

Victaulic® QuickVic™ Flexible Coupling

Style 177N



1.0 PRODUCT DESCRIPTION

Available Sizes

- 2 – 8"/50 – 200 mm

Maximum Working Pressure

- Accommodates pressures ranging from full vacuum (29.9 in Hg/760 mm Hg) up to 1000 psi/6900 kPa.
- Working pressure dependent on material, wall thickness and size of pipe.

Applications

- Features Installation-Ready™ Technology.
- Joins roll or cut grooved pipe, grooved fittings, valves, and accessories.
- Provides a flexible pipe joint designed to accommodate a limited amount of linear and/or angular movement.

Pipe Preparation

- Cut or roll grooved in accordance with [Submittal 25.01](#): Victaulic Standard Groove Specifications.

2.0 CERTIFICATION/LISTINGS



NOTES

- See [submittal 10.01](#): Victaulic Products for Fire Protection Piping Systems - Regulatory Approval Reference Guide for details.
- See [submittal 02.06](#): Victaulic Potable Water Approvals ANSI/NSF for potable water approvals if applicable.

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 MATERIAL SPECIFICATIONS

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

Optional: Ductile iron conforming to ASTM A-395, grade 65-45-15 available upon special request.

Housing Coating: (specify choice)

Standard: Orange enamel.

Optional: Hot dipped galvanized.

Optional: Contact Victaulic with your requirements for other coatings.

Gasket: (specify choice¹)

Grade “EHP”

EHP (Red & Green stripe color code). Temperature range –30°F to +250°F/–34°C to +121°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 services¹. UL Classified in accordance with ANSI/NSF61 for cold +86°F/+30°C and hot +180°F/+82°C potable water service and ANSI/NSF 372. NOT COMPATIBLE WITH PETROLEUM SERVICES.

Grade “T” Nitrile

Nitrile (Orange color code). Temperature range –20°F to +180°F/–29°C to +82°C. May be specified for petroleum products, air with oil vapors, vegetable and mineral oils within the specified temperature range. Not compatible with hot water services over +150°F/+66°C or for hot dry air over +140°F/+60°C.

Others

For alternate gasket selection, reference [submittal 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 Gasket 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 ZN/FE5, finish Type III (imperial) or Type II (metric).

Optional (imperial): Stainless steel oval neck track bolts meeting the mechanical property requirements of ASTM F593, Group 2 (316 Stainless Steel), condition CW. Stainless steel heavy nuts meeting the mechanical property requirements of ASTM F594, Group 2 (316 stainless steel), condition CW, with galling reducing coating.

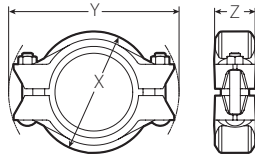
² Optional bolts/nuts are available in imperial size only.

4.0 DIMENSIONS

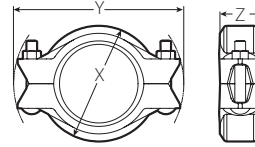
Style 177N - Dimensions for Determining Piping System Installation Clearances

Data in the below table is provided for system layout and installation purposes to ensure that adequate clearances are included in the piping system installation relative to other piping components or the building structure for both roll grooved and cut grooved pipe.

This is particularly important when the system is free floating, or contains no thrust anchors, and the coupling joints are installed with the pipe ends butted against the gasket⁴. If installed in this condition, when the piping is pressurized the joints will open to their full nominal pipe end separation⁵. This movement is cumulative and will be most significant in long runs of piping where multiple flexible couplings are installed in the butted condition.



Style 177N Pre-Assembled
(Installation-Ready Condition)



