1499	65.13 1655	10.00 254	648.0 293.9
56 ³ DN1400	56.000 1422.2	0.28 – 0.66 7.1 – 16.8	0.38	0.08 7	4	1 ½ x 7	61.00 1550	67.63 1718	10.00 254	676.0 306.6
60 ³ DN1500	60.000 1524.0	0.28 – 0.66 7.1 – 16.8	0.36	0.08 7	4	1 ½ x 7	65.00 1652	72.13 1832	10.00 254	720.0 326.6
62 ³ DN1550	62.000 1574.8	0.28 – 0.66 7.1 – 16.8	0.35	0.07 6	8	1 ½ x 7	67.25 1709	73.63 1870	10.00 254	956.0 433.6
64 ³ DN1600	64.000 1625.6	0.28 – 0.66 7.1 – 16.8	0.35	0.07 6	8	1 ½ x 7	69.58 1767	75.81 1926	10.00 254	956.0 433.6
72 ³ DN1800	72.000 1828.8	0.28 – 0.66 7.1 – 16.8	0.30	0.06 5	8	1 ½ x 7 ½	75.00 1905	85.00 2159	10.00 254	1140.0 518.0
78 DN1950	78.000 1981.2	0.28 – 0.66 7.1 – 16.8	0.28	0.06 5	8	1 ½ x 7 ½	83.40 2118	89.81 2281	10.00 254	1400.0 635.0

³ Style W77N coupling.

NOTES

- WARNING: FOR ONE TIME FIELD TEST ONLY, the Maximum Joint Working Pressure may be increased to 1 ½ times the figures shown.
- Metric thread size bolts are available (color coded gold) for all coupling sizes upon request. Contact Victaulic for details.
- The outside diameter, ovality, and surface finish including flat spots and imperfections shall not vary more than the limits of API 5L end tolerance.
- See [publication 25.09](#): Advanced Groove System (AGS) Roll Groove Specifications for proper groove specifications.
- Additional wall thicknesses available. For performance on additional pipe wall thicknesses contact Victaulic.
- For additional pipe sizes, please contact Victaulic.

5.0 PERFORMANCE

Style W77

Size		Maximum Working Pressure			Max. End Load ⁵ lb N
Nominal inches DN	Actual Outside Diameter inches mm	Light Wall ⁴ psi kPa	Std. Wall psi kPa	Extra Heavy ½ – ¾" 13–19mm psi kPa	
14 DN350	14.000	350	350	350	55800
	355.6	2413	2413	2413	248310
	14.843	350	350	350	60562
	377.0	2413	2413	2413	269393
16 DN400	16.000	350	350	350	72885
	406.4	2413	2413	2413	324209
	16.772	350	350	350	77326
	426.0	2413	2413	2413	343963
18 DN450	18.000	350	350	350	92245
	457.0	2413	2413	2413	410326
	18.898	350	350	350	98172
	480.0	2413	2413	2413	436691
20 DN500	20.000	350	350	350	113880
	508.0	2413	2413	2413	506563
22 DN550	22.000	350	350	350	133046
	559.0	2413	2413	2413	591818
24 DN600	24.000	225	350	350	163990 ⁶
	610.0	1551	2413	2413	729464 ⁶
26 DN650	26.000	300	300	300	159279
	660.4	2068	2068	2068	708508
28 DN700	28.000	300	300	300	184726
	711.2	2068	2068	2068	821702
30 DN750	30.000	300	300	300	212058
	762.0	2068	2068	2068	943281
32 DN800	32.000	300	300	300	241274
	812.8	2068	2068	2068	1073240
34 DN850	34.000	300	300	300	272375
	865.0	2068	2068	2068	1211584
36 DN900	36.000	300	300	300	305363
	914.4	2068	2068	2068	1358322

⁴ Light Wall for 14"/DN350 = 0.22"/5.6mm; 16 – 24"/DN400 – DN600 = 0.25"/6.4mm, 26 – 50"/DN650 – DN1250 = 0.312"/7.9mm
Light Wall for 377mm = 0.217"/5.5mm; 426mm = 0.256"/6.5mm; 480mm = 0.256"/6.5mm

⁵ End loads are total from all internal and external loads, based on carbon steel pipe, rolled with Victaulic AGS rolls in accordance with [Victaulic AGS roll groove specifications](#). Contact Victaulic for performance on other pipe.

⁶ The end load for 24"/DN600 installed on light wall pipe is 101790lbs/456426N.

NOTES

- WARNING: FOR ONE TIME FIELD TEST ONLY, the Maximum Joint Working Pressure may be increased to 1 ½ times the figures shown.
- Metric thread size bolts are available (color coded gold) for all coupling sizes upon request. Contact Victaulic for details.
- The outside diameter, ovality, and surface finish including flat spots and imperfections shall not vary more than the limits of API 5L end tolerance.
- See [publication 25.09](#): Advanced Groove System (AGS) Roll Groove Specifications for proper groove specifications.
- Additional wall thicknesses available. For performance on additional pipe wall thicknesses contact Victaulic.
- For additional pipe sizes, please contact Victaulic.

