

# Victaulic® FireLock™ Installation-Ready™ Fittings

No. 102 (Straight Tee)  
No. 104 (Bullhead Tee)

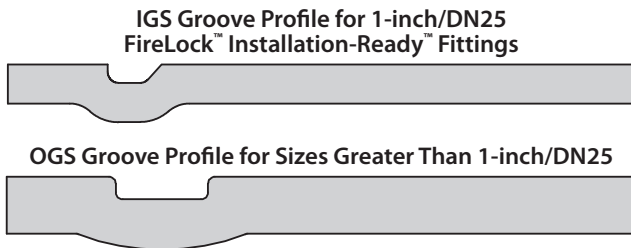


**WARNING**

- Read and understand all instructions before attempting to install any Victaulic piping products.
- Always 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.

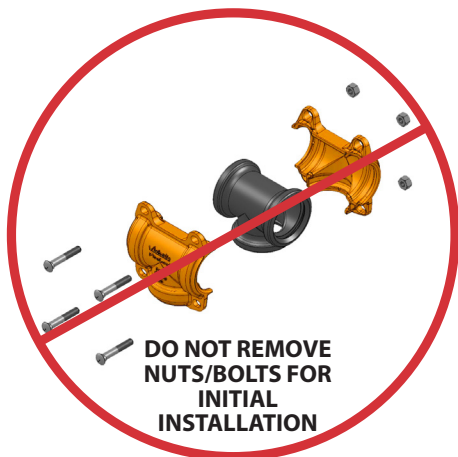
Failure to follow these instructions could result in death or serious personal injury and property damage.

## IMPORTANT INFORMATION FOR 1-INCH/DN25 FIRELOCK™ INSTALLATION-READY™ FITTINGS



FireLock™ Installation-Ready™ Fittings in the 1-inch/DN25 size shall be used **ONLY** with mating components that are prepared to Victaulic IGS proprietary groove specifications. **DO NOT** attempt to install 1-inch/DN25 FireLock™ Installation-Ready™ Fittings on mating components that are prepared to any other groove specification. Refer to Victaulic publication 25.14 for the 1-inch/DN25 IGS groove specification, which can be downloaded at victaulic.com.

## PREPARATORY STEPS FOR INSTALLATION



**1. DO NOT DISASSEMBLE THE NO. 102 OR NO. 104 FOR INITIAL INSTALLATION:** Victaulic® FireLock™ No. 102 and No. 104 Installation-Ready™ Fittings are designed so that the installer does not need to remove the bolts and nuts for installation. This facilitates installation by allowing the installer to directly insert the grooved end of mating components into the fitting.

**2. CHECK MATING COMPONENT ENDS:** The outside surface of the mating components, between the groove and the mating component ends, shall be smooth and free from indentations, projections, weld seam anomalies, and roll marks to ensure a leak-tight seal. All oil, grease, loose paint, dirt, and cutting particles shall be removed.

The mating components' outside diameter ("OD"), groove dimensions, and maximum allowable flare diameter shall be within the tolerances published in current Victaulic grooving specifications (publication 25.14 for 1-inch/DN25 IGS and publication 25.01 for 1 ¼-inch/DN32 and larger OGS), which can be downloaded at victaulic.com.

**3. CHECK GASKET:** Check the gasket to verify that it is suitable for the intended service. The color code identifies the material grade. Refer to Victaulic publication 05.01 for the color code chart, which can be downloaded at victaulic.com. **REFER TO THE NOTICE BELOW FOR IMPORTANT GASKET INFORMATION.**

**3a. IF ANY CONDITIONS LISTED IN THE NOTICE ARE MET, APPLY A THIN COAT OF A COMPATIBLE LUBRICANT, SUCH AS VICTAULIC LUBRICANT OR SILICONE LUBRICANT, ONLY TO THE GASKET SEALING LIPS.**

**CAUTION**

- If any conditions listed in the notice are met, a thin coat of a compatible lubricant shall be applied only to the gasket sealing lips to prevent pinching, rolling, or tearing during assembly.

Failure to use a compatible lubricant will cause gasket damage, resulting in joint leakage and property damage.

