Composite Flexible Coupling
Style 171

06.22

Patent Pending

1.0 PRODUCT DESCRIPTION

Available Sizes

- 1 ½ – 4"/DN40 – DN100

Maximum Working Pressure

- Accommodates pressures ranging from full vacuum (29.9 in Hg/760mm Hg) up to 150psi/1034kPa/10 Bar.

Operating Temperature

- +33°F/+1°C to +130°F/+54°C.

Function

- Designed for use in corrosive applications.
- Utilizes patented Installation-Ready™ technology.
- Provides a flexible pipe joint which allows for expansion, contraction and deflection.

2.0 CERTIFICATION/LISTINGS

Not applicable – contact Victaulic with any questions.

3.0 SPECIFICATIONS – MATERIAL

Housing: Injection molded engineered composite.

Gasket:

☐ **Grade "E" EPDM[1]**
(Double green stripe color code). UL classified in accordance with ANSI/NSF 61 for cold+86°F/+30°C potable water service. NOT RECOMMENDED FOR PETROLEUM SERVICES.

[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: ASTM F-593 Group 2 (316 stainless steel) track bolts with special anti-galling coating and ASTM F-594 (316 stainless steel) flange nuts.

ALWAYS REFER TO ANY NOTIFICATIONS AT THE END OF THIS DOCUMENT REGARDING PRODUCT INSTALLATION, MAINTENANCE OR SUPPORT.

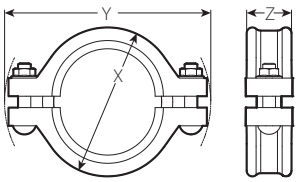
System No.		Location	
Submitted By		Date	

Spec Section		Paragraph	
Approved		Date	

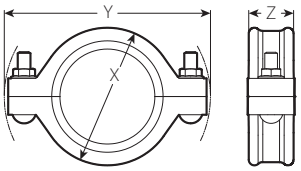
06.22 6977 Rev F Updated 10/2018

4.0 DIMENSIONS

Style 171



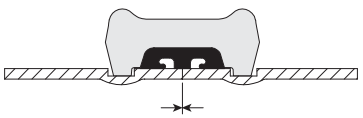
Style 171 Pre-Assembled
(Installation-Ready Condition)



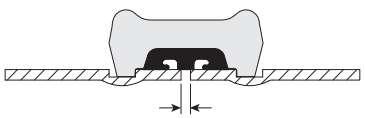
Style 171 Joint Assembled

Size		Pipe End Separation		Bolt/Nut		Dimensions						Weight
						Pre-assembled (Installation-Ready™ condition)			Joint Assembled			
Nominal inches DN	Actual Outside Diameter inches mm	(1) Min inches mm	(2) Max inches mm	Qty.	Size inches	X inches mm	Y inches mm	Z inches mm	X inches mm	Y inches mm	Z inches mm	Approximate (Each) lb kg
1 ½ 40	1.900 48.3	0.00	0.06 1.6	⅜	16 x 2 ¼	3.73 95	5.24 132	1.91 48	3.31 84	5.24 133	1.91 48	0.79 0.36
2 50	2.375 60.3	0.00	0.06 1.6	⅜	16 x 2 ½	4.28 109	5.84 148	1.93 49	3.86 98	6.09 155	1.93 49	0.93 0.42
2 ½ 65	2.875 73.0	0.00	0.06 1.6	⅜	16 x 2 ½	4.87 124	6.25 159	1.92 49	4.37 111	6.50 165	1.92 49	1.04 0.47
3 80	3.500 88.9	0.00	0.06 1.6	½	13 x 2 ¾	5.68 144	7.46 189	2.01 51	5.09 129	7.58 193	2.01 51	1.55 0.70
4 100	4.500 114.3	0.00	0.13 3.2	½	13 x 3	6.86 174	8.74 222	2.13 54	6.08 154	8.78 223	2.13 54	1.64 0.74

(2 & 3) Maximum pipe end separation to be used for determining overall piping system movement for roll (2) or cut (3) groove pipe. For design and installation purposes, the minimum and maximum pipe end separations shall be reduced to the values as indicated in the table below. These design and installation considerations include thermal growth, settlement, installation misalignment and offsets. See illustrations below.



