

Victaulic® QuickVic™ Flexible Coupling

Style 177N



2 – 8"/DN50 – DN200

1.0 PRODUCT DESCRIPTION

Available Sizes

- 2 – 8"/DN50 – DN200

Pipe Material

- Carbon steel; Stainless steel.

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.

Operating Temperature

- Dependent on gasket selection from section 3.0.

Function

- Intended for use in non-potable water systems.
- 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.

NOTE

- For use in potable water systems, refer to [publication 06.29](#): Victaulic Installation-Ready™ Flexible Coupling Style 877N.

Pipe Preparation

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

2.0 CERTIFICATION/LISTINGS



NOTE

- See [publication 10.01](#): Victaulic Products for Fire Protection Piping Systems - Regulatory Approval Reference Guide for details.

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.

Optional: Contact Victaulic with your requirements for other coatings.

Gasket: (specify choice¹)

Grade "EHP" EPDM

EHP (Red and Green stripes 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. NOT COMPATIBLE WITH PETROLEUM SERVICES.

Grade "T" Nitrile

Nitrile (Orange stripe 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.

Grade "O" Fluoroelastomer

Fluoroelastomer (Blue stripe color code). Temperature range +20°F to +300°F/–7°C to +149°C. May be specified for many oxidizing acids, petroleum oils, halogenated hydrocarbons, lubricants, hydraulic fluids, organic liquids and air with hydrocarbons. NOT COMPATIBLE FOR USE WITH HOT WATER SERVICES OR STEAM SERVICES.

Grade "CHP-2" Fluoroelastomer

CHP-2 (Yellow and Copper stripes color code). Temperature range 0°F to +180°F/–18°C to +82°C. May be specified for hot water service plus varying concentrations of hot petroleum/water mixtures, hydrocarbons, halogenated hydrocarbons, air with oil vapors, vegetable and mineral oils, oxidizing acids, strongly alkaline and aggressive fluids and automotive fluids such as engine oil and transmission oil within the specified temperature range. NOT COMPATIBLE FOR USE WITH STEAM 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 Gasket Selection Guide](#) for specific gasket service guidelines and for a listing of services which are not compatible.

NOTE

- Victaulic reserves the right to substitute equivalent and/or higher grade elastomer products.

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: 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.

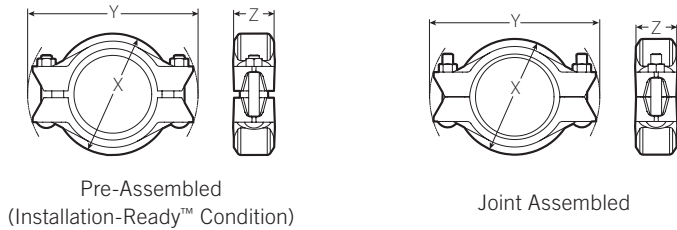
4.0 DIMENSIONS

Style 177N QuickVic™ Flexible Coupling

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.



Size		Nominal Range of Pipe End Separation ³		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	Qty.	Size inches mm	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 3¼	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	⅝ 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	⅞ 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.

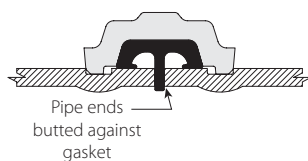


Figure 1

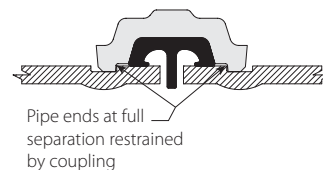


Figure 2

4.1 DIMENSIONS

Style 177N QuickVic™ Flexible Coupling

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.

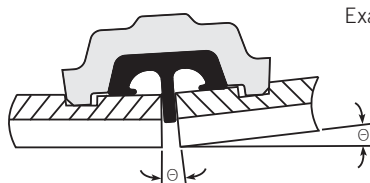
Size		Linear Movement per Coupling ^{6,9}	Joint Deflection ⁹	
Range inches DN	Actual Outside Diameter inches mm		Angle at Coupling ⁷ Degrees per coupling	Slope of Pipe ⁸ in/ft mm/m
2	2.375	0.09	2.17	0.46
DN50	60.3	2.3		38.1
2½	2.875	0.09	1.79	0.38
	73.0	2.3		31.5
DN65	3.000	0.09	1.72	0.36
	76.1	2.3	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

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

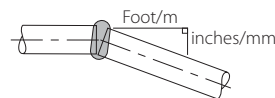
⁷ This is the actual net deflection angle available at each coupling listed in degrees as illustrated in Figure 3.

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



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 QuickVic™ Flexible Coupling

ANSI/ISO Standards

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



- 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

[05.01: Victaulic Seal Selection Guide](#)

[06.29: Victaulic QuickVic™ Installation-Ready™ Flexible Coupling for Potable Water Applications Style 877N](#)

[10.01: Victaulic Fire Protection Certifications/Listings 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-100: Victaulic Field Installation Handbook](#)

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

[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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