**NOTICE**

- Victaulic No. 102 and No. 104 Fittings are designed for use **ONLY** in fire protection systems.
- Gaskets for No. 102 and No. 104 Fittings are provided with *Vic-Plus*. Additional lubrication is not required for the initial installation of wet pipe systems that are installed at or continuously operating above 0°F/-18°C. Refer to Victaulic publication 05.03 for the *Vic-Plus* Safety Data Sheet (SDS), which can be downloaded at victaulic.com.

Supplemental lubrication is required only if any of the following conditions exist. Apply a thin coat of a compatible lubricant to the gasket sealing lips, as noted in step 3a on this page. It is not necessary to remove the gasket from the housings to apply additional lubricant to the exterior surface.

- If the installation or continuous operating temperature is below 0°F/-18°C
- If the gasket has been exposed to fluids prior to installation
- If the surface of the gasket does not have a hazy appearance
- If the gasket is being installed into a dry pipe system
- If the system will be subjected to air tests prior to being filled with water
- If the gasket was involved in a previous installation
- If the gasket sealing surfaces of the mating components contain raised or undercut weld seams, or cracks or voids at the weld seams

Lubricated gaskets will not enhance sealing capabilities on adverse mating component conditions. Mating component condition and preparation shall conform to the requirements listed in these product installation instructions.

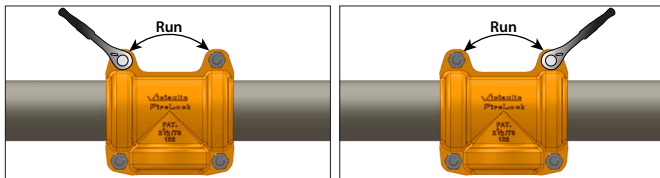
## INSTALLATION METHOD 1 – MATING COMPONENTS INSERTED INTO RUN ENDS FIRST

**WARNING**

- Never leave a No. 102 or No. 104 Fitting partially assembled on mating component ends. **ALWAYS TIGHTEN THE HARDWARE IMMEDIATELY.** A partially assembled fitting poses a drop or fall hazard during installation and a burst hazard during testing.
- Keep hands away from the mating component ends and the openings of the fitting when attempting to insert grooved mating component ends into the fitting.
- Keep hands away from fitting openings during tightening.

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

1. Verify that all steps on page 1 have been followed.



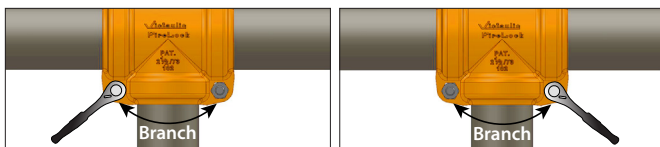
**2. INSERT MATING COMPONENTS INTO RUN ENDS:** Insert a grooved mating component end into each run end of the fitting. The grooved mating component ends shall be inserted into the fitting until contact with each pipe stop of the gasket occurs. A visual check is required to verify that the fitting's keys align with the groove in each mating component end.

**2a. TIGHTEN NUTS ALONG THE RUN SIDE:** Using an impact wrench or standard socket wrench with a deep-well socket, tighten the nuts along the run side until metal-to-metal contact occurs at the bolt pads. Verify that the fitting's keys engage the groove completely and that the oval neck of each bolt seats properly in the bolt hole. Refer to the applicable "Helpful Information" table on this page and the "Impact Wrench Usage Guidelines" section on page 6.

**WARNING**

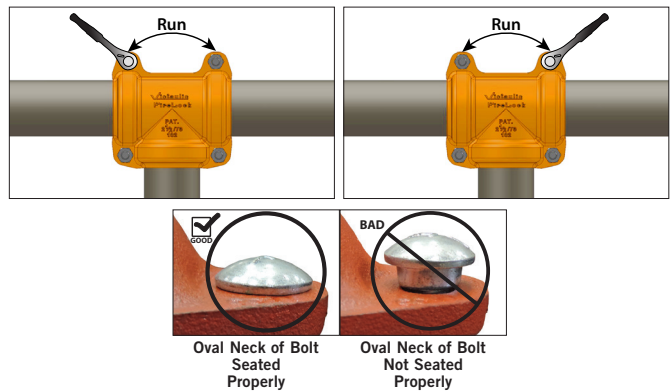
- At this point, the fitting is only partially installed.
- The fitting shall be treated as a potential drop hazard and shall not be left unattended.