Minimum Pipe Separation (1)
Roll and Cut Groove



Maximum Pipe Separation (2)
Roll and Cut Groove

Design and Installation

The amount of linear movement and angular deflection to be used for design and installation consideration for each coupling is illustrated below.

Size Range inches DN	Design and Installation Values Roll Groove and Cut Grooved Pipe Linear Movement[2] inches mm	Angular Deflection[2] Per Cplg. Deg.	Angular Deflection[2] Pipe In/Ft mm/m.
1 ½ 40	0.06 1.6	1.81°	0.38 32
2 50	0.06 1.6	1.52°	0.32 26
2 ½ 65	0.06 1.6	1.25°	0.26 22
3 80	0.06 1.6	1.03°	0.22 18
4 100	0.13 3.2	1.60°	0.34 28

[2] Victaulic recommends for design and installation purposes, these values should be reduced by 50% for 1½ – 3"/40 – 80 mm sizes; 25% for 4"/100 mm and larger sizes.

5.0 PERFORMANCE

ANSI Standard

Size		Schedules 40 – PVC			Sch. 10 – Carbon Steel		
Nominal inches DN	Actual Outside Diameter inches mm	Wall Thickness inches mm	Maximum Joint Working Pressure psi kPa	Maximum Permissable End Load Lbs N	Wall Thickness inches mm	Maximum Joint Working Pressure psi kPa	Maximum Permissable End Load Lbs N
1 25	1.315 33.4	0.133 3.378	150 1034	204 906	0.109 2.769	150 1034	204 906
1 ½ 40	1.9 48.3	0.145 3.683	150 1034	425 1892	0.109 2.769	150 1034	425 1892
2 50	2.375 60.3	0.154 3.912	150 1034	665 2956	0.109 2.769	150 1034	665 2956
2 ½ 65	2.875 73	0.203 5.2	150 1034	974 4332	0.12 3.048	150 1034	974 4332
3 80	3.5 88.9	0.216 5.486	150 1034	1443 6420	0.12 3.048	150 1034	1443 6420
4 100	4.5 114.3	0.237 6.02	150 1034	2386 10612	0.12 3.048	150 1034	2386 10612

WARNING

- Depressurize and drain the piping system before attempting to install, remove or adjust any Victaulic piping products.

6.0 NOTIFICATIONS

Not applicable – contact Victaulic with any questions.

7.0 REFERENCE MATERIALS

05.01: Seal Selection Guide
29.01: Terms and Conditions
I-100: Field Installation Handbook
I-ENDCAP: Victaulic End Caps Installation Instructions

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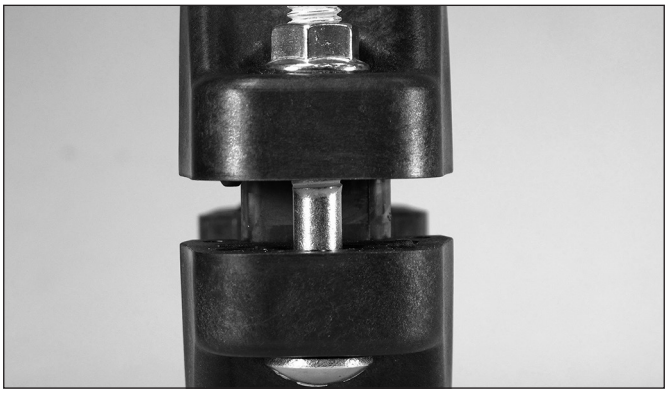
⚠ WARNING

- **Read and understand all instructions before attempting to install any Victaulic piping products.**
- **Depressurize and drain the piping system before attempting to install, remove, adjust, or maintain any Victaulic piping products.**
- **Wear safety glasses, hardhat, and foot protection during installation.**

Failure to follow these instructions could result in serious personal injury, improper product installation, and/or property damage.

