I-900

FIELD INSTALLATION HANDBOOK
High-Density Polyethylene (HDPE) Products

- PRODUCT INSTALLATION
- INSTALLATION INSPECTION
- HELPFUL INFORMATION

⚠ WARNING

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

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

Contact Victaulic with any questions regarding the safe and proper installation of products featured in this handbook.
Visit victaulic.com for the most up-to-date information on Victaulic products.

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NOTICE

- **For information regarding center-to-end, end-to-end, take-out, and similar overall dimensions for couplings, adapters, valves, and fittings, refer to the current Victaulic submittal for complete dimensional information.**

General Information

HAZARD IDENTIFICATION

Definitions for identifying the various hazard levels are provided below.

This safety alert symbol indicates important safety messages. When you see this symbol, be alert to the possibility of personal injury. Carefully read and fully understand the message that follows.

⚠ DANGER

- **Use of the word "DANGER" identifies an immediate hazard with a likelihood of death or serious personal injury if instructions, including recommended precautions, are not followed.**

⚠ WARNING

- **Use of the word "WARNING" identifies the presence of hazards or unsafe practices that could result in death or serious personal injury if instructions, including recommended precautions, are not followed.**

⚠ CAUTION

- **Use of the word "CAUTION" identifies possible hazards or unsafe practices that could result in personal injury and product or property damage if instructions, including recommended precautions, are not followed.**

NOTICE

- **Use of the word "NOTICE" identifies special instructions that are important but not related to hazards.**

INTRODUCTION

This field handbook is a guide for installation of Victaulic mechanical piping products for high-density polyethylene (HDPE) pipe, and shall be used in combination with Victaulic submittal documents to ensure proper product selection and application. Additional copies of installation instructions and submittal documents are available to download and/or order on the Victaulic website, victaulic.com.

Always follow good piping practices. Specified pressures, temperatures, external loads, internal loads, performance standards, and tolerances shall never be exceeded. Many applications require recognition of special conditions, code requirements, and the use of safety factors, which shall be evaluated by qualified system engineers. The Victaulic Seal Selection Guide (publication 05.01) shall be referenced to determine requirements for special applications.

SCAN QR CODE FOR ADDITIONAL FIELD INSTALLATION HANDBOOKS THAT VICTAULIC OFFERS

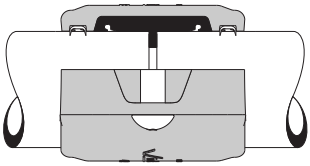
NOTICE

- **Victaulic maintains a continual policy of product improvement. Therefore, Victaulic reserves the right to change product specifications, designs, and standard equipment without notice and without incurring obligation.**
- **Victaulic is not responsible for system design, nor does Victaulic assume any responsibility for systems that are designed improperly.**
- **This handbook is not intended to be a substitute for competent, professional assistance, which is a prerequisite for any product application.**
- **The information published in this handbook and in other Victaulic literature supersedes all previously published information.**
- **Drawings and/or pictures in this handbook may be exaggerated for clarity.**
- **This field assembly handbook contains trademarks, copyrights, and products with patented features that are the exclusive property of Victaulic.**
- **While every effort has been made to ensure accuracy, Victaulic, its subsidiaries, and its affiliated companies make no expressed or implied warranty of any kind regarding the information contained or referenced in this handbook. Anyone who uses the information contained herein does so at their risk and assumes any liability that results from such use.**

IMPORTANT INFORMATION

The IPS products featured in this handbook are designed to mechanically join high-density polyethylene (HDPE) pipe that conforms to ASTM D3035 and ASTM F714 at ambient temperature. The metric products featured in this handbook are designed to mechanically join HDPE pipe that conforms to ISO 4427-2 and AS/NZS 4130 at ambient temperature. Refer to the product submittal of each respective product to determine valid pipe wall thicknesses and associated performance parameters. **CONTACT VICTAULIC PRIOR TO INSTALLATION OR SPECIFICATION OF HDPE PRODUCTS ON ALTERNATE PIPE MATERIALS.**

The working pressure of Victaulic products for HDPE pipe is dependent upon the pipe manufacturer's listed working pressure of the pipe. The pipe manufacturer's listed working pressure is dependent upon wall thickness, pipe composition, and temperature.



Victaulic products for plain-end HDPE pipe contain teeth inside each housing that grip into the pipe around the entire circumference.

Gaskets contained in select products for HDPE pipe shall be lubricated for proper assembly. Carefully read and understand the instructions for each product to determine lubrication requirements. Lubrication prevents gasket pinching and assists installation. Refer to the "Lubrication" section of this handbook for compatibility information.

Victaulic gaskets are designed to perform in a wide range of temperatures and operating conditions. As with any installation, there is a direct relationship among temperature, continuity of service, and gasket life. The Victaulic Seal Selection Guide (publication 05.01) shall be referenced to determine gasket grade recommendations for each application.

PIPE PREPARATION

Pipe shall be prepared to Victaulic specifications outlined for each product style. Preparation may vary according to pipe material, wall thickness, outside dimensions, and other factors. Refer to the individual product's installation instructions for additional pipe preparation requirements.

HDPE Pipe for Couplings, Adapters, Outlets, and Valves

Victaulic requires square-cut HDPE pipe for use with grooved-end and plain-end products.

Plain-end piping method is based upon retaining rings with teeth that grip the exterior surface of the pipe.

Double-grooved-end piping method is based upon the proper preparation of grooves to receive the housings' keys. The groove serves as a recess in the pipe, which allows ample depth for secure engagement of the housings, yet ample wall thickness for full pressure rating.

Steel Pipe for the Non-HDPE Side of Transition Couplings

Victaulic recommends square-cut steel pipe for use with grooved-end and plain-end products. Beveled-end pipe may be used, provided that the wall thickness is standard wall (ANSI B36.10) or less and that the bevel meets ANSI B16.25 (37 ½°). **NOTE:** Roll grooving beveled-end pipe may result in unacceptable pipe-end flare.

When grooving steel pipe for use with HDPE transition couplings, refer to the I-100 Field Installation Handbook and to Victaulic OGS Groove Specifications (publication 25.01) for complete instructions.

⚠ WARNING

- **Before setting up and operating any Victaulic pipe preparation tool, read and understand the operating and maintenance instructions manual for the tool.**
- **Learn the operation, applications, and potential hazards particular to the tool.**

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

PIPE LENGTH REQUIREMENTS FOR GROOVING

The minimum HDPE pipe length that can be grooved safely with Victaulic cut grooving tools will vary depending on the tool being used. Always refer to the operating and maintenance instructions manual of the applicable cut grooving tool for proper setup and grooving techniques.

If pipe is required that is shorter than the minimum length listed for the tool, shorten the next-to-last piece so that the last piece is as long as (or longer than) the minimum length specified.

EXAMPLE: A 20-foot, 4-inch/6.2-m length of HDPE pipe is required to finish a section, and only 20-foot/6.1-m lengths are available.

The Victaulic cut grooving tool being used requires a minimum pipe length of 27 in/689 mm.

Instead of cut grooving a 20-foot/6.1-m length of pipe and a 4-inch/102-mm length of pipe, cut groove an 18-foot, 1-inch/5.5 m length of pipe and a 27-inch/689 mm length of pipe.

GASKET SELECTION AND LUBRICATION

⚠ CAUTION

- **Always specify the proper gasket material for the intended service.**

Failure to select the proper gasket for the service may cause joint leakage, resulting in property damage.

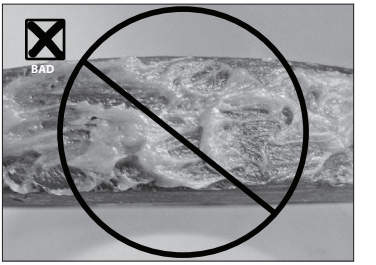
Do not subject gaskets to temperatures beyond the specified limits. Excessive temperatures will degrade gasket performance. Always refer to the latest Victaulic Seal Selection Guide (publication 05.01) for complete information.

Lubrication of the gasket with a thin coating of Victaulic Lubricant, or another compatible lubricant, is required to prevent gasket pinching. In addition, lubrication eases installation of the gasket onto the pipe end.

Refer to the individual product's installation instructions to determine whether lubricant should be applied directly to the gasket exterior/gasket sealing lips, to the coupling housings' interiors, or to the pipe ends.

Refer to the photos below for examples of properly and improperly lubricated gaskets. Due to variations in HDPE pipe, always consult with the pipe manufacturer for lubricant compatibility requirements. Refer to the Victaulic Lubricant Safety Data Sheet (publication 05.02) for additional information.

Properly Lubricated Gasket with Thin Coating of Victaulic Lubricant



Improperly Lubricated Gasket with Too Much Victaulic Lubricant

LUBRICANT COMPATIBILITY FOR GASKETS

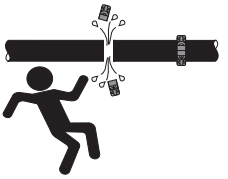
	Lubricant	
Gasket	Victaulic Lubricant, Soap-Based Solutions, Glycerin, Silicone Oil, or Silicone Release Agent	Corn Oil, Soybean Oil, Hydrocarbon-Based Oils, or Petroleum-Based Greases
Compatibility with Grade "E" EPDM Gaskets	Good	Not Recommended
Compatibility with Grade "EF" EPDM Gaskets	Good	Not Recommended
Compatibility with Grade "O" Fluoroelastomer Gaskets	Good	Good
Compatibility with Grade "T" Nitrile Gaskets	Good	Good

GASKET COLOR CODE REFERENCE

Grade	Compound	Color Code
E	EPDM	Green Stripe
EF	EPDM	Green "X"
O	Fluoroelastomer	Blue Stripe
T	Nitrile	Orange Stripe

PRODUCT INSTALLATION GUIDELINES

⚠ 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, serious personal injury, property damage, joint leakage, and/or joint failure.