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



**3. INSERT MATING COMPONENT INTO THE BRANCH END:** Insert the third grooved mating component end into the opening of the branch end. The grooved mating component end shall be inserted into the fitting until contact with the pipe stop of the gasket occurs. A visual check is required to verify that the fitting's keys align with the groove in the mating component end.

**3a. TIGHTEN NUTS ALONG THE BRANCH SIDE:** Tighten the nuts along the branch side until metal-to-metal contact occurs at the bolt pads. Verify that the fitting's keys engage the groove completely and that the oval neck of each bolt seats properly in the bolt hole.



**4. CONFIRM THAT ALL NUTS ARE TIGHTENED:** Go back and tighten all nuts to confirm metal-to-metal contact at the bolt pads. Verify that the fitting's keys engage the groove completely and that the oval neck of each bolt seats properly in the bolt hole.

### NO. 102 HELPFUL INFORMATION

Nominal Size inches/DN	Actual Outside Diameter inches/mm	Nut Size inches/Metric	Deep-Well Socket Size inches/mm
1 DN25	1.315 33.7	3/8 M10	1 1/16 17
1 1/4 DN32	1.660 42.1	3/8 M10	1 1/16 17
1 1/2 DN40	1.900 48.3	3/8 M10	1 1/16 17
2 DN50	2.375 60.3	7/16 M11	1 1/16 17
2 1/2	2.875 73.0	7/16 M11	1 1/16 17
DN65	3.000 76.1	7/16 M11	1 1/16 17

### NO. 104 HELPFUL INFORMATION

	Nut Size inches/Metric	Deep-Well Socket Size inches/mm
All Sizes	7/16 M11	1 1/16 17

**WARNING**

- Nuts shall be tightened in the sequence shown on this page until metal-to-metal contact with positive or neutral offsets occurs at the angled bolt pads and metal-to-metal contact occurs at the flat bolt pads, as described in Step 5 on the following page.

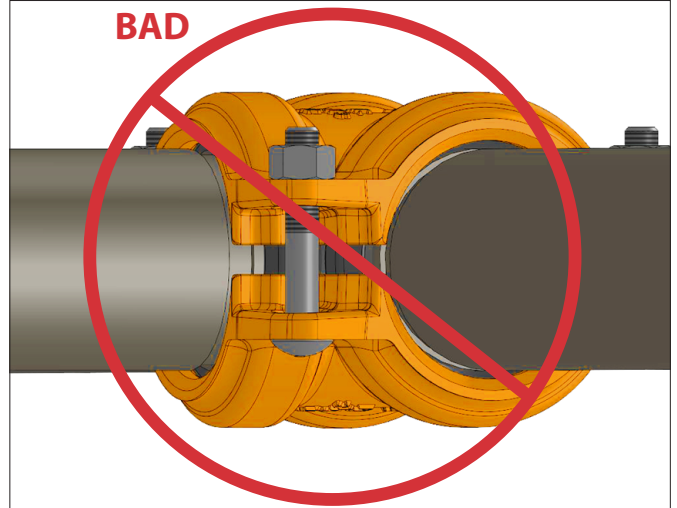
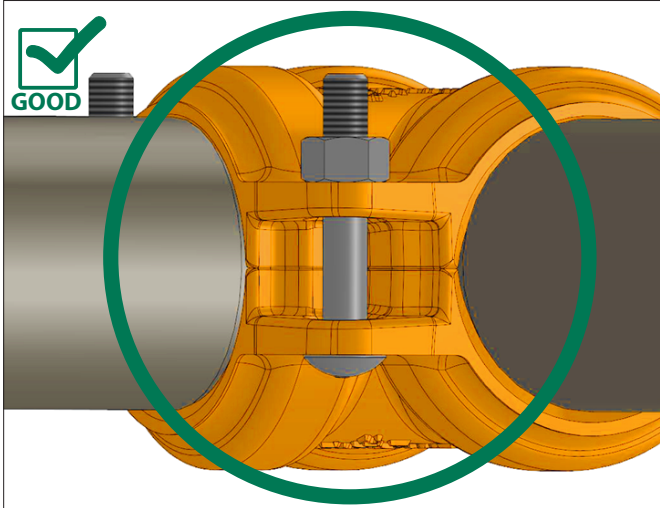
Failure to follow instructions for tightening hardware could result in:

- Personal injury or death
- Bolt damage or fracture
- Damaged or broken bolt pads or fractures to housings
- Joint leakage and property damage

**⚠ WARNING**

- Visual inspection of each joint is required.
- Improperly assembled joints shall be corrected before the system is tested or placed into service.
- Any components that exhibit physical damage due to improper assembly shall be replaced.