INSTRUCTIONS FOR THE INITIAL INSTALLATION OF STYLE 171 COUPLINGS



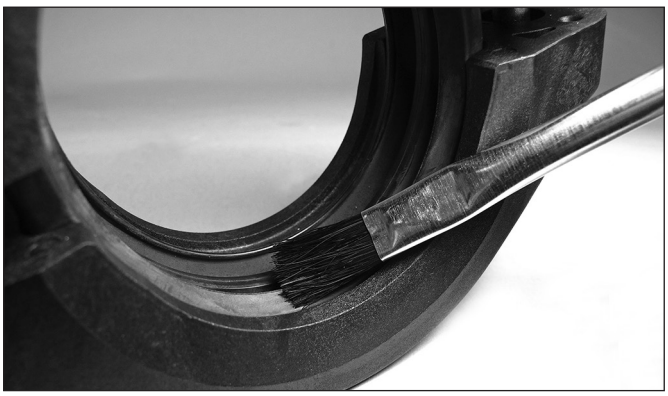
1. DO NOT DISASSEMBLE THE COUPLING: Style 171 Couplings are installation ready. The coupling is designed so that the installer does not need to remove the bolts and nuts for installation. This design facilitates installation by allowing the installer to directly install grooved pipe/fitting ends into the coupling.

2. CHECK PIPE/FITTING ENDS: The outside surface of the pipe/fitting, between the groove and the pipe/fitting end, must be smooth and free from indentations, projections, weld seams, and roll marks to ensure a leak-tight seal. All oil, grease, loose paint, dirt, and cutting particles must be removed. Measurements taken across grooved pipe/fitting ends must not exceed the maximum allowable flare diameter. The pipe/fitting OD, groove dimensions, and maximum allowable flare diameter must be within the tolerances published in current Victaulic grooving specifications. **NOTE:** Maximum allowable pipe/fitting ovality should not vary by more than 1%. Greater variations between the major and minor pipe/fitting diameters will result in difficult coupling assembly.

⚠ WARNING

- **A compatible lubricant must be used to prevent the gasket from pinching/tearing during installation. Always consult with the pipe manufacturer for lubricant compatibility requirements for non-metallic pipe.**

Failure to follow this instruction could cause joint leakage, resulting in property damage.



3. CHECK GASKET: Check the gasket to make sure it is suitable for the intended service. The color code identifies the gasket grade. Refer to Victaulic publication 05.01 in the G-100 General Catalog or the I-100 Field Installation Handbook for the color code chart.

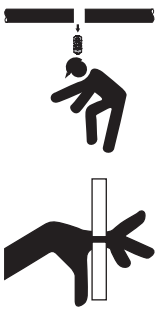
3a. LUBRICATE GASKET: For applications on all pipe materials, except for HDPE, apply a thin coat of Victaulic Lubricant only to the sealing lips of the gasket interior. DO NOT use Victaulic Lubricant on HDPE pipe (refer to the "Lubricant Compatibility for HDPE Pipe" table below and always consult with the pipe manufacturer for lubricant compatibility requirements for non-metallic pipe). **NOTE: The gasket exterior is supplied with a factory-applied lubricant, so it is not necessary to remove the gasket from the housings to apply additional lubricant to the exterior surface.**

Lubricant Compatibility for HDPE Pipe

Lubricant	Compatibility with Grade "E2" EPDM Gaskets and HDPE Pipe
Soap-Based Solutions, Glycerin, Silicone Oil, or Silicone Release Agent	Good
Corn Oil, Soybean Oil, Hydrocarbon-Based Oils, or Petroleum-Based Greases	Not Recommended