Style 177N Joint Assembled

| Size | | Nominal Range of Pipe End Separation ³ | | Qty. | Bolt/Nut | | | Dimensions | | | | | Weight |
|----------------------|---|--|--|----------------|------------|-------------------|--------------|--|----------------|-----------------|----------------|-------------|--------------------------------|
| Nominal inches DN | Actual Outside Diameter inches mm | Pipe Ends Butted Against Gasket ⁴ inches mm | Full Nominal Separation ⁵ inches mm | | X | Size inches mm | Y | Pre-assembled (Installation-ready condition) | | Joint Assembled | | | Approximate (Each) lb kg |
| | | | | X inches mm | | | | Y inches mm | X inches mm | Y inches mm | Z inches mm | | |
| 2 DN50 | 2.375 60.3 | 0.13 3.3 | 0.25 6.4 | 2 | ½ x 3 | | 4.38 111 | 6.25 159 | 3.75 95 | 6.38 162 | 2.13 54 | 3.3 1.5 | |
| 2½ | 2.875 73.0 | 0.13 3.3 | 0.25 6.4 | 2 | ½ x 3 | | 4.88 124 | 6.88 175 | 4.38 111 | 6.88 175 | 2.13 54 | 3.8 1.7 | |
| DN65 | 3.000 76.1 | 0.13 3.3 | 0.25 6.4 | 2 | 12 x 76.2 | | 5.00 127 | 6.88 175 | 4.38 111 | 6.91 176 | 2.13 54 | 4.0 1.8 | |
| 3 DN80 | 3.500 88.9 | 0.13 3.3 | 0.25 6.4 | 2 | ½ x ¾ | | 5.63 143 | 7.38 187 | 5.00 127 | 7.50 191 | 2.13 54 | 4.3 2.0 | |
| | 4.250 108.0 | 0.18 4.6 | 0.38 9.5 | 2 | 16 x 101.6 | | 6.88 175 | 9.13 232 | 5.88 149 | 9.25 235 | 2.38 60 | 7.1 3.2 | |
| 4 DN100 | 4.500 114.3 | 0.18 4.6 | 0.38 9.5 | 2 | 5/8 x 4 | | 7.13 181 | 9.38 238 | 6.38 162 | 9.50 241 | 2.38 60 | 7.4 3.4 | |
| | 5.250 133.0 | 0.18 4.6 | 0.38 9.5 | 2 | 20 x 127 | | 7.88 200 | 11.00 279 | 7.00 178 | 11.13 283 | 2.38 60 | 10.3 4.7 | |
| | 5.500 139.7 | 0.18 4.6 | 0.38 9.5 | 2 | 20 x 127 | | 8.25 210 | 11.00 279 | 7.38 187 | 11.25 286 | 2.25 57 | 9.8 4.4 | |
| 5 | 5.5625 141.3 | 0.18 4.6 | 0.38 9.7 | 2 | ¾ x 5 | | 8.03 204 | 11.03 280 | 7.31 186 | 11.32 288 | 2.245 57 | 10 4.5 | |
| | 6.250 159.0 | 0.18 4.6 | 0.38 9.5 | 2 | 20 x 127 | | 9.00 229 | 11.88 302 | 8.13 206 | 11.88 302 | 2.38 60 | 11.4 5.2 | |
| | 6.500 165.1 | 0.18 4.6 | 0.38 9.5 | 2 | 20 x 127 | | 9.38 238 | 12.13 308 | 8.50 216 | 12.13 308 | 2.25 57 | 12.7 5.8 | |
| 6 DN150 | 6.625 168.3 | 0.18 4.6 | 0.38 9.5 | 2 | ¾ x 5 | | 9.38 238 | 12.38 314 | 8.63 219 | 12.25 311 | 2.38 60 | 12.8 5.8 | |
| 8 DN200 | 8.625 219.1 | 0.18 4.6 | 0.38 9.5 | 2 | 7/8 x 5½ | | 11.00 279 | 15.13 384 | 10.00 254 | 15.13 384 | 2.63 60 | 20.7 9.4 | |

³ These columns provide the nominal range of pipe end separation that may exist at the time of installation.

⁴ The nominal pipe end separation when the pipe ends are butted against the gasket as illustrated in Figure 1.

⁵ The full nominal pipe end separation when the pipe ends are separated fully as illustrated in Figure 2.

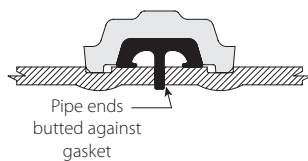


Figure 1

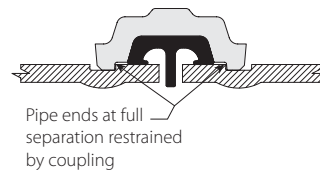


Figure 2

4.1 DIMENSIONS

Design and Installation - Linear Movement and Angular Deflection

Data in the table below provides the linear movement and joint deflection capabilities of each coupling. These mechanical properties of the flexible coupling can be used in the design of the piping system to accommodate curves in the piping system, settlement of the building structure, seismic movement, or thermally induced expansion or contraction of the piping.

The linear movement⁷ can be used to accommodate any axial movement of the piping caused by thermally induced expansion or contraction of the pipe. When used in this manner, thrust anchors must be installed at changes in direction, at the ends of straight runs, or to divide long runs of pipe into more manageable sections and reduce movement at branch connections. Reference should be made to Victaulic [Publication 26.02](#) for detailed instructions regarding determining thrust anchor or guide locations.

The joint deflection^{8,9} can also be used to accommodate the axial change in length of the piping caused by thermally induced expansion or contraction of the piping through the controlled deflection of offsets at existing changes in direction of the piping. Again, refer to Victaulic [Publication 26.02](#) for detailed instructions.