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



**5. VERIFY THAT ALL NUTS ARE TIGHTENED APPROPRIATELY AND THAT METAL-TO-METAL CONTACT IS ACHIEVED AT ALL BOLT PADS:**

Visually inspect all bolt pads at each joint to confirm metal-to-metal contact with positive or neutral offsets at the angled bolt pads and metal-to-metal contact at the flat bolt pads. If the bolt pads do not reach metal-to-metal contact, loosen the nuts at the angled bolt pads, then retighten all nuts evenly by alternating sides. If the bolt pads still do not reach metal-to-metal contact, remove the fitting from the mating component ends and verify that the mating components' outside diameter ("OD"), groove dimensions, and maximum allowable flare diameter are within the tolerances published in current Victaulic grooving specifications (publication 25.14 for 1-inch/DN25 IGS and publication 25.01 for 1 ¼-inch/DN32 and larger OGS).

**NOTE:** Before pressurizing the system, the fitting may be adjusted by loosening the appropriate hardware. After repositioning the fitting, the hardware shall be retightened until the installation requirements listed in these instructions are achieved.

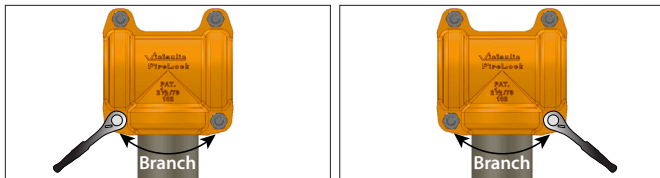
## INSTALLATION METHOD 2 – MATING COMPONENT INSERTED INTO BRANCH END FIRST

**WARNING**

- Never leave a No. 102 or No. 104 Fitting partially assembled on mating component ends. **ALWAYS TIGHTEN THE HARDWARE IMMEDIATELY.** A partially assembled fitting poses a drop or fall hazard during installation and a burst hazard during testing.
- Keep hands away from the mating component ends and the openings of the fitting when attempting to insert grooved mating component ends into the fitting.
- Keep hands away from fitting openings during tightening.

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

1. Verify that all steps on page 1 have been followed.



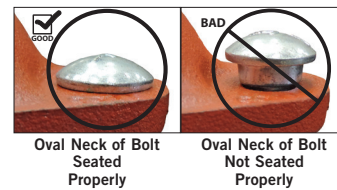
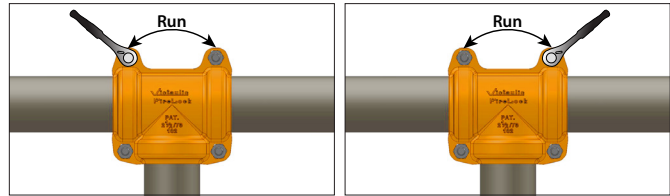
**2. INSERT MATING COMPONENT INTO BRANCH END:** Insert a grooved mating component end into the opening of the branch end. The grooved mating component end shall be inserted into the fitting until contact with the pipe stop of the gasket occurs. A visual check is required to verify that the fitting's keys align with the groove in the mating component end.

**2a. TIGHTEN NUTS ALONG THE BRANCH SIDE EVENLY JUST UNTIL FITTING IS SECURED TO THE MATING COMPONENT:** Using an impact wrench or standard socket wrench with a deep-well socket, tighten the nuts along the branch side evenly just until the fitting is secured to the mating component. Verify that the fitting's keys engage the groove completely and that the oval neck of each bolt seats properly in the bolt hole. Refer to the applicable "Helpful Information" table on page 2 and the "Impact Wrench Usage Guidelines" section on page 6.

**WARNING**

- At this point, the fitting is only partially installed.
- The fitting shall be treated as a potential drop hazard and shall not be left unattended.

