

# FireLock™ Installation-Ready™ Flexible Coupling

## Style 004N



2 – 8"/DN50 – DN200

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## 1.0 PRODUCT DESCRIPTION

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### Available Sizes

- 2 – 8"/DN50 – DN200

### Pipe Material

- Carbon steel
- For exceptions reference section 6.0 Notifications.

### Maximum Working Pressure

- Accommodates pressures ranging from full vacuum (29.9 in Hg/760 mm Hg) up to 365 psi/2520 kPa.
- Working pressure dependent on material, wall thickness and size of pipe.

### Function

- 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 [publication 25.01](#): Victaulic Standard Groove Specifications.

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## 2.0 CERTIFICATION/LISTINGS

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### 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.

### 3.0 SPECIFICATIONS – MATERIAL

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**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: Contact Victaulic with your requirements for other coatings.

**Gasket: Grade "E" EPDM (Type A) Vic-Plus™ Pre-lubricated Gasket**

EPDM (Violet Color Code). Applicable for wet and dry (oil-free air) fire protection systems only. Listed/Approved for continuous use in wet and dry systems. Listed/Approved for dry systems at –40°F/–40°C and above. Not compatible for use with hot water services or steam services.

**NOTES**

- Victaulic reserves the right to substitute equivalent and/or higher grade elastomer products.
- 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.
- Reference should always be made to publication I-100, Victaulic Field Installation Handbook for gasket lubrication instructions.

**Bolts/Nuts: (specify choice)**

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).

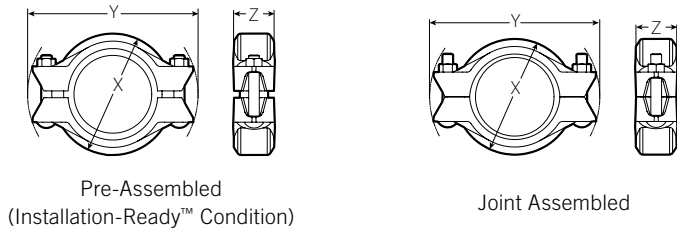
## 4.0 DIMENSIONS

### Style 004N

#### 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 gasket<sup>2</sup>. If installed in this condition, when the piping is pressurized the joints will open to their full nominal pipe end separation<sup>3</sup>. 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 <sup>1</sup>		Maximum Working Pressure <sup>4</sup>	Maximum End Load <sup>4</sup>	Bolt/Nut		Dimensions					Weight	
Nominal inches DN	Actual Outside Diameter inches mm	Pipe Ends Butted Against Gasket <sup>2</sup> inches mm	Full Nominal Separation <sup>3</sup> 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	365 2520	1617 7190	2	½ x 3 M12 x 76	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	365 2520	2370 10540	2	½ x 3 M12 x 76	4.88 124	6.88 175	4.38 111	6.88 175	2.13 54	3.8 1.7	
3 DN80	3.500 88.9	0.13 3.3	0.25 6.4	365 2520	3512 15620	2	½ x 3 ¼ M12 x 83	5.63 143	7.38 187	5.00 127	7.50 191	2.13 54	4.3 2.0	
4 DN100	4.500 114.3	0.18 4.6	0.38 9.5	365 2520	5805 25820	2	⅝ x 4 M16 x 101	7.13 181	9.38 238	6.38 162	9.50 241	2.38 60	7.4 3.4	
5	5.5625 141.3	0.18 4.6	0.38 9.5	365 2520	8872 39460	2	¾ x 5 M20 x 127	8.03 204	11.03 280	7.31 186	11.32 288	2.25 57	10 4.5	
6 DN150	6.625 168.3	0.18 4.6	0.38 9.5	365 2520	12582 55970	2	¾ x 5 M20 x 127	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	365 2520	21326 94860	2	⅞ x 5 ½ M22 x 139	11.00 279	15.13 384	10.00 254	15.13 384	2.63 67	20.7 9.4	

<sup>1</sup> These columns provide the nominal range of pipe end separation that may exist at the time of installation.

<sup>2</sup> The nominal pipe end separation when the pipe ends are butted against the gasket as illustrated in Figure 1.

<sup>3</sup> The full nominal pipe end separation when the pipe ends are separated fully as illustrated in Figure 2.

<sup>4</sup> 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.

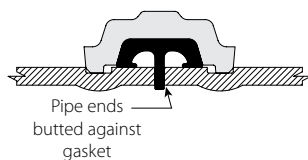


Figure 1

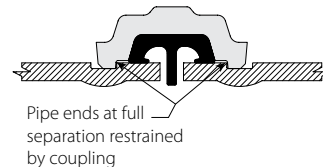


Figure 2

## 4.1 DIMENSIONS

### Style 004N

#### 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 movement<sup>6</sup> 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<sup>7,8</sup> 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.