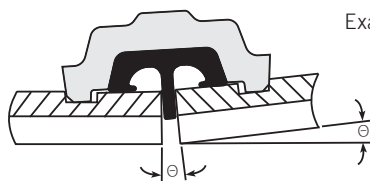
| Size Range inches DN | Actual Outside Diameter inches mm | Linear Movement per Coupling ^{6,9} inches mm | Joint Deflection ⁹ | |
|----------------------------|---|---|--|---|
| | | | Angle at Coupling ⁷ Degrees per coupling | Slope of Pipe ⁸ in/ft mm/m |
| 2 DN50 | 2.375 60.3 | 0.09 2.3 | 2.17 | 0.46 38.1 |
| 2½ | 2.875 73.0 | 0.09 2.3 | 1.79 | 0.38 31.5 |
| DN65 | 3.000 76.1 | 0.09 2.3 | 1.72 | 0.36 30.2 |
| 3 DN80 | 3.500 88.9 | 0.09 2.3 | 1.47 | 0.31 25.9 |
| | 4.250 108.0 | 0.18 4.6 | 2.43 | 0.51 42.6 |
| 4 DN100 | 4.500 114.3 | 0.18 4.6 | 2.29 | 0.48 40.3 |
| | 5.250 133.0 | 0.18 4.6 | 1.96 | 0.41 34.6 |
| | 5.500 139.7 | 0.18 4.6 | 1.88 | 0.39 32.9 |
| 5 | 5.5625 141.3 | 0.18 4.6 | 1.85 | 0.39 32.4 |
| | 6.250 159.0 | 0.18 4.6 | 1.65 | 0.35 28.9 |
| | 6.500 165.1 | 0.18 4.6 | 1.59 | 0.33 27.9 |
| 6 DN150 | 6.625 168.3 | 0.18 4.6 | 1.56 | 0.33 27.3 |
| 8 DN200 | 8.625 219.1 | 0.18 4.6 | 1.20 | 0.25 21.0 |

⁶ This is the actual net linear movement available at each coupling for design purposes as illustrated in Figures 1 and 2.

⁷ This is the actual net deflection angle available at each coupling listed in degrees as illustrated in Figure 3.

⁸ This is the actual net deflection angle available at each coupling listed as a slope of the pipe as illustrated in Figure 4.

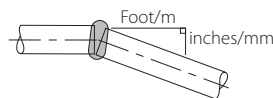
⁹ These values are the net amount of linear movement or joint deflection available at the couplings. No further reduction, as detailed in Victaulic [Publication 26.02](#), is needed to allow for design and installation purposes.



Deflection Angle at Each Coupling Listed in Degrees

Figure 3

Exaggerated for clarity



Deflection Angle at Each Coupling Listed as a Slope of the Pipe

Figure 4

NOTE

- A coupling joint cannot provide the full linear movement and full angular deflection at the same time. If both linear movement and angular deflection are needed, sufficient couplings must be installed for each purpose. Refer to Victaulic [Publication 26.02](#) for complete details.