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



**3. INSERT MATING COMPONENTS INTO RUN ENDS:** Insert a grooved mating component end into each run end of the fitting. The grooved mating component ends shall be inserted into the fitting until contact with each pipe stop of the gasket occurs. A visual check is required to verify that the fitting's keys align with the groove in each mating component end. **NOTE:** If the mating component ends cannot be inserted into the fitting, incrementally loosen the nuts that were tightened in step 2a just until each mating component end can be inserted (refer to the warning above).

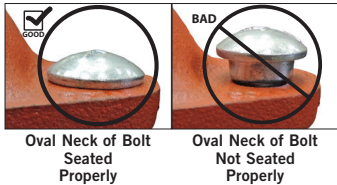
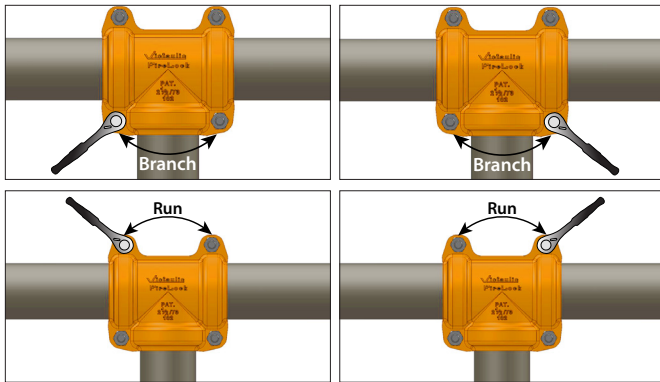
**3a. TIGHTEN NUTS ALONG THE RUN SIDE:** Using an impact wrench or standard socket wrench with a deep-well socket, tighten the nuts along the run side until metal-to-metal contact occurs at the bolt pads. Verify that the fitting's keys engage the groove completely and that the oval neck of each bolt seats properly in the bolt hole. Refer to the applicable "Helpful Information" table on page 2 and the "Impact Wrench Usage Guidelines" section on page 6.

**WARNING**

- Nuts shall be tightened in the sequence shown on this and the following page until metal-to-metal contact occurs at the bolt pads.

Failure to follow instructions for tightening hardware could result in:

- Personal injury or death
- Bolt damage or fracture
- Damaged or broken bolt pads or fractures to housings
- Joint leakage and property damage

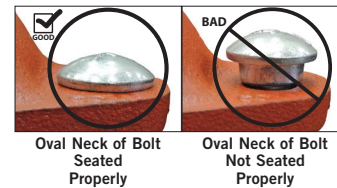
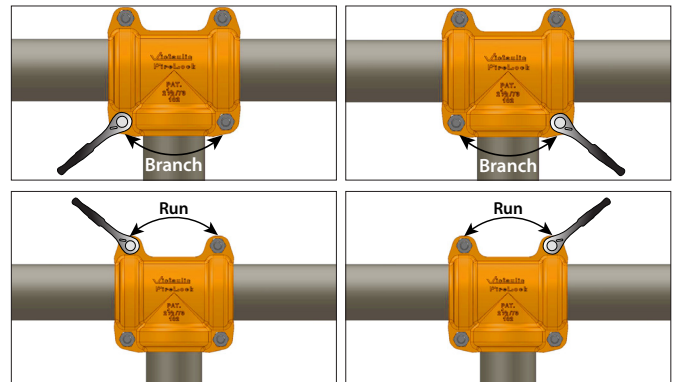


**4. CONFIRM THAT ALL NUTS ARE TIGHTENED:** Go back and tighten all nuts to confirm metal-to-metal contact at the bolt pads. Verify that the fitting's keys engage the groove completely and that the oval neck of each bolt seats properly in the bolt hole.

**5. VERIFY THAT ALL NUTS ARE TIGHTENED APPROPRIATELY AND THAT METAL-TO-METAL CONTACT IS ACHIEVED AT ALL BOLT PADS:** Visually inspect all bolt pads at each joint to verify that metal-to-metal contact is achieved, as shown in step 5 on page 3.

**NOTE:** Before pressurizing the system, the fitting may be adjusted by loosening the appropriate hardware. After repositioning the fitting, the hardware shall be retightened until the installation requirements listed in these instructions are achieved.