The following instructions are a general guideline for the installation of Victaulic products for HDPE pipe. These instructions shall be followed to ensure proper joint assembly.

1. Always check the supplied gasket to ensure that it is suitable for the intended service. Refer to the "Gasket Selection" section for details.
2. Always read the operating and maintenance instructions manual(s) for the pipe preparation tool(s) being used.
3. The outside diameter and grooving dimensions of pipe shall be within published tolerances; these tolerances are subject to specified standards for acceptability. Refer to HDPE Cut Groove Specifications (publication 25.16) for details.
4. Couplings that contain tongue-and-recess features shall be mated properly, tongue-to-recess.

Buried Service

When specifying the products in this handbook for buried applications, the effects of soil conditions on buried systems shall be incorporated into system design to prevent corrosion. Consult the individual product submittal for details regarding the materials and finishes available for assembly hardware. The effect of chemical composition and pH level on the assembly hardware shall be evaluated by the system designer to confirm that the materials and finishes used will resist corrosion and will be acceptable for the intended service. Special coatings and/or cathodic protection may be applied to ensure system longevity. Refer to Grooved Piping Systems in Buried Applications (publication 26.15) for additional information.

INSTALLATION INSPECTION

⚠ WARNING

- **Always inspect each joint to ensure that the product was installed properly.**
- **Undersized or oversized pipe and bolt pad gaps are unacceptable. All of these conditions shall be corrected before attempting to pressurize the system.**

Failure to follow these instructions could result in death, serious personal injury, property damage, joint leakage, and/or joint failure.

Proper Installation

Proper pipe preparation and coupling installation is essential for maximum joint performance. **THE FOLLOWING CONDITIONS SHALL BE PRESENT TO ENSURE PROPER JOINT ASSEMBLY.**

1. The HDPE pipe OD shall be within the tolerances published in the "HDPE Pipe Size/Tolerances" charts on pages 74 and 75 of this handbook.
2. Unless stated otherwise in specific product instructions, Victaulic products for HDPE pipe shall be assembled with the bolt pads in firm, metal-to-metal contact. If you have any questions concerning an installation, contact Victaulic.
3. The seal is energized (compressed) when the coupling is assembled with the bolt pads in firm, metal-to-metal contact.
4. For Transition Couplings, the steel pipe OD and groove dimensions shall be within the tolerances listed in Victaulic OGS Groove Specifications (publication 25.01).

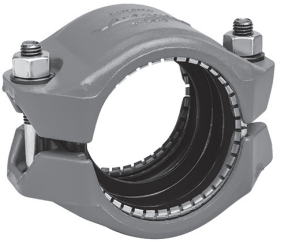
If the bolt pads are not in full metal-to-metal contact:

1. Ensure that the bolts/nuts have been tightened fully.
2. Ensure that the gasket is not pinched. If the gasket is pinched, replace it immediately.
3. Ensure that oversized pipe was not used.
4. For Transition Couplings, ensure that the groove on the non-HDPE pipe conforms to Victaulic specifications. If the groove is too shallow, groove the pipe to Victaulic specifications. If the groove is too deep, discard that section of pipe, and groove another section to Victaulic specifications.
5. For Transition Couplings, ensure that the key section of the housings engages the grooves. The key section of the housings must not rest on the outside diameter of the pipe.

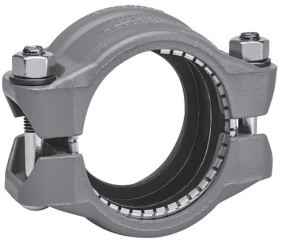
Always inspect joints both before and after the field test. Look for gaps at the bolt pads and/or keys that ride up on the shoulders. For Transition Couplings, inspect the key section of the housings to ensure that they do not rest on the outside diameter of the pipe. If any of these conditions exist, depressurize the system and replace any questionable joints.

Couplings for Plain-End HDPE Pipe

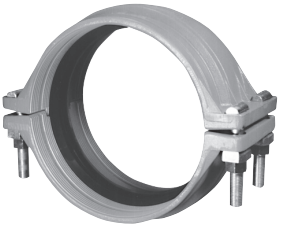
Installation Instructions



Style 905 Coupling for
Plain-End HDPE Pipe



Style 907 Transition Coupling for Plain-End
HDPE Pipe to Grooved-End Steel Pipe, Valves, or Fittings



Style 995 Coupling for Plain-End HDPE Pipe

Style 997 Transition Coupling for
Plain-End HDPE Pipe to
Grooved-End IPS Steel Pipe

Victaulic®

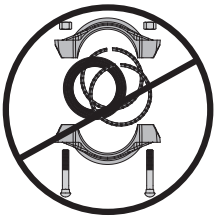
I-900_15

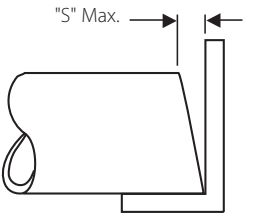
Style 905
Coupling for Plain-End HDPE Pipe

⚠ WARNING

- **Read and understand all instructions before attempting to install, remove, adjust, or maintain any Victaulic piping products.**
- **Depressurize and drain the piping system before attempting to install, remove, adjust, or maintain any Victaulic piping products.**
- **Wear gloves while handling coupling. Retainer teeth are sharp and may cause injury.**
- **Wear safety glasses, hardhat, and foot protection.**

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





1a. DO NOT DISASSEMBLE THE COUPLING: Style 905 Couplings are 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 insert HDPE pipe ends into the coupling.

1b. Remove all packaging (cardboard sleeves, zip ties, etc.) from the coupling. **NOTE:** The cardboard sleeve can be used as a guide for marking the pipe ends in step 3.

1c. Check the gasket to ensure that it is suitable for the intended service. The color code identifies the gasket grade. For the color code reference, refer to page 11 of this handbook, or to Victaulic publication 05.01, which can be downloaded at victaulic.com.

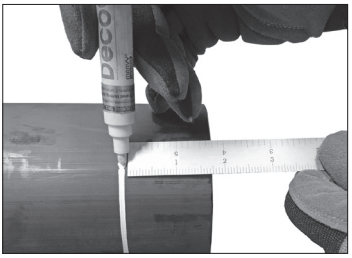
2a. PIPE END PREPARATION: Square-cut the HDPE pipe ends ("S" dimension shown) within ⅛ inch/3 mm for 2–4-inch/ 50–100 mm sizes and ¼ inch/ 6.4 mm for 6-inch/150-mm and larger sizes.

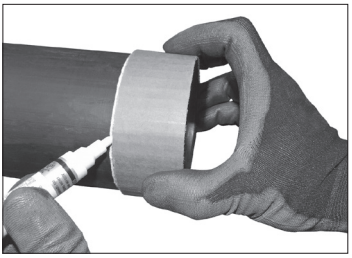
2b. Ensure that the pipe ends are clean and free from damage and scratches within 2½ inches/64 mm from the ends. All oil, grease, dirt, and cutting particles must be removed.

⚠ CAUTION

- **Square-cut pipe shall be used to prevent joint separation. If pipe is not square, re-cut the end to square.**

Failure to follow these instructions may cause joint leakage, resulting in property damage.





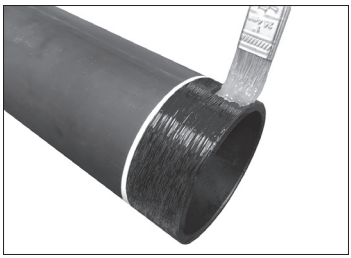
3. MARK PIPE: Using a ruler, measuring tape, or the cardboard sleeve and a paint stick, place a mark from each HDPE pipe end around the full circumference:

- 1⅞ inches/48 mm for 2–3-inch and 50–80-mm pipe sizes
- 2¼ inches/57 mm for 4–8-inch and 100–200-mm pipe sizes

This mark shall be used for visual inspection to ensure that the HDPE pipe is inserted properly in the coupling. If a full circumferential mark cannot be achieved, make at least four marks, equally spaced around the circumference of each pipe end.

Lubricant Compatibility for Gaskets

	Lubricant	
Gasket	Victaulic Lubricant, Soap-Based Solutions, Glycerin, Silicone Oil, or Silicone Release Agent	Corn Oil, Soybean Oil, Hydrocarbon-Based Oils, or Petroleum-Based Greases
Compatibility with Grade "E" EPDM Gaskets	Good	Not Recommended
Compatibility with Grade "EF" EPDM Gaskets	Good	Not Recommended
Compatibility with Grade "O" Fluoroelastomer Gaskets	Good	Good
Compatibility with Grade "T" Nitrile Gaskets	Good	Good



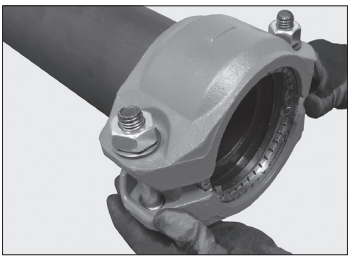
4. LUBRICATE PIPE END: Apply a thin coat of lubricant to the pipe end, from the end of the pipe to the paint mark made in step 3.

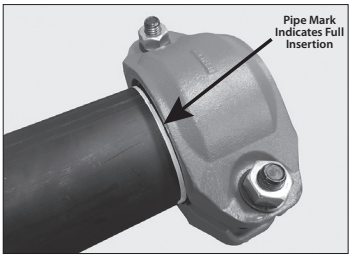
Lubricate each pipe end in accordance with the "Lubricant Compatibility for Gaskets" table above. Always consult the pipe manufacturer for lubricant compatibility requirements.