Due to variations in pipe, always consult with the pipe manufacturer for lubricant compatibility requirements for non-metallic pipe. **DO NOT USE VICTAULIC LUBRICANT ON HDPE PIPE.**

⚠ WARNING



- **Never leave a Style 171 Coupling partially assembled. A partially assembled Style 171 Coupling poses a drop hazard or a burst hazard during testing.**
- **Keep hands away from the pipe/fitting ends and the openings of the coupling when attempting to insert the grooved pipe/fitting ends into the coupling.**

Failure to follow these instructions could cause serious personal injury and/or property damage.

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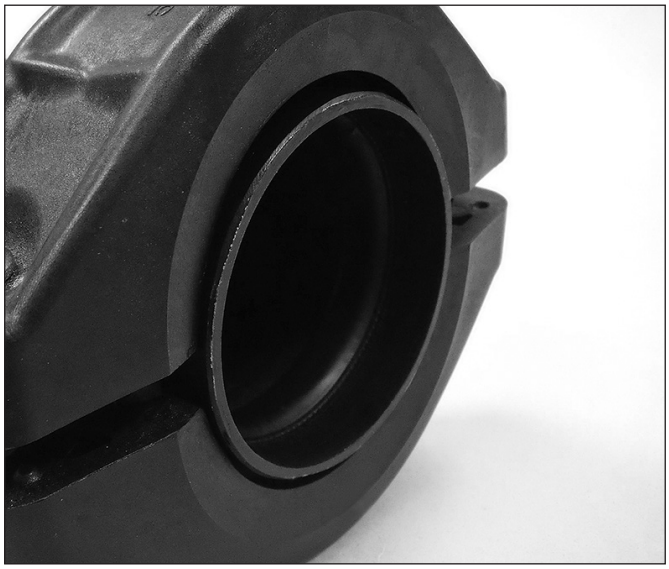


4. INSTALL COUPLING OVER PIPE/FITTING END: Position the coupling over the grooved pipe/fitting end. Make sure the coupling and gasket do not overhang the pipe/fitting end.

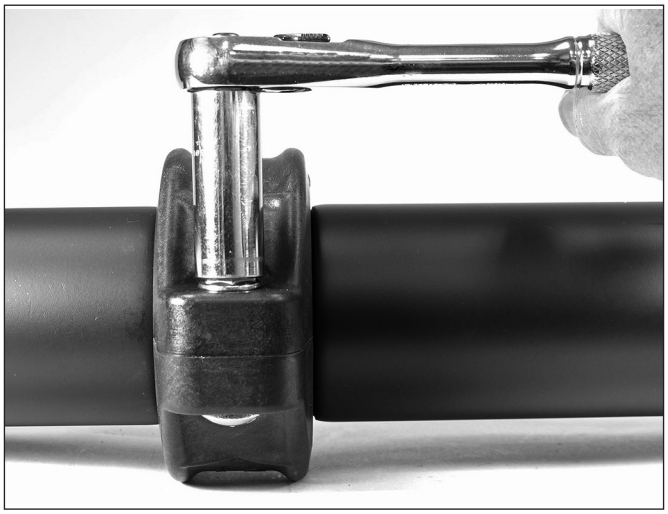
4a. Align and bring the two pipe/fitting ends together. Slide the coupling into position so that the coupling keys align with the groove in each pipe/fitting. A visual check is required to ensure the coupling keys align with the grooves in the pipe/fitting. **NOTE:** The coupling may be rotated to ensure the gasket is seated properly.

NOTE: When assembling Style 171 Couplings onto end caps, take additional care to ensure the end cap is seated fully in the coupling.

⚠ WARNING

- **Nuts must be tightened evenly by alternating sides until full bolt-pad to bolt-pad contact occurs.**
- **DO NOT exceed 60 ft-lbs/81 N•m of torque on the nuts during assembly.**
- **Keep hands away from coupling openings during tightening.**

Failure to follow these instructions could cause joint failure, serious personal injury, and property damage.