### INSTALLATION METHOD 3 – ALL MATING COMPONENTS INSERTED



When practical, all grooved mating component ends may be inserted into the fitting prior to tightening.

1. Verify that all steps on page 1 have been followed.
2. Tighten nuts along branch side until metal-to-metal bolt pad contact is achieved.
3. Tighten nut(s) along run side until metal-to-metal bolt pad contact is achieved.
4. Go back and tighten all nuts to confirm metal-to-metal contact at the bolt pads. Verify that the fitting's keys engage the groove completely and that the oval neck of each bolt seats properly in the bolt hole.

**5. VERIFY THAT ALL NUTS ARE TIGHTENED APPROPRIATELY AND THAT METAL-TO-METAL CONTACT IS ACHIEVED AT ALL BOLT PADS:** Visually inspect all bolt pads at each joint to verify that metal-to-metal contact is achieved, as shown in step 5 on page 3.

**NOTE:** Before pressurizing the system, the fitting may be adjusted by loosening the appropriate hardware. After repositioning the fitting, the hardware shall be retightened until the installation requirements listed in these instructions are achieved.

## IMPACT WRENCH USAGE GUIDELINES

### WARNING

- Nuts shall be tightened completely until metal-to-metal contact with positive or neutral offsets occurs at the angled bolt pads and metal-to-metal contact occurs at the flat bolt pads.
  - DO NOT continue to tighten the nuts after the visual installation guidelines for the fitting, described in Step 5 on page 3, are achieved.
- Failure to follow these instructions could cause joint failure, resulting in death or serious personal injury and property damage.

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 the bolts or the bolt pads during installation. Always choose the right size impact wrench that has enough power, but **DO NOT continue to tighten the nuts after the visual installation guidelines for the coupling, described in step 5 on page 3, are achieved. If you suspect that any hardware has been over-tightened (as indicated by a bend or crack in the bolt, etc.), the hardware shall be replaced immediately.**

If the battery is drained or if the impact wrench is under-powered, a new battery pack or new impact wrench shall be used to ensure that the visual installation guidelines for the coupling, described in step 5 on page 3, are achieved. **Visual inspection of each joint is required for verification of proper assembly.**

Perform trial assemblies with the impact wrench and check the assemblies with a torque wrench to help determine the suitability of the impact wrench. Using the same method, periodically check assemblies 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.

### WARNING

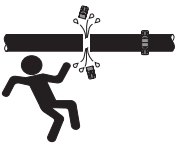
Failure to follow instructions for tightening hardware could result in:

- Personal injury or death
- Bolt damage or fracture
- Damaged or broken bolt pads or fractures to housings
- Joint leakage and property damage



## REMOVAL OF A FITTING FROM THE PIPING SYSTEM

**⚠ WARNING**



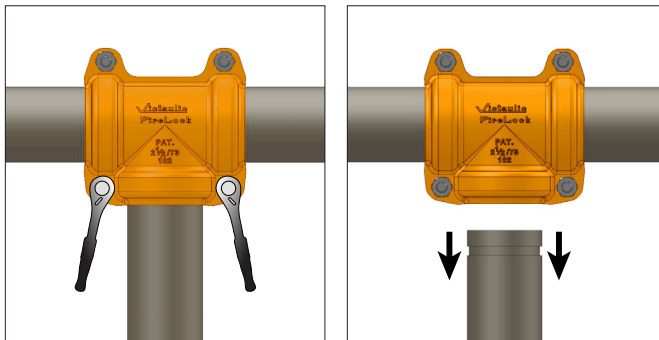
- Always depressurize and drain the piping system before attempting to install, remove, adjust, or maintain any Victaulic piping products.

Failure to follow this instruction could result in death or serious personal injury and property damage.

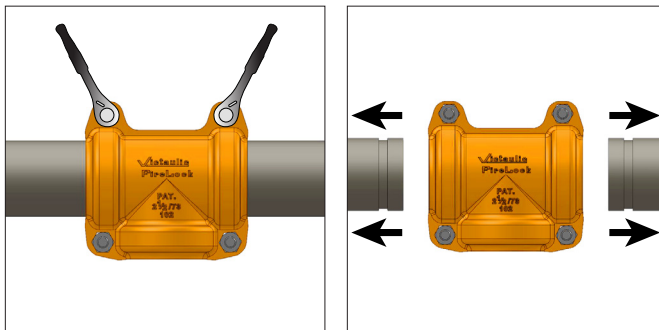
**NOTICE**

- No. 102 and No. 104 Fittings **DO NOT** need to be fully disassembled for removal from the mating component ends. However, if the product is fully disassembled during maintenance or for any other reason, refer to the following column for reassembly instructions.