⚠ CAUTION

- **A compatible lubricant shall be used to prevent the gasket from pinching/tearing during installation.**
- **Due to variations in HDPE pipe, always consult with the pipe manufacturer for lubricant compatibility requirements.**

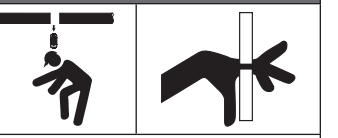
Failure to follow these instructions will void the Victaulic warranty and may cause joint leakage, resulting in property damage.





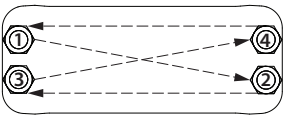
5. INSTALL COUPLING: Wear gloves while handling coupling housings. Retainer teeth are sharp and may cause injury. Assemble the joint by inserting the marked HDPE pipe end into each opening of the coupling. The HDPE pipe ends shall be inserted into the coupling until (1) contact with the center leg of the gasket occurs **AND** (2) the mark on the HDPE pipe ends indicate full insertion into the coupling, as shown above. **NOTE:** The distance from the edge of the coupling housings to the pipe insertion marks shall not exceed 3⁄16 inch/5 mm at any point around the circumference of the pipe ends.

⚠ WARNING

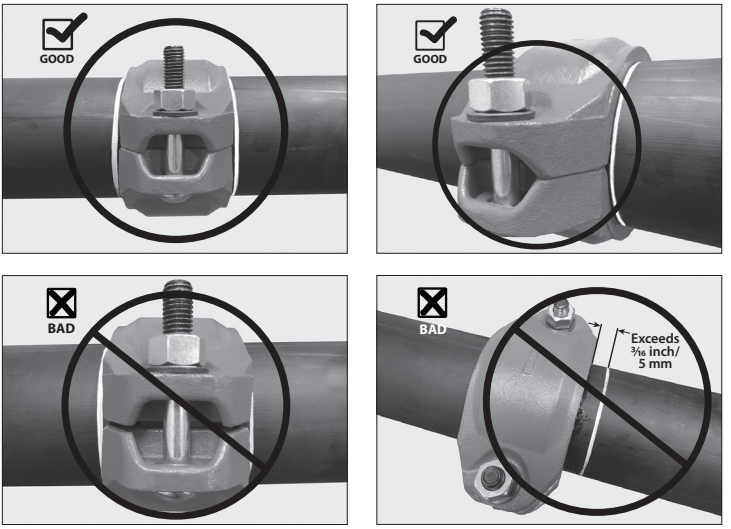


- **Never leave a Style 905 Coupling partially assembled. A partially assembled Style 905 Coupling poses a drop or burst hazard during testing.**
- **Keep hands away from HDPE pipe ends and openings of coupling when inserting pipe ends into coupling.**

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



6. TIGHTEN NUTS: Tighten the nuts evenly by alternating sides until metal-to-metal contact occurs at the bolt pads. Larger coupling sizes with four bolts shall be tightened in a crossing pattern, as shown. Ensure that the oval neck of each bolt seats properly in the bolt hole. **NOTE:** Even tightening is important to prevent gasket pinching. An impact wrench or deep-well socket wrench can be used to obtain metal-to-metal contact.



7. INSPECT BOLT PADS: Before pressurizing the system, inspect the bolt pads at each joint to ensure that proper assembly is achieved.

Style 905 Helpful Information

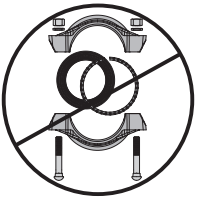
Nominal Pipe Size in/mm	Bolt/Nut Size inches/Metric	Socket Size in/mm
2 63	½ M12	⅞ 22
3–4 75–110	⅝ M16	1 1⁄16 27
6–8 125–225	¾ M20	1 ¼ 32

Style 907
Transition Coupling for Plain-End HDPE Pipe to Grooved-End Steel Pipe, Valves, or Fittings

⚠ WARNING

- **Read and understand all instructions before attempting to install, remove, adjust, or maintain any Victaulic piping products.**
- **Depressurize and drain the piping system before attempting to install, remove, adjust, or maintain any Victaulic piping products.**
- **Wear gloves while handling coupling. Retainer teeth are sharp and may cause injury.**
- **Wear safety glasses, hardhat, and foot protection.**

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



1a. DO NOT DISASSEMBLE THE COUPLING: Style 907 Couplings are 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 insert mating component ends into the coupling.

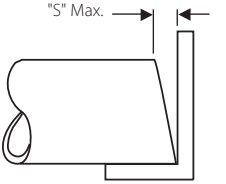
1b. Remove all packaging (cardboard sleeves, zip ties, etc.) from the coupling. **NOTE:** The cardboard sleeve can be used as a guide for marking the pipe ends in step 3.

1c. Check the gasket to ensure that it is suitable for the intended service. The color code identifies the gasket grade. For the color code reference, refer to page 11 of this handbook, or to Victaulic publication 05.01, which can be downloaded at victaulic.com.

⚠ CAUTION

- **Square-cut pipe shall be used to prevent joint separation. If pipe is not square, re-cut the end to square.**

Failure to follow these instructions may cause joint leakage, resulting in property damage.

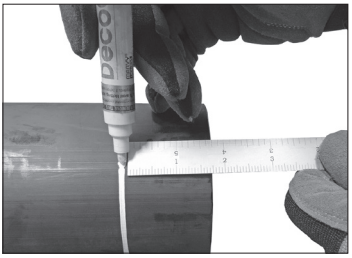


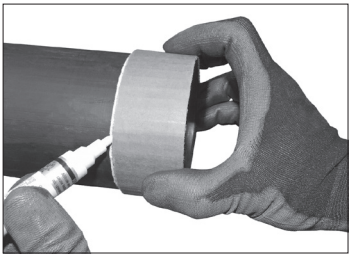
2a. PIPE END PREPARATION: Square-cut the HDPE pipe ends ("S" dimension shown) within ⅛ inch/3 mm for 2–4-inch/50–100 mm sizes and ¼ inch/6.4 mm for 6-inch/150-mm and larger sizes.

When using steel pipe, square-cut the steel pipe ends within 1/32 inch/0.8 mm for 2–3-inch/50–80-mm sizes and 1/16 inch/1.6 mm for 4-inch/100-mm and larger sizes.

2b. Ensure that the HDPE pipe ends are clean and free from damage and scratches within 2½ inches/64 mm from the ends to ensure a leak-tight seal. All oil, grease, loose paint, dirt, and cutting particles shall be removed.

2c. Ensure that the outside surface of the steel mating component end, between the groove and the mating component end, is 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 shall be removed. **NOTE:** When using steel pipe, groove the pipe ends to current Victaulic specifications.





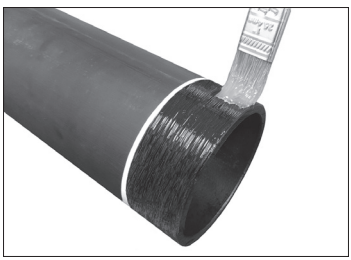
3. MARK PIPE: For the HDPE side, use a ruler, measuring tape, or the cardboard sleeve and a paint stick to place a mark from the end around the full circumference:

- 1⅞ inches/48 mm for 2–3-inch and 50–80-mm pipe sizes
- 2¼ inches/57 mm for 4–8-inch and 100–200-mm pipe sizes

This mark shall be used for visual inspection to ensure that the HDPE pipe is inserted properly in the coupling. If a full circumferential mark cannot be achieved, make at least four marks, equally spaced around the circumference of the HDPE pipe end.

Lubricant Compatibility for Gaskets

	Lubricant	
Gasket	Victaulic Lubricant, Soap-Based Solutions, Glycerin, Silicone Oil, or Silicone Release Agent	Corn Oil, Soybean Oil, Hydrocarbon-Based Oils, or Petroleum-Based Greases
Compatibility with Grade "E" EPDM Gaskets	Good	Not Recommended
Compatibility with Grade "EF" EPDM Gaskets	Good	Not Recommended
Compatibility with Grade "O" Fluoroelastomer Gaskets	Good	Good
Compatibility with Grade "T" Nitrile Gaskets	Good	Good



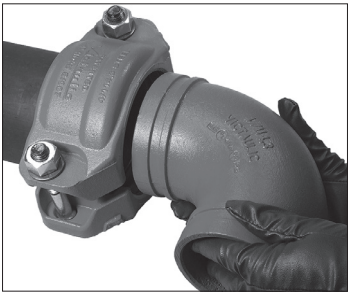
4. LUBRICATE PIPE ENDS: Apply a thin coat of lubricant to the HDPE pipe end, from the end of the pipe to the paint mark made in step 3.

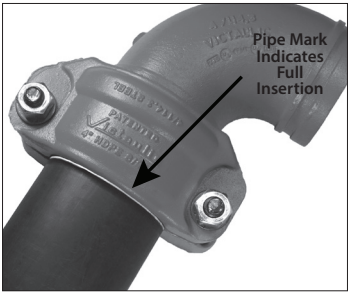
Lubricate the HDPE and steel mating component ends in accordance with the "Lubricant Compatibility for Gaskets" table above. Always consult the pipe manufacturer for lubricant compatibility requirements. **NOTE:** Before beginning joint assembly, ensure that each pipe end is aligned with the correct side of the coupling.