5. TIGHTEN NUTS: Tighten the nuts evenly by alternating sides until full bolt-pad to bolt-pad contact occurs. Make sure the housings' keys engage the groove in each pipe/fitting completely. **DO NOT exceed 60 ft-lbs/81 N•m of torque on the nuts during assembly. NOTE:** It is important to tighten the nuts evenly by alternating sides to prevent gasket pinching. An impact wrench or standard socket wrench can be used to bring the bolt pads into full contact. Refer to the "Impact Wrench Usage Guidelines" section.

Style 171 Helpful Information

Size		Nut Size	Socket Size
Nominal Size inches or mm	Actual Pipe Outside Diameter inches/mm	inches/ Metric	inches/ Metric
1 ½ - 2 ½	1.900 - 2.875 48.3 - 73.0	⅜ M10	11/16 17
3 - 4	3.500 88.9	½ M12	⅞ 22

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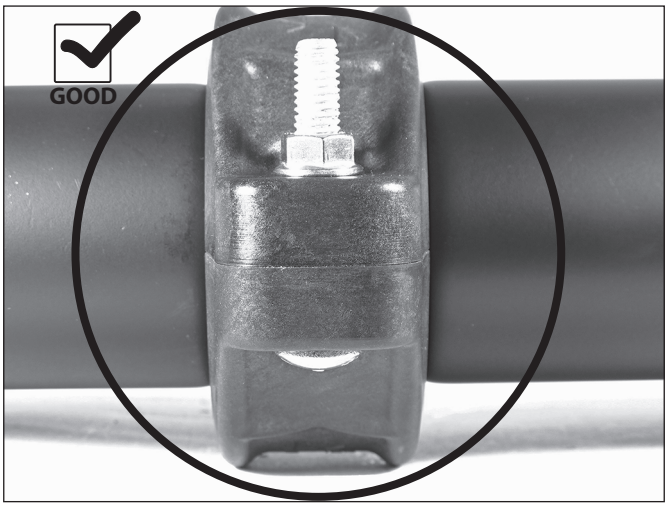
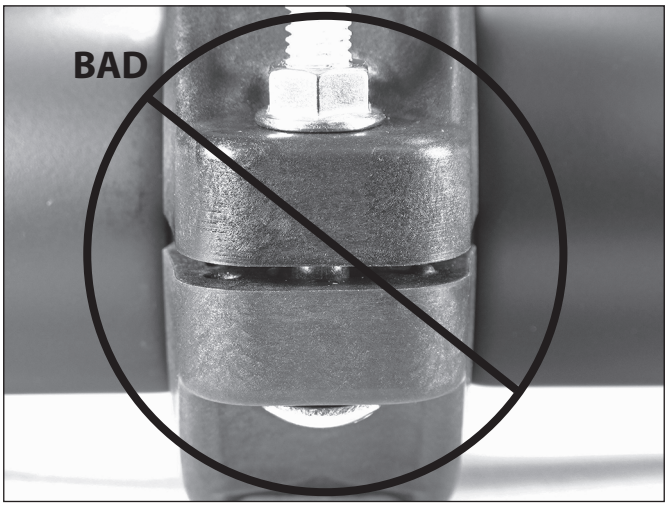
NOTICE

- **Visual inspection of each joint is critical. Improperly assembled joints must be corrected before the system is placed in service.**





6. Visually inspect the bolt pads at each joint to ensure full bolt-pad to bolt-pad contact is achieved.

INSTRUCTIONS FOR RE-INSTALLATION OF STYLE 171 COUPLINGS

⚠ WARNING

- **Make sure the system is depressurized and drained completely before attempting to disassemble any couplings.**

Failure to follow this instruction could cause serious personal injury and/or property damage.