1. Verify that the system is depressurized and drained completely before attempting to remove any fittings from the mating components.



2. Loosen the nuts only along the branch side of the fitting (nuts should be backed off no further than flush with the end of the bolts). Remove the mating component from the loosened branch side.



3. While supporting the fitting, loosen the nuts along the run side of the fitting. Carefully remove the fitting from the mating components.

4. Inspect the gasket for any damage (tears in gasket lips, deformities in gasket lips, or pinched sections at the bolt pad locations). If any gasket damage is present, fully disassemble the fitting so that the gasket can be replaced with a new Victaulic-supplied gasket of the same material grade and style number. **If in doubt, always fully disassemble the coupling or fitting to perform a more thorough inspection of the gasket.**

**5a.** After inspection of the gasket, if it is determined that the fitting **CAN** be reused in its current condition, follow all steps of the applicable installation method section.

**5b.** After inspection of the gasket, if it is determined that the fitting **CANNOT** be reused in its current condition and requires full disassembly, refer to the instructions in the following column.

## REASSEMBLY OF A FITTING THAT WAS FULLY DISASSEMBLED DURING REMOVAL FROM THE PIPING SYSTEM

**NOTICE**

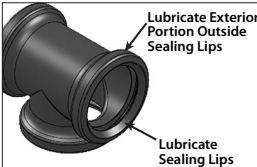
- The following steps shall be completed if a fitting is fully disassembled during removal from the mating component ends or to replace the gasket.
- Only genuine Victaulic replacement parts shall be used for reassembly of a No. 102 or No. 104 fittings.
- The fitting shall be reassembled, as shown in the steps below, before attempting to reinstall the product onto mating component ends.

1. Inspect the full gasket for any damage or wear (tears in gasket lips, deformities in gasket lips, or pinched sections at the bolt pad locations). If any damage or wear is present, replace the gasket with a new Victaulic-supplied gasket of the same material grade and style number.

**⚠ CAUTION**

- A thin coat of a compatible lubricant shall be used to prevent the gasket from pinching, rolling, or tearing during reassembly.

Failure to use a compatible lubricant will cause gasket damage, resulting in joint leakage and property damage.

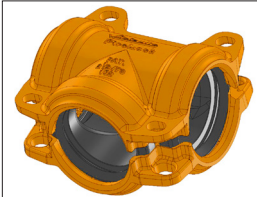


**2. LUBRICATE CORRECT SIZE GASKET:** Apply a thin coat of a compatible lubricant, such as Victaulic Lubricant or silicone lubricant, to the correct size gasket's sealing lips and exterior portion outside the sealing lips, as shown.


**NOTE:** For gaskets that are being reused, it is normal for the gasket to have a hazy white appearance after it has been in service.



**3. INSTALL GASKET INTO FIRST FITTING HOUSING:** Install the gasket into one of the housings. Verify that the ends of the gasket are seated fully in the housing's pockets, as shown.



**4. INSTALL SECOND FITTING HOUSING:** Install the second fitting housing. Verify that the ends of the gasket are seated in the housings' pockets.



**5. INSTALL BOLTS AND NUTS:** Install the bolts, and thread a nut onto each bolt. **NOTE:** Verify that the oval neck of each bolt seats properly in the bolt hole. **DO NOT** tighten the nuts completely. The bolt pads need to be set at a gap for reinstallation of the fitting. Two to three full bolt threads, exposed above each nut, will provide the proper gap.

6. Follow all steps of the applicable installation method section.

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## **Victaulic® FireLock™ Installation-Ready™ Fittings**

No. 102 (Straight Tee)

No. 104 (Bullhead Tee)

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For complete contact information, visit [victaulic.com](http://victaulic.com)

**I-102/104 9022 REV D UPDATED 06/2018 Z000102000**

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