⚠ CAUTION

- **A compatible lubricant shall be used to prevent the gasket from pinching/tearing during installation.**
- **Due to variations in HDPE pipe, always consult with the pipe manufacturer for lubricant compatibility requirements.**

Failure to follow these instructions will void the Victaulic warranty and may cause joint leakage, resulting in property damage.

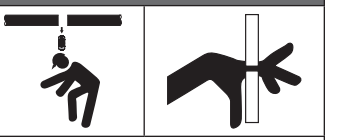




5a. INSTALL COUPLING: Wear gloves while handling coupling housings. Retainer teeth are sharp and may cause injury. Assemble the joint by inserting the marked HDPE pipe end into the side of the coupling that is marked "HDPE" and contains the retainer. The HDPE pipe end must be inserted into the coupling until (1) contact with the center leg of the gasket occurs **AND** (2) the mark on the HDPE pipe end indicates full insertion into the coupling, as shown above. **NOTE:** The distance from the edge of the coupling housing to the HDPE pipe insertion mark must not exceed 3⁄16 inch/5 mm at any point around the circumference of the HDPE pipe end.

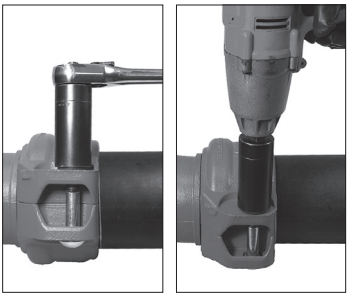
5b. Insert the grooved end of a steel mating component into the opening of the coupling that is marked "STEEL." The end of the grooved mating component shall be inserted into the coupling until contact with the center leg of the gasket occurs. A visual check is required to ensure the coupling keys align with the groove in the steel mating component.

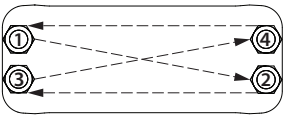
⚠ WARNING



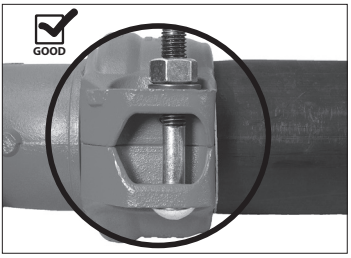
- **Never leave a Style 907 Coupling partially assembled. A partially assembled Style 907 Coupling poses a drop or burst hazard during testing.**
- **Keep hands away from pipe ends and openings of coupling when inserting pipe ends into coupling.**

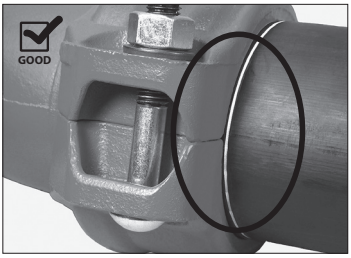
Failure to follow these instructions could result in serious personal injury and/or property damage.

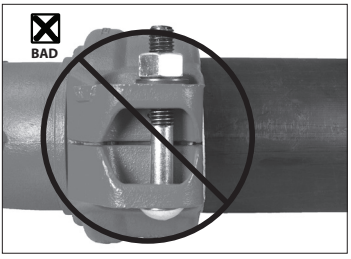


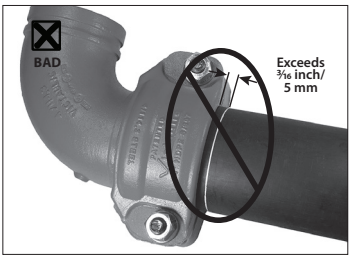


6. TIGHTEN NUTS: Tighten the nuts evenly by alternating sides until metal-to-metal contact occurs at the bolt pads. Larger coupling sizes with four bolts shall be tightened in a crossing pattern, as shown. Ensure that the housings' keys engage the groove completely on the steel side. **NOTE:** Even tightening is important to prevent gasket pinching. An impact wrench or deep-well socket wrench can be used to obtain metal-to-metal contact.









7. INSPECT BOLT PADS: Before pressurizing the system, inspect the bolt pads at each joint to ensure that proper assembly is achieved.

Style 907 Helpful Information

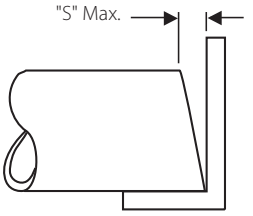
IPS Nominal Pipe Size inches	Bolt/Nut Size inches	Socket Size inches
2	½	⅞
3–4	⅝	1 1⁄16
6–8	¾	1 ¼

ISO Nominal Pipe Size HPDE Plain End x Grooved End mm	Bolt/Nut Size Metric/inches	Socket Size mm/in
63 x 60.3	M12 ½	22 ⅞
75 x 73.0	M16 ⅝	27 1 1⁄16
90 x 88.9	M16 ⅝	27 1 1⁄16
110 x 114.3	M16 ⅝	27 1 1⁄16
125 x 114.3	M20 ¾	32 1 ¼
140 x 141.3	M20 ¾	32 1 ¼
160 x 168.3	M20 ¾	32 1 ¼
180 x 168.3	M20 ¾	32 1 ¼
200 x 219.1	M20 ¾	32 1 ¼
225 x 219.1	M20 ¾	32 1 ¼

⚠ WARNING

- **Read and understand all instructions before attempting to install, remove, adjust, or maintain any Victaulic piping products.**
- **Depressurize and drain the piping system before attempting to install, remove, adjust, or maintain any Victaulic piping products.**
- **Wear gloves while handling coupling. Retainer teeth are sharp and may cause injury.**
- **Wear safety glasses, hardhat, and foot protection.**

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



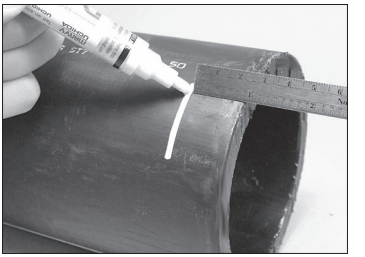
1a. PIPE END PREPARATION: Square-cut the HDPE pipe ends ("S" dimension shown) within ⅛ inch/3 mm for 2–4-inch/ 50–100-mm sizes and ¼ inch/ 6.4 mm for 5-inch/125-mm and larger sizes.

1b. Ensure that the pipe ends are clean and free from damage and scratches within 1 inch/25 mm from the ends. Remove cutting particles.

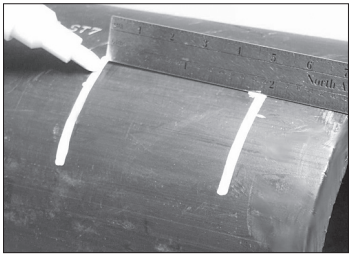
⚠ CAUTION

- **Square-cut pipe must be used to prevent joint separation. If pipe is not square, re-cut the end to square.**

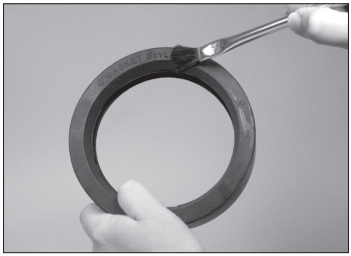
Failure to follow these instructions may cause joint leakage, resulting in property damage.



2. MARK PIPE FOR GASKET: Refer to the "Gasket Reference Mark" column in the table on page 25. Using a measuring tape and a brightly-colored marking pencil or paint stick, mark the pipe ends at the measurement listed in this table. This mark will be used for reference in centering the gasket during installation. Make at least four marks, equally spaced around the circumference of the pipe ends.



3. MARK PIPE FOR COUPLING: Refer to the "Pipe Insertion Depth" column in the table below. Using a measuring tape and a brightly-colored pencil or paint stick, make an additional mark on the pipe ends at the measurement listed in this table. This mark will be used for visual inspection to ensure that the pipe is inserted properly in the coupling. Make at least four marks, equally spaced around the circumference of the pipe ends.



4. LUBRICATE GASKET: Check the gasket to ensure that it is suitable for the intended service. The color code identifies the gasket grade. Lubricate the gasket in accordance with the "Lubricant Compatibility for Gaskets" table on page 26. Always consult the pipe manufacturer for lubricant compatibility requirements.

Apply a thin film of lubricant to all exterior surfaces and lips, as shown on page 10.

Gasket Reference Mark and Insertion Depth Requirements for IPS HDPE Pipe

Size		Gasket Reference Mark in/mm	Pipe Insertion Depth in/mm
Nominal Size inches	Actual Pipe Outside Diameter in/mm		
2	2.375 60.3	15/16 24	1 7/8 48
3	3.500 88.9	15/16 24	2 1/4 58
4	4.500 114.3	15/16 24	2 7/8 73
5	5.563 141.3	15/16 24	3 77
6	6.625 168.3	15/16 24	3 77
8	8.625 219.1	15/16 24	3 77
10	10.750 273.0	15/16 24	3 1/4 83
12	12.750 323.9	15/16 24	3 1/2 89
14	14.000 355.6	1 3/16 30	4 1/8 105
16	16.000 406.4	1 7/16 37	4 1/2 115
18	18.000 457.0	1 7/16 37	4 3/4 121
20	20.000 508.0	1 7/16 37	5 127

Gasket Reference Mark and Insertion Depth Requirements for Metric HDPE Pipe

Nominal Size mm	Gasket Reference Mark mm	Pipe Insertion Depth mm
90	24	58
110	24	73
140	24	77
160	24	77
200	24	77
225	24	77
250	24	83
280	24	83
315	24	90
355	30	99
400	37	115
450	37	121
500	37	127

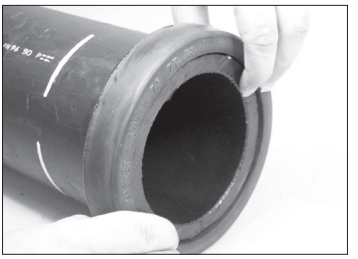
⚠ CAUTION

- **A compatible lubricant shall be used to prevent the gasket from pinching/tearing during installation.**
- **Due to variations in HDPE pipe, always consult with the pipe manufacturer for lubricant compatibility requirements.**

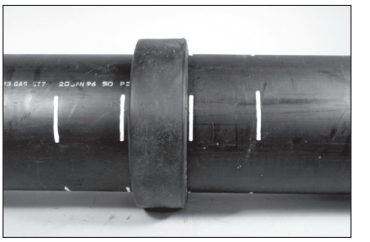
Failure to follow these instructions will void the Victaulic warranty and may cause joint leakage, resulting in property damage.