Since the coupling housings conform to the outside diameter of the pipe/fitting during an initial installation, direct installation of grooved pipe ends/fittings into the coupling may not be possible upon re-installation. If this is the case, refer to the following steps for re-installing the coupling.

1. Make sure the system is depressurized and drained completely before attempting to disassemble any couplings.

2. Follow steps 2 – 3 of the "Instructions for the Initial Installation of Style 171 Couplings" section.

3. LUBRICATE GASKET: Apply a thin coat of lubricant to the gasket sealing lips and exterior. Refer to step 3A of the "Instructions for the Initial Installation of Style 171 Couplings" section for lubricant compatibility information. **NOTE:** It is normal for the gasket surface to have a hazy white appearance after it has been in service.

3a. POSITION GASKET: Position the gasket over the grooved pipe/fitting end. Make sure the gasket does not overhang the pipe/fitting end.

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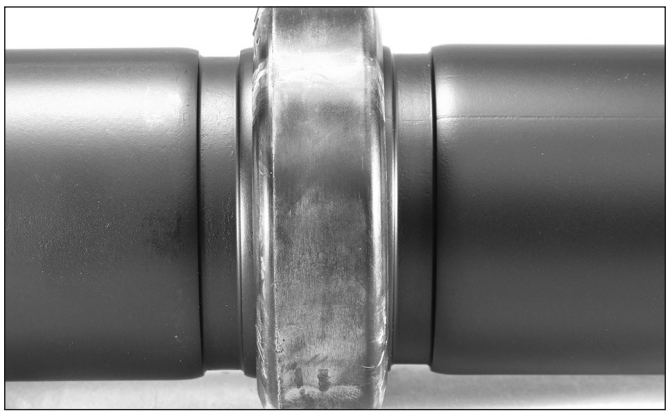

4. JOIN PIPE/FITTING ENDS: Align and bring the two pipe/fitting ends together. Slide the gasket into position and center it between the groove in each pipe/fitting end. Make sure no portion of the gasket extends into the groove in either pipe/fitting end.

5. INSTALL HOUSINGS: Install the housings over the gasket. Make sure the housings' keys engage the grooves properly on both pipe/fitting ends.

6. INSTALL BOLTS/NUTS: Install the bolts, and thread a nut finger-tight onto each bolt. **NOTE:** Make sure the oval neck of each bolt seats properly in the bolt hole.

7. TIGHTEN NUTS: Follow steps 5 and 6 of the "Instructions for the Initial Installation of Style 171 Couplings" section to complete the assembly.

IMPACT WRENCH USAGE GUIDELINES

⚠ WARNING

- **Nuts must be tightened evenly by alternating sides until bolt-pad to bolt-pad contact occurs.**
- **DO NOT continue to use an impact wrench after the visual installation guidelines for the coupling are achieved.**

Failure to follow these instructions could cause gasket pinching and coupling damage, resulting in joint failure, serious personal injury, and property damage.

Due to the speed of assembly when using an impact wrench, the installer should take extra care to ensure nuts are tightened evenly by alternating sides until proper assembly is complete. Always refer to the specific product installation instructions for complete installation requirements.

Impact wrenches do not provide the installer with direct "wrench feel" or torque to judge nut tightness. Since some impact wrenches are capable of high output, it is important to develop a familiarity with the impact wrench to avoid damaging or fracturing bolts or coupling bolt pads during installation. **DO NOT** continue to use an impact wrench after the visual installation guidelines for the coupling are achieved.

If the battery is drained or if the impact wrench is under-powered, a new impact wrench or a new battery pack must be used to ensure the visual installation guidelines for the coupling are achieved.

Perform trial assemblies with the impact wrench and check the assemblies with socket or torque wrenches to help determine the capability of the impact wrench. Using the same method, periodically check additional nuts throughout the system installation.

For safe and proper use of impact wrenches, always refer to the impact wrench manufacturer's operating instructions. In addition, verify that proper impact grade sockets are being used for coupling installation.

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