5.0 PERFORMANCE

Style 177N – ANSI/ISO Standards

| Size | | Schedule 10 and thin wall ISO (Steel Pipe) | | | | Schedule 40 and ISO (Steel Pipe) | | | |
|-------------------------|---|---|---------------------------------------|---|--|--|---------------------------------------|---|--|
| Nominal inches DN | Actual Outside Diameter inches mm | ANSI Wall Thickness inches mm | ISO Wall Thickness inches mm | Max. ¹⁰ Joint Work Pressure psi kPa | Max. ¹⁰ Permis. End Load lbs N | ANSI Wall Thickness inches mm | ISO Wall Thickness inches mm | Max. ¹⁰ Joint Work Pressure psi kPa | Max. ¹⁰ Permis. End Load lbs N |
| 2 DN50 | 2.375 60.3 | 0.109 2.77 | 0.091 2.3 | 750 5170 | 3322 14780 | 0.154 3.91 | 0.157 4.0 | 1000 6900 | 4430 19706 |
| 2½ | 2.875 73.0 | 0.120 3.05 | – – | 600 4135 | 3895 17326 | 0.230 5.84 | – – | 1000 6900 | 6492 28877 |
| DN65 | 3.000 76.1 | – – | 0.150 3.8 | 600 4135 | 4240 18870 | – – | 0.200 5.1 | 1000 6900 | 7070 31460 |
| 3 DN80 | 3.500 88.9 | 0.120 3.05 | 0.114 2.9 | 600 4135 | 5773 25678 | 0.216 5.49 | 0.197 5.0 | 1000 6900 | 9621 42797 |
| | 4.250 108.0 | – – | 0.114 2.9 | 600 4135 | 8512 37861 | – – | 0.220 5.6 | 1000 6900 | 14186 63102 |
| 4 DN100 | 4.500 114.3 | 0.120 3.05 | 0.126 3.2 | 600 4135 | 9543 42448 | 0.237 6.02 | 0.220 5.6 | 1000 6900 | 15904 70746 |
| | 5.250 133.0 | – – | 0.126 3.2 | 600 4135 | 12989 57774 | – – | 0.248 6.3 | 1000 6900 | 21648 96290 |
| | 5.500 139.7 | – – | 0.150 3.8 | 500 3445 | 11879 52840 | – – | 0.220 5.1 | 1000 6900 | 23758 105680 |
| 5 | 5.563 141.3 | 0.134 3.4 | – – | 500 3448 | 12151 54046 | 0.258 6.55 | – – | 1000 6897 | 24301 108092 |
| | 6.250 159.0 | – – | 0.126 3.2 | 600 4135 | 18408 81879 | – – | 0.280 7.1 | 1000 6900 | 30680 136465 |
| | 6.500 165.1 | – – | 0.177 4.5 | 450 3100 | 14932 66243 | – – | 0.280 7.1 | 1000 6900 | 33183 147605 |
| 6 DN150 | 6.625 168.3 | 0.134 3.40 | 0.157 4.0 | 450 3100 | 15512 69000 | 0.280 7.11 | 0.280 7.1 | 1000 6900 | 34470 153390 |
| 8 DN200 | 8.625 219.1 | 0.148 3.76 | 0.177 4.5 | 300 2065 | 17525 77950 | 0.322 8.18 | 0.315 8.0 | 800 5500 | 46732 207836 |

¹⁰ Working Pressure and End Load are total, from all internal and external loads, based on (ANSI) steel pipe, grooved in accordance with Victaulic specifications. Contact Victaulic for performance on other pipe.

NOTES

- WARNING: FOR ONE TIME FIELD TEST ONLY, the Maximum Joint Working Pressure may be increased to 1½ times the figures shown.
- Depressurize and drain the piping system before attempting to install, remove or adjust any Victaulic piping products.
- FM approved on Schedule 10 pipe: 2 – 6 inch sizes rated to 365 psi/25 bar; and 8 inch size (.188" wall thickness) rated to 365 psi/25 bar. Schedule 40 pipe: 2 – 8 inch sizes rated to 365 psi/25bar.
- UL listed on Schedule 10 pipe: 2-6 inch sizes rated to 365 psi/25bar; and 8 inch size (.188" wall thickness) rated to 365 psi/25 bar. Schedule 40 pipe: 2 – 3 inch sizes rated to 840 psi/58 bar; and 4-6 inch sizes rated to 600 psi/41 bar; and 8 inch size rated to 500 psi/34 bar.

6.0 NOTIFICATIONS

WARNING

- Victaulic RX roll sets must be used when grooving light-wall/thin-wall stainless steel pipe for use with Victaulic Couplings.

Failure to use Victaulic RX roll sets when grooving light-wall/thin-wall stainless steel pipe may cause joint failure, resulting in serious personal injury and/or property damage.

NOTICE

- Victaulic RX grooving rolls must be ordered separately. They are identified by a silver color and the designation RX on the front of the roll sets.

WARNING

- When assembling Style 177N Couplings onto end caps, take additional care to ensure the end cap is seated fully against the center leg of the gasket.
- Use only Victaulic No. 60 End Caps containing the "EZ QV" marking on the inside face.
- Victaulic recommends the use of Victaulic fittings with Style 177N Couplings.
- Victaulic No. 460-SS Stainless Steel End Caps shall not be used with Style 177N Couplings. No 460-SS End Caps shall be used only with Style 89 Rigid Couplings for stainless steel pipe.

Failure to follow this instruction could cause improper product installation, resulting in personal injury and/or property damage.

7.0 REFERENCE MATERIALS

[I-100: Victaulic Field Installation Handbook](#)

[I-177N: Victaulic QuickVic™ Installation-Ready™ Flexible Coupling Installation Instructions](#)

[02.06: Victaulic Potable Water Approvals](#)

[05.01: Victaulic Seal Selection Guide](#)

[10.01: Victaulic Regulatory Approval Reference Guide](#)

[17.01: Victaulic Pipe Preparation for Use on Stainless Steel Pipe With Victaulic Products](#)

[17.09: Victaulic Pressure Ratings and End Loads for Victaulic Ductile Iron Grooved Couplings on Stainless Steel Pipe](#)

[26.01: Victaulic Design Data](#)

[29.01: Victaulic Terms and Conditions/Warranty](#)

[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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