Lubricant Compatibility for Gaskets

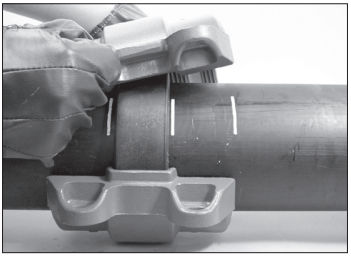
	Lubricant	
Gasket	Victaulic Lubricant, Soap-Based Solutions, Glycerin, Silicone Oil, or Silicone Release Agent	Corn Oil, Soybean Oil, Hydrocarbon-Based Oils, or Petroleum-Based Greases
Compatibility with Grade "E" EPDM Gaskets	Good	Not Recommended
Compatibility with Grade "T" Nitrile Gaskets	Good	Good

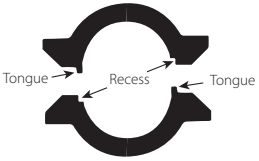


5. INSTALL GASKET: Install the gasket over the pipe end. Ensure that the gasket does not overhang the pipe end.



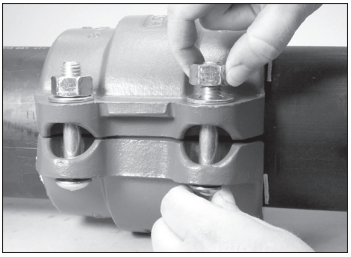
6. ALIGN GASKET: Align and bring the pipe ends together. Slide the gasket into position by centering it between the first set of pipe marks. **NOTE:** The space between the pipe ends must never exceed ¼ inch/ 6 mm for 2–4-inch/50–100-mm sizes and 5⁄16 inch/8 mm for 5-inch/125-mm and larger sizes.



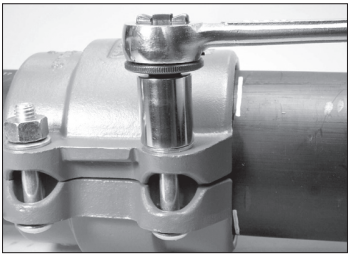


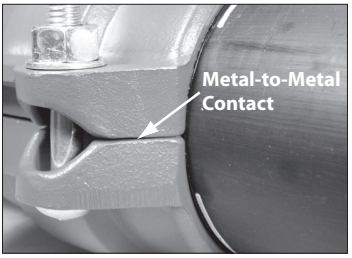
Exaggerated for Clarity

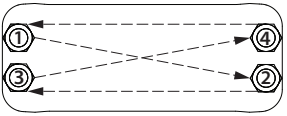
7. INSTALL HOUSINGS: Wear gloves while handling coupling housings. The teeth machined into the housings are sharp and can cause injury. Install the housings over the gasket. Ensure that the tongue-and-recess features mate properly (tongue in recess) and that the housings are centered between the second set of pipe marks. **NOTE:** The second set of marks on the pipe must indicate full insertion into the coupling.



8. INSTALL HARDWARE: Insert the bolts. **Install a washer onto the end of each bolt.** Thread a nut finger-tight onto each bolt. **NOTE:** Ensure that the oval neck of the bolts seat properly in the bolt holes.







9. TIGHTEN NUTS: Tighten the nuts evenly by alternating sides until metal-to-metal contact occurs at the bolt pads. Bolts shall be tightened in a crossing pattern, as shown. **NOTE:** Even tightening is important to prevent gasket pinching. The use of a geared torque multiplier is recommended, since a high level of torque may be required to achieve metal-to-metal contact at the bolt pads (especially in colder temperatures).

⚠ WARNING

- **Housings must be mated properly tongue-to-recess.**
- **Bolts must be tightened evenly to achieve metal-to-metal contact at the bolt pads.**

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

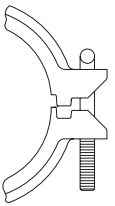
NOTICE

- **The 14-inch/355.6-mm and larger Style 995 Couplings contain T-bolts that require special instructions for tightening. Refer to the information below for the proper tightening sequence.**

Installing Special Hardware† for 14-inch/355.6-mm and Larger Style 995 Couplings

(† Patented)

The bolting assembly consists of T-bolts, rocker washers, and nuts.

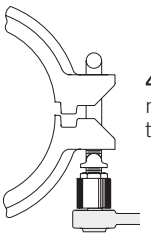


1. Follow steps 1–7 of the Style 995 installation instructions.

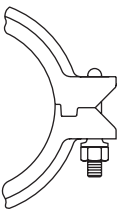
2. Insert a T-bolt into each bolt hole in the housings. Ensure that the head of each T-bolt engages with the recess in the housing.

3a. Install a rocker washer onto the end of each T-bolt. The curved surface of the rocker washer must face the bolt pad of the housing, as shown to the left.

3b. Thread a nut onto the end of each T-bolt until the rocker washer contacts the coupling housing.



4. Tighten all nuts evenly by alternating sides until metal-to-metal contact occurs at the bolt pads. **NOTE:** It is important to tighten the nuts evenly to prevent gasket pinching.



5. Inspect the finished assembly to ensure that the bolt pads are in firm metal-to-metal contact. Ensure that the rocker washers are engaged in the recesses of the coupling housings.

Style 995
Helpful Information

Size		
Nominal Size inches	Actual Pipe Outside Diameter in/mm	Socket Size inches
2	2.375 60.3	¾
3	3.500 88.9	¾
4	4.500 114.3	¾
5	5.563 141.3	1 1⁄16
6	6.625 168.3	1 1⁄16
8	8.625 219.1	1 1⁄16
10	10.750 273.0	1 ¼
12	12.750 323.9	1 7⁄16
14*	14.000 355.6	1 5⁄8
16*	16.000 406.4	1 5⁄8
18*	18.000 457.0	1 5⁄8
20*	20.000 508.0	1 5⁄8

*Supplied with T-bolts, rocker washers, and nuts

Style 995 (Metric)
Helpful Information

Nominal Size mm	Socket Size mm	Socket Size inches
90	19	¾
110	19	¾
140	24	1 1⁄16
160	24	1 1⁄16
200	24	1 1⁄16
225	24	1 1⁄16
250	30	1 1⁄8
280	30	1 1⁄8
315	32	1 7⁄16
355*	36	1 5⁄8
400*	36	1 5⁄8
450*	36	1 5⁄8
500*	36	1 5⁄8

NOTE: US Imperial or ISO metric bolts are available. Always specify choice upon ordering.

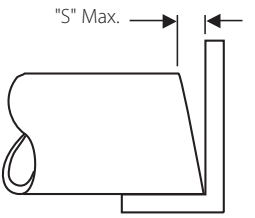
*Supplied with T-bolts, rocker washers, and nuts

Style 997
Transition Coupling for Plain-End HDPE Pipe to Grooved-End Steel Pipe

⚠ WARNING

- **Read and understand all instructions before attempting to install, remove, adjust, or maintain any Victaulic piping products.**
- **Depressurize and drain the piping system before attempting to install, remove, adjust, or maintain any Victaulic piping products.**
- **Wear gloves while handling coupling. Retainer teeth are sharp and may cause injury.**
- **Wear safety glasses, hardhat, and foot protection.**

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



1a. PIPE END PREPARATION: Square-cut the HDPE and steel pipe ends ("S" dimension shown) within ⅛ inch/3 mm for 2–4-inch/ 50–100-mm sizes and ¼ inch/ 6.4 mm for 5-inch/125-mm and larger sizes.

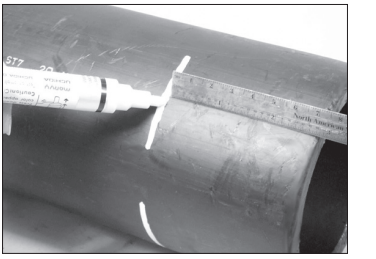
1b. Ensure that the pipe ends are clean and free from damage and scratches within 1 inch/25 mm from the ends. Remove cutting particles.

1c. Groove the steel pipe to current Victaulic specifications.

⚠ CAUTION

- **Square-cut pipe must be used to prevent joint separation. If pipe is not square, re-cut the end to square.**

Failure to follow these instructions may cause joint leakage, resulting in property damage.



2. MARK PIPE FOR GASKET: Refer to the "Pipe Insertion Depth" column in the table on page 31. Using a measuring tape and a brightly-colored pencil or paint stick, mark the HDPE pipe end at the measurement listed in this table. This mark will be used for visual inspection to ensure that the pipe is inserted properly in the coupling. Make at least four marks, equally spaced around the circumference of the pipe ends.