5.0 PERFORMANCE (Continued)

Style W77

Size		Maximum Working Pressure			Max. End Load ⁵ lb N
Nominal inches DN	Actual Outside Diameter inches mm	Light Wall ⁴ psi kPa	Std. Wall psi kPa	Extra Heavy ½ – ¾" 13–19mm psi kPa	
38 DN950	38.000 965.0	300 2068	300 2068	300 2068	340235 1513440
40 DN1000	40.000 1016.0	300 2068	300 2068	300 2068	376991 1676940
42 DN1050	42.000 1066.8	300 2068	300 2068	300 2068	415632 1848823
44 DN1100	44.000 1117.6	232 1599	232 1599	232 1599	352763 1569168
46 DN1150	46.000 1168.4	232 1599	232 1599	232 1599	385561 1715061
48 DN1200	48.000 1219.2	232 1599	232 1599	232 1599	419820 1867452
50 DN1250	50.000 1270.0	232 1599	232 1599	232 1599	455530 2026298
54 ⁷ DN1350	54.000 1371.6	175 1206	175 1206	175 1206	400790 1782802
56 ⁷ DN1400	56.000 1422.2	175 1206	175 1206	175 1206	431030 1917317
60 ⁷ DN1500	60.000 1524.0	175 1206	175 1206	175 1206	494800 2200980
62 ⁷ DN1550	62.000 1574.8	–	175 1206	175 1206	528340 2350173
64 ⁷ DN1600	64.000 1625.6	–	175 1206	175 1206	528340 2350173
72 ⁷ DN1800	72.000 1828.8	–	125 861	125 861	509000 2264145
78 DN1950	78.000 1981.2	–	100 689	100 689	477836 2125520

⁴ Light Wall for 14"/DN350 = 0.22"/5.6mm; 16 – 24"/DN400 – DN600 = 0.25"/6.4mm, 26 – 50"/DN650 – DN1250 = 0.312"/7.9mm

⁵ End loads are total from all internal and external loads, based on carbon steel pipe, rolled with Victaulic AGS rolls in accordance with [Victaulic AGS roll groove specifications](#). Contact Victaulic for performance on other pipe.

⁶ The end load for 24"/DN600 installed on light wall pipe is 101790 lbs/456426 N.

⁷ Style W77N coupling.

NOTES

- WARNING: FOR ONE TIME FIELD TEST ONLY, the Maximum Joint Working Pressure may be increased to 1 ½ times the figures shown.
- Metric thread size bolts are available (color coded gold) for all coupling sizes upon request. Contact Victaulic for details.
- The outside diameter, ovality, and surface finish including flat spots and imperfections shall not vary more than the limits of API 5L end tolerance.
- See [publication 25.09](#): Advanced Groove System (AGS) Roll Groove Specifications for proper groove specifications.
- Additional wall thicknesses available. For performance on additional pipe wall thicknesses contact Victaulic.
- For additional pipe sizes, please contact Victaulic.

5.1 PERFORMANCE

Torque Requirements

Nominal Pipe Size inches DN	Required Torque ft. lbs. N•m
14, 16, 18 350, 400, 450	250 340
377, 426, 480mm	250 340
20, 22, 24, 26, 28 500, 550, 600, 650, 700	375 500
30, 32, 34, 36, 38 750, 800, 850, 900, 950	500 680
40, 42, 44, 46, 48, 50, 54, 56, 58, 60, 62, 64, 72, 78 1000, 1050, 1100, 1150, 1200, 1250, 1350, 1450, 1500, 1550, 1600, 1800, 1950	600 813

6.0 NOTIFICATIONS

WARNING

- When grooving pipe for use with AGS products, Victaulic roll grooving tools must be equipped with AGS roll sets (RW for steel or RWX for stainless steel).
- RWX grooving rolls are identified by a silver color and the designation "RWX" on the front of the roll sets.
- Victaulic AGS products MUST NOT be installed on pipe that is prepared with original-type grooving roll sets.
- To ensure proper pipe end preparation refer to [publication 25.09](#) for AGS (Advanced Groove System) roll groove pipe specifications.

Failure to follow these instructions will cause grooves that are not within Victaulic AGS specifications, resulting in joint failure, serious personal injury, and property damage.

7.0 REFERENCE MATERIALS

- [02.06: Victaulic® Potable Water Approvals ANSI/NSF](#)
- [05.01: Victaulic® Seal Selection Guide](#)
- [16.12: Victaulic® AGS Vic-Ring Systems](#)
- [20.05: Victaulic® AGS Grooved End Fittings](#)
- [24.01: Victaulic® Pipe Preparation Tool Specifications](#)
- [25.09: Victaulic® AGS Roll Groove Specifications](#)
- [26.01: Victaulic® Design Data](#)
- [29.01: Victaulic® Terms and Conditions/Warranty](#)
- [I-100: Victaulic® Field Installation Handbook](#)
- [I-ENDCAP: Victaulic® End Caps Installation Instructions](#)

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, and the applicable building codes and related regulations 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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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.

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.

Warranty

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

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