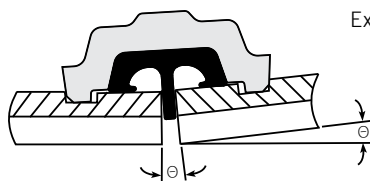
Size		Linear Movement per Coupling <sup>5,8</sup>	Joint Deflection <sup>8</sup>	
Range inches DN	Actual Outside Diameter inches mm		Angle at Coupling <sup>6</sup> Degrees per coupling	Slope of Pipe <sup>7</sup> in/ft mm/m
2 DN50	2.375 60.3	0.09 2.3	2.17	0.46 38.1
2½	2.875 73.0	0.09 2.3	1.79	0.38 31.5
3 DN80	3.500 88.9	0.09 2.3	1.47	0.31 25.9
4 DN100	4.500 114.3	0.18 4.6	2.29	0.48 40.3
5	5.5625 141.3	0.18 4.6	1.85	0.39 32.4
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

<sup>5</sup> This is the actual net linear movement available at each coupling for design purposes as illustrated in Figures 1 and 2.

<sup>6</sup> This is the actual net deflection angle available at each coupling listed in degrees as illustrated in Figure 3.

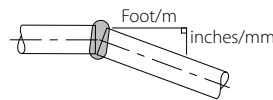
<sup>7</sup> This is the actual net deflection angle available at each coupling listed as a slope of the pipe as illustrated in Figure 4.

<sup>8</sup> 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 004N

Size		cULus		FM	
Nominal	Actual Outside Diameter	Schedule 10	Schedule 40	Schedule 10	Schedule 40
inches DN	inches mm	psi kPa	psi kPa	psi kPa	psi kPa
2	2.375	365	365	365	365
DN50	60.3	2520	2520	2520	2520
2½	2.875	365	365	365	365
	73.0	2520	2520	2520	2520
3	3.500	365	365	365	365
DN80	88.9	2520	2520	2520	2520
4	4.500	365	365	365	365
DN100	114.3	2520	2520	2520	2520
5	5.563	365	365	365	365
	141.3	2520	2520	2520	2520
6	6.625	365	365	365	365
DN150	168.3	2520	2520	2520	2520
8	8.625	365 <sup>9</sup>	365	365 <sup>9</sup>	365
DN200	219.1	2520	2520	2520	2520

<sup>9</sup> UL listed and FM approved for .188" wall thickness.

#### 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.

## 6.0 NOTIFICATIONS

### WARNING



- Read and understand all instructions before attempting to install any Victaulic products.
- Always verify that the piping system has been completely depressurized and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic products.
- Wear safety glasses, hardhat, and foot protection.

Failure to follow these instructions could result in death or serious personal injury and property damage.

- These products shall be used only in fire protection systems that are designed and installed in accordance with current, applicable National Fire Protection Association (NFPA 13, 13D, 13R, etc.) standards, or equivalent standards, and in accordance with applicable building and fire codes. These standards and codes contain important information regarding protection of systems from freezing temperatures, corrosion, mechanical damage, etc.
- The installer shall understand the use of this product and why it was specified for the particular application.
- The installer shall understand common industry safety standards and potential consequences of improper product installation.
- It is the system designer's responsibility to verify suitability of materials for use with the intended fluid media within the piping system and external environment.
- The material specifier shall evaluate the effect of chemical composition, pH level, operating temperature, chloride level, oxygen level, and flow rate on materials to confirm system life will be acceptable for the intended service.

Failure to follow installation requirements and local and national codes and standards could compromise system integrity or cause system failure, resulting in death or serious personal injury and property damage.

### WARNING

- When assembling Style 004N Couplings onto end caps, take additional time to inspect and verify that the end cap is seated fully against the center leg of the gasket. Always read and follow the installation instructions provided with the product; these instructions can be downloaded at [Victaulic.com](http://Victaulic.com).
- Use only Victaulic End Caps containing the "QV" or "EZ QV" marking on the inside face.
- Always read and follow the I-ENDCAP, Victaulic End Cap Installation Safety Instructions, which can be downloaded at [Victaulic.com](http://Victaulic.com).
- Victaulic recommends the use of Victaulic fittings with Style 004N Couplings.

Failure to follow these instructions could result in death or serious personal injury and property damage.

### NOTICE

- Victaulic does not recommend the use of any furnace butt-welded pipe with sizes NPS 2"/DN50 and smaller Victaulic gasketed joint products. This includes, but is not limited to, ASTM A53 Type F pipe.

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## 7.0 REFERENCE MATERIALS

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[05.01: Victaulic Seal Selection Guide](#)

[10.01: Victaulic Fire Protection Certifications/Listings Reference Guide](#)

[26.01: Victaulic Design Data](#)

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

[AN-001: Application Notification - Potential Incompatibility of Type F Pipe, Sizes NPS 2" | DN50 and Smaller](#)

[I-004N: Style 004N FireLock™ Installation-Ready™ Flexible Coupling Installation Instructions](#)

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

[I-ENDCAP: Victaulic End Caps Installation Instructions](#)

[I-IMPACT: Victaulic Impact Tool Usage Guidelines](#)

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### 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](http://www.victaulic.com).

### Warranty

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

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