Insertion Depth Requirements for HDPE Pipe

Size		Pipe Insertion Depth in/mm
Nominal Size inches	Actual Pipe Outside Diameter in/mm	
2	2.375 60.3	1 ⅞ 48
3	3.500 88.9	2 ¼ 58
4	4.500 114.3	2 ⅞ 73
5	5.563 141.3	3 77
6	6.625 168.3	3 77
8	8.625 219.1	3 77
10	10.750 273.0	3 ¼ 83
12	12.750 323.9	3 ½ 89

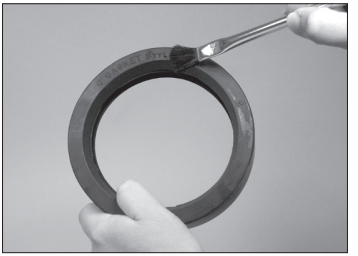
⚠ CAUTION

- **A compatible lubricant shall be used to prevent the gasket from pinching/tearing during installation.**
- **Due to variations in HDPE pipe, always consult with the pipe manufacturer for lubricant compatibility requirements.**

Failure to follow these instructions will void the Victaulic warranty and may cause joint leakage, resulting in property damage.

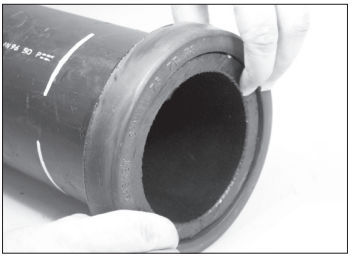
Lubricant Compatibility for Gaskets

	Lubricant	
Gasket	Victaulic Lubricant, Soap-Based Solutions, Glycerin, Silicone Oil, or Silicone Release Agent	Corn Oil, Soybean Oil, Hydrocarbon-Based Oils, or Petroleum-Based Greases
Compatibility with Grade "E" EPDM Gaskets	Good	Not Recommended
Compatibility with Grade "T" Nitrile Gaskets	Good	Good

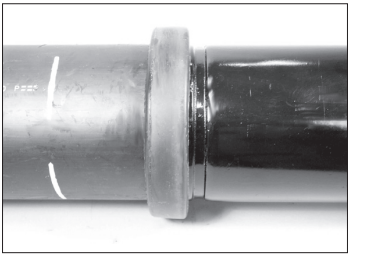


3. LUBRICATE GASKET: Check the gasket to ensure that it is suitable for the intended service. The color code identifies the gasket grade. Lubricate the gasket in accordance with the "Lubricant Compatibility for Gaskets" table on page 31. Always consult the pipe manufacturer for lubricant compatibility requirements.

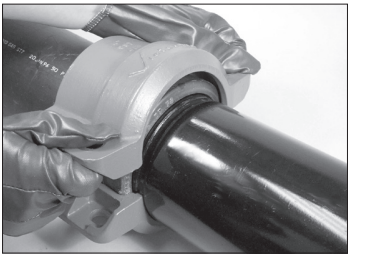
Apply a thin film of lubricant to all exterior surfaces and lips, as shown on page 10.



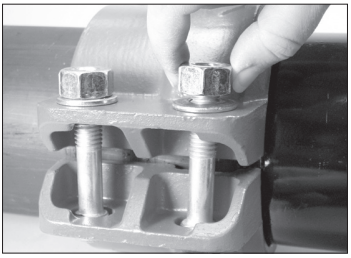
4. INSTALL GASKET: Install the gasket over the HDPE pipe end. Ensure that the gasket does not overhang the pipe end.



5. ALIGN GASKET: Align and bring the HDPE and steel pipe ends together. Slide the gasket into position by centering it between the mark on the HDPE pipe and the groove in the steel pipe. Ensure that the gasket does not extend into the groove in the steel pipe. **NOTE:** The space between the pipe ends must never exceed ¼ inch/6 mm for 2–4-inch/50–100-mm sizes and 5⁄16 inch/8 mm for 5-inch/125-mm and larger sizes.



6. INSTALL HOUSINGS: Wear gloves while handling coupling housings. The teeth machined into the housings are sharp and can cause injury. Install the housings, ensuring that the teeth are facing toward the HDPE pipe. The key section of the housings must engage into the groove in the steel pipe. Ensure that the gasket remains positioned properly in relation to the groove in the steel pipe and that the mark on the HDPE pipe indicates full insertion into the coupling.

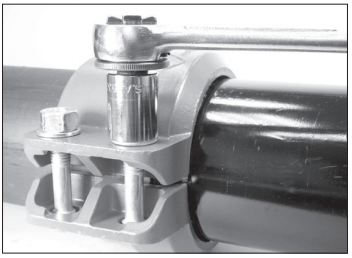


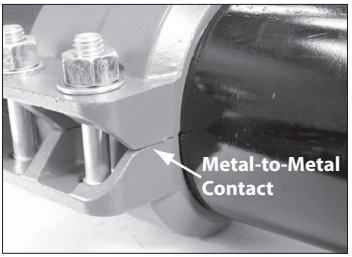
7. INSTALL HARDWARE: Insert the bolts. **Install a washer onto the end of each bolt.** Thread a nut finger-tight onto each bolt. **NOTE:** Ensure that the oval neck of the bolts seat properly in the bolt holes.

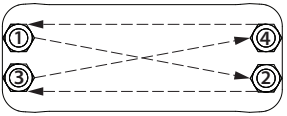
⚠ WARNING

- **Housings must be installed with the teeth facing the HDPE pipe and the key section engaged in the groove of the steel pipe.**
- **Bolts must be tightened evenly to achieve metal-to-metal contact at the bolt pads.**

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







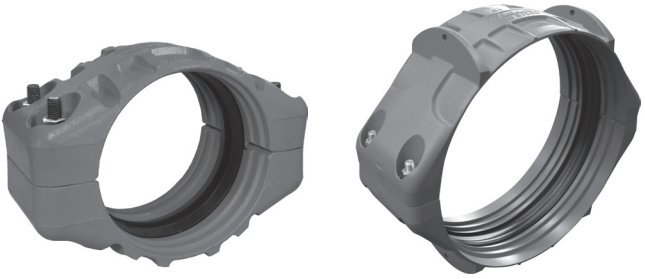
8. TIGHTEN NUTS: Tighten the nuts evenly by alternating sides until metal-to-metal contact occurs at the bolt pads. Bolts shall be tightened in a crossing pattern, as shown. **NOTE:** Even tightening is important to prevent gasket pinching. The use of a geared torque multiplier is recommended, since a high level of torque may be required to achieve metal-to-metal contact at the bolt pads (especially in colder temperatures).

Style 997 Helpful Information

Size		
Nominal Size inches	Actual Pipe Outside Diameter in/mm	Socket Size inches
2	2.375 60.3	11/16
3	3.500 88.9	3/4
4	4.500 114.3	3/4
5	5.563 141.3	1 1/16
6	6.625 168.3	1 1/16
8	8.625 219.1	1 1/16
10	10.750 273.0	1 7/16
12	12.750 323.9	1 7/16

Coupling for Grooved HDPE Pipe

Installation Instructions



Style 908 Coupling for Double-Grooved HDPE Pipe

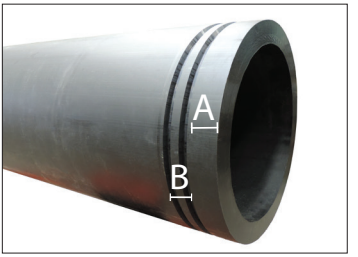
Victaulic®

I-900_35

⚠ WARNING

- **Read and understand all instructions before attempting to install, remove, adjust, or maintain 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.**

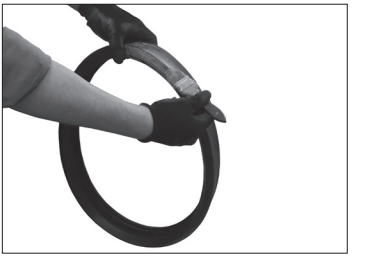
Failure to follow these instructions may result in death or serious personal injury and/or property damage.



1a. PIPE END PREPARATION: Verify that the HDPE pipe is square-cut and grooved in accordance with Victaulic HDPE Cut Groove Specifications (publication 25.16).

1b. Verify that the pipe ends are clean and free from damage and scratches from the end of the pipe to the end of the grooves. All oil, grease, dirt, and cutting particles must be removed. See dimension “A” in photo above.

1c. Verify that the groove area is free from cutting particles and free from damage. See dimension “B” in photo above.



2. LUBRICATE GASKET: Check the gasket to ensure that it is suitable for the intended service. The color code identifies the gasket grade. Lubricate the gasket in accordance with the “Lubricant Compatibility for Gaskets” table on page 37. Always consult the pipe manufacturer for lubricant compatibility requirements.

Apply a thin film of lubricant to all surfaces of the gasket, as shown on page 10.

⚠ CAUTION

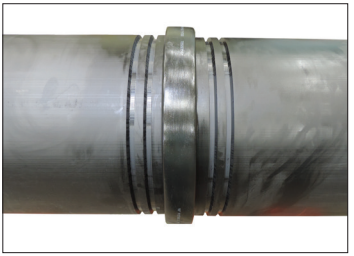
- **A compatible lubricant must be used to prevent the gasket from pinching/tearing during installation.**
- **Due to variations in HDPE pipe, always consult with the pipe manufacturer for lubricant compatibility requirements.**

Failure to follow these instructions will void the Victaulic warranty and may cause joint leakage, resulting in property damage.

Lubricant Compatibility for Gaskets

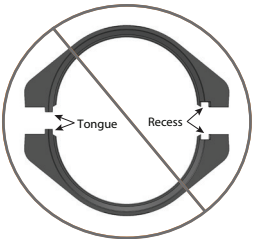
	Lubricant	
Gasket	Victaulic Lubricant, Soap-Based Solutions, Glycerin, Silicone Oil, or Silicone Release Agent	Corn Oil, Soybean Oil, Hydrocarbon-Based Oils, or Petroleum-Based Greases
Compatibility with Grade "E" EPDM Gaskets	Good	Not Recommended
Compatibility with Grade "EF" EPDM Gaskets	Good	Not Recommended
Compatibility with Grade "T" Nitrile Gaskets	Good	Good

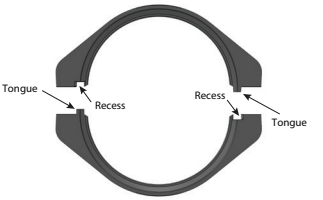
3a. POSITION GASKET: Position the gasket over one pipe end. Verify that the gasket does not overhang the pipe end.



3b. CENTER GASKET: Align and bring the pipe ends together. Slide the gasket into position by centering it between the grooves in each pipe end.

⚠ WARNING

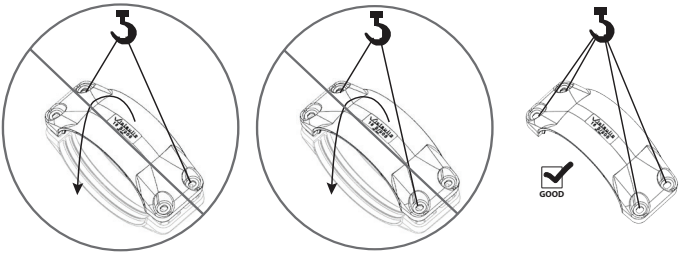




- **Housings must be mated properly tongue-to-recess.**
- **Nuts must be tightened evenly by alternating sides to achieve metal-to-metal contact at the bolt pads.**
- **Keep hands away from coupling openings during tightening.**

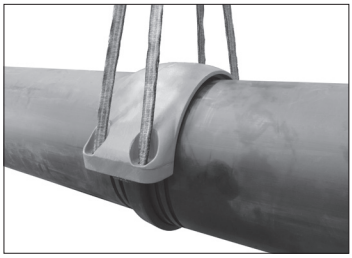
Failure to follow these instructions could cause joint failure, resulting in serious personal injury and property damage.

⚠ WARNING

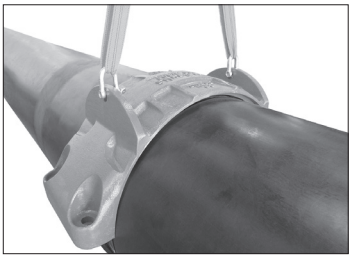


- **Alternative lifting methods than those shown may be used to position the housings.**
- **Lifting methods must ensure that the housings are unable to rotate or flip, and are under complete operator control during suspension.**

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



4a. INSTALL HOUSINGS: Install the housings over the gasket so that the housings' keys engage the pipe grooves completely on both pipe ends, as shown in the profile view above. **NOTE:** Verify that the housings are mated tongue-to-recess.



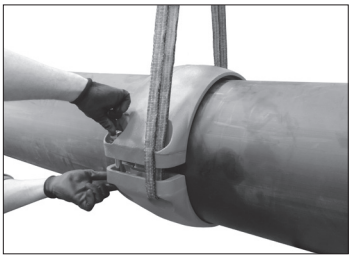
4b. LIFTING LUGS: Lifting lugs are provided on IPS couplings (20 inches and larger) and on metric couplings (500 mm and larger) to aid in assembly. Maximum safe lifting lug loads are imprinted on each housing with lifting lugs.

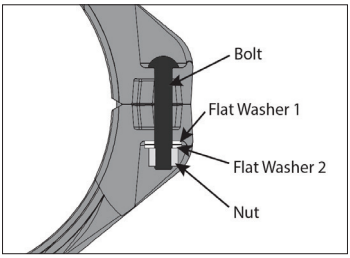
⚠ WARNING

- **Do not exceed lifting lug loads. The lifting lugs are not designed for lifting assembled sections of pipe.**

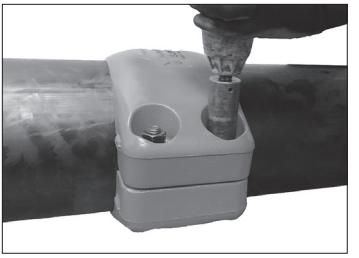
Failure to follow these instructions could cause product damage and joint failure, resulting in serious personal injury and/or property damage.

Due to the weight of these coupling housings, mechanical lifting equipment is strongly recommended. When lifting the lower housing, a shackle or similar device is recommended to attach the strap to the housing.

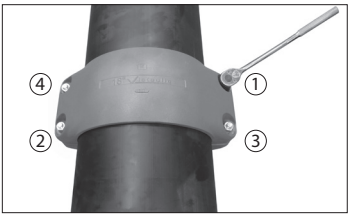




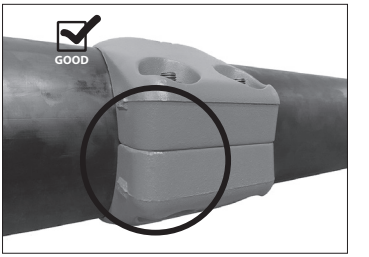
5a. INSTALL BOLTS AND NUTS: Insert a bolt into each bolt hole of the housing. Install two flat washers onto the end of each bolt and thread a nut finger-tight onto each bolt. **NOTE:** Ensure that that the oval neck of each bolt seats properly in the bolt hole.

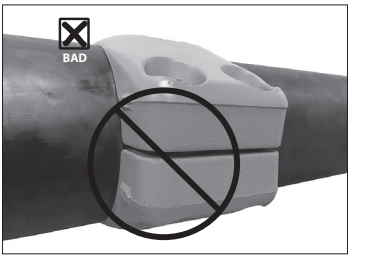


5b. TIGHTEN NUTS: Tighten the nuts evenly by alternating sides until metal-to-metal contact occurs at the bolt pads.



NOTE: Even tightening is important to prevent gasket pinching. An impact wrench or deep-well socket wrench can be used to obtain metal-to-metal contact.





6. INSPECT BOLT PADS: Before pressurizing the system, inspect the bolt pads at each joint to verify that proper assembly is achieved in accordance with steps 5a and 5b.

Style 908 Helpful Information

Nominal Size in or mm	Bolt/Nut Size inches or Metric	Socket Size in or mm
8 in	⅝ in	1 1⁄16 in
250–315 mm	M20	32 mm
10–12 in	¾ in	1 ¼ in
14–22 in	⅞ in	1 7⁄16 in
355–560 mm	M22	36 mm
24-28 in	1 in	1 ⅝ in
630–710 mm	M24	41 mm
30–32 in	1 ⅛ in	1 13⁄16 in
800 mm	M27	46 mm
900 mm	M30	50 mm
36 in	1 ¼ in	2 in

Flange Adapters for Plain-End HDPE Pipe

Installation Instructions

Style 904 Flange Adapter for HDPE Pipe

Style 994 *Vic-Flange* Adapter for HDPE Pipe

Victaulic®

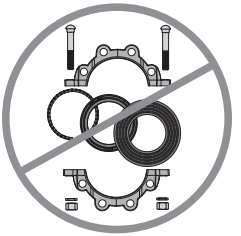
I-900_41

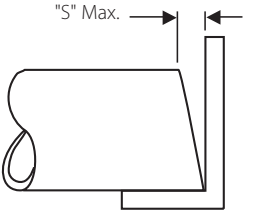
Style 904
Flange Adapter for HDPE Pipe

⚠ WARNING

- **Read and understand all instructions before attempting to install, remove, adjust, or maintain any Victaulic piping products.**
- **Depressurize and drain the piping system before attempting to install, remove, adjust, or maintain any Victaulic piping products.**
- **Wear gloves while handling flange adapter. Retainer teeth are sharp and may cause injury.**
- **Wear safety glasses, hardhat, and foot protection.**

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





1a. DO NOT DISASSEMBLE THE ADAPTER: Style 904 Flange Adapters are 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 insert mating component ends into the flange adapter.

1b. Remove all packaging (cardboard sleeves, zip ties, etc.) from the flange adapter. **NOTE:** The cardboard sleeve can be used as a guide for marking the pipe ends in step 3.

1c. Check the gasket to verify that it is suitable for the intended service. The color code identifies the gasket grade. For the color code reference, refer to page 11 of this handbook, or to Victaulic publication 05.01, which can be downloaded at victaulic.com.

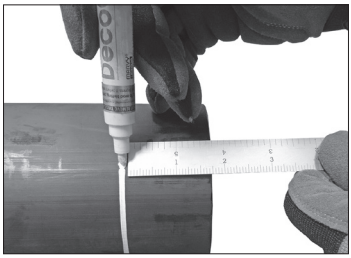
2a. PIPE END PREPARATION: Square-cut the HDPE pipe end ("S" dimension shown) within ⅛ inch/3 mm for 2–4-inch/50–100 mm sizes and ¼ inch/6.4 mm for 6-inch/150-mm and larger sizes.

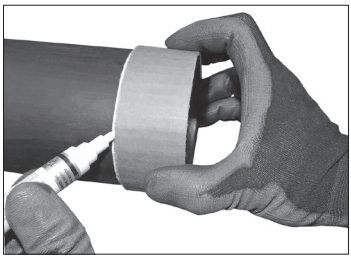
2b. Verify that the pipe end is clean and free from damage and scratches within 2½ inches/64 mm from the end. All oil, grease, dirt, and cutting particles must be removed.

⚠ CAUTION

- **Square-cut pipe must be used to prevent joint separation. If pipe is not square, re-cut the end to square.**

Failure to follow these instructions may cause joint leakage, resulting in property damage.

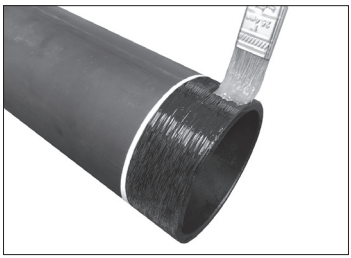




3. MARK PIPE: Using a ruler, measuring tape, or the cardboard sleeve and a paint stick, place a mark from the HDPE pipe end around the full circumference:

- 1⅞ inches/48 mm for 3-inch pipe sizes
- 2¼ inches/57 mm for 4–8-inch pipe sizes

This mark will be used for visual inspection to ensure that the HDPE pipe is inserted properly in the flange adapter. If a full circumferential mark cannot be achieved, make at least four marks, equally spaced around the circumference of each pipe end.



4. LUBRICATE PIPE END: Apply a thin coat of lubricant to the pipe end from the end of the pipe to the paint mark made in step 3.

Lubricate each pipe end in accordance with the "Lubricant Compatibility for Gaskets" table below. Always consult the pipe manufacturer for lubricant compatibility requirements.

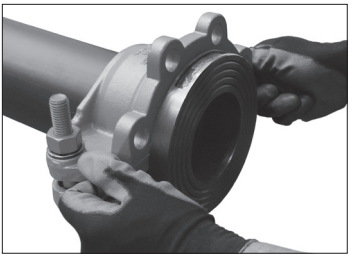
⚠ CAUTION

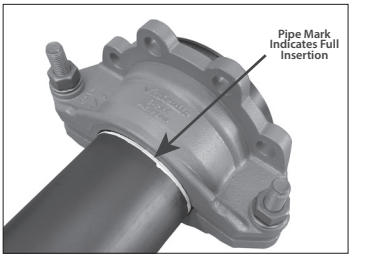
- **A compatible lubricant must be used to prevent the gasket from pinching/tearing during installation.**
- **Due to variations in HDPE pipe, always consult with the pipe manufacturer for lubricant compatibility requirements.**

Failure to follow these instructions will void the Victaulic warranty and may cause joint leakage, resulting in property damage.

Lubricant Compatibility for Gaskets

	Lubricant	
Gasket	Victaulic Lubricant, Soap-Based Solutions, Glycerin, Silicone Oil, or Silicone Release Agent	Corn Oil, Soybean Oil, Hydrocarbon-Based Oils, or Petroleum-Based Greases
Compatibility with Grade "E" EPDM Gaskets	Good	Not Recommended
Compatibility with Grade "O" Fluoroelastomer Gaskets	Good	Good
Compatibility with Grade "T" Nitrile Gaskets	Good	Good

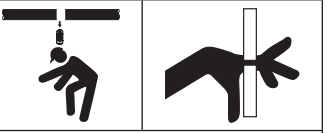




5. INSTALL FLANGE ADAPTER: Wear gloves while handling the flange adapter. Retainer teeth are sharp and may cause injury. Assemble the joint by inserting the marked HDPE pipe end into the opening of the flange adapter. The HDPE pipe end must be inserted into the flange adapter until (1) contact with the center leg of the gasket occurs **AND** (2) the mark on the HDPE pipe end indicates full insertion into the flange adapter, as shown above.

NOTE: The distance from the edge of the flange adapter to the pipe insertion mark must not exceed 3⁄16 inch/5 mm at any point around the circumference of the pipe end.

⚠ WARNING

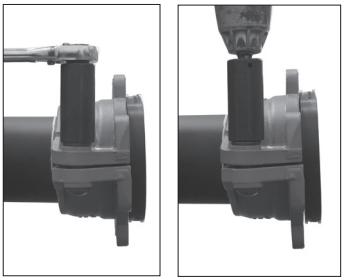


- **Never leave a Style 904 Flange Adapter partially assembled. A partially assembled Style 904 Flange Adapter poses a drop or burst hazard during testing.**
- **Keep hands away from the HDPE pipe end and from the opening of the flange adapter when inserting the pipe end into the flange adapter.**

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

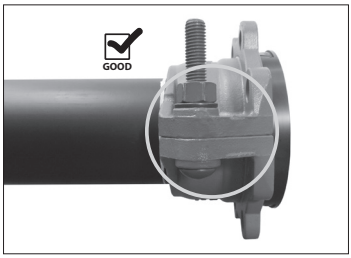
Style 904 Socket Sizes

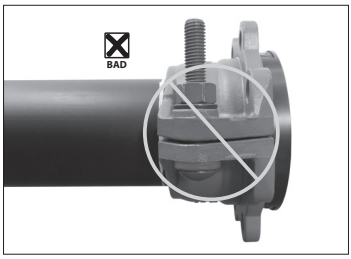
Nominal Pipe Size inches	Assembly Bolt/Nut Size inches	Assembly Socket Size inches
3–4	5⁄8	1 1⁄16
6–8	3⁄4	1 1⁄4



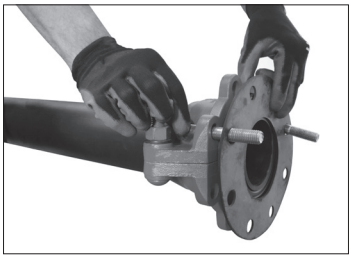
6. TIGHTEN ADAPTER NUTS: Tighten the adapter nuts evenly by alternating sides until metal-to-metal contact occurs at the bolt pads. Ensure that the oval neck of each bolt seats properly in the bolt hole.

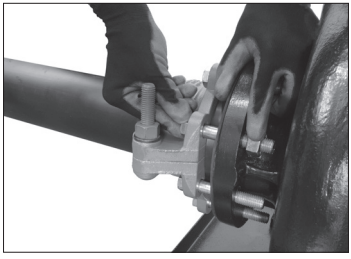
NOTE: Even tightening is important to prevent gasket pinching. An impact wrench or deep-well socket wrench can be used to obtain metal-to-metal contact.





7. INSPECT BOLT PADS: Inspect the bolt pads at each joint to verify that proper assembly is achieved in accordance with step 6.

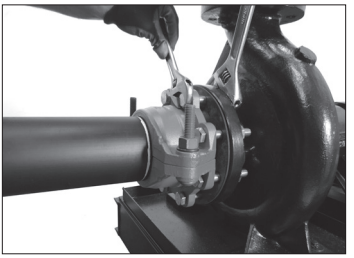




8. INSTALL FLANGE BOLTS AND NUTS: Insert lubricated flange bolts through the flange bolt holes and gasket (when applicable). Join the mating flange with the flange adapter by aligning the bolts with the mating flange holes. Thread nuts finger-tight onto each bolt. **NOTE:** Flange bolts, nuts, and gasket are not provided.

NOTE: Use a suitable flange gasket for full pressure rating. In cases where the polyethylene face of the flange adapter is sealed against a mating polyethylene face or rubber-faced, wafer type valve (no flange gasket), maximum allowable working pressure shall not exceed 100 psi for any available size.

NOTE: When the 904 Flange Adapter is used with a rubber-faced, wafer-type butterfly valve, a flange washer may be used, but is not necessarily required. Verify proper installation requirements with the valve manufacturer.



9. TIGHTEN FLANGE NUTS: Tighten all nuts evenly in a crossing pattern, in accordance with a regular flange assembly. Continue to tighten all nuts until the standard, flanged joint torque requirement is reached.

Style 904 Helpful Information

Size		Flange Bolts		Torque Values [1]	
Nominal inches	Actual Pipe Outside Diameter in/mm	Required Number of Bolts	Bolt Diameter inches	Typical [2] ft-lbs	Maximum [2] ft-lbs
3	3.500 88.9	4	⅝	60	85
4	4.500 114.3	8	⅝	60	85
6	6.625 168.3	8	¾	100	120
8	8.625 219.1	8	¾	125	140

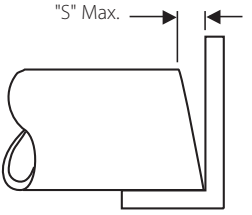
[1] Reference only. Verify torque requirements of flange gasket and mating flange.
[2] Lubricated bolts.

Style 994
Vic-Flange Adapter for HDPE Pipe

⚠ WARNING

- **Read and understand all instructions before attempting to install, remove, adjust, or maintain any Victaulic piping products.**
- **Depressurize and drain the piping system before attempting to install, remove, adjust, or maintain any Victaulic piping products.**
- **Wear gloves while handling flange adapter housings. Retainer teeth are sharp and may cause injury.**
- **Wear safety glasses, hardhat, and foot protection.**

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



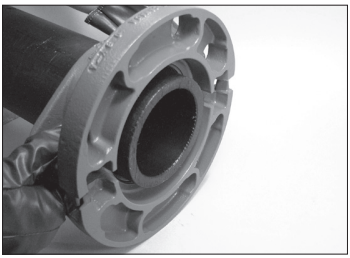
1a. PIPE END PREPARATION: Square-cut the HDPE pipe ends (“S” dimension shown) within ⅛ inch/ 3 mm for the 4-inch/114.3-mm size and ¼ inch/6.4 mm for 6-inch/ 168.3-mm and larger sizes.

1b. Ensure that the pipe ends are clean and free from damage and scratches within 1 inch/25 mm from the ends. Remove cutting particles.

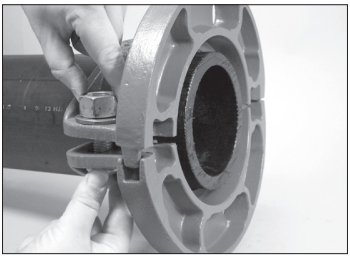
⚠ CAUTION

- **Square-cut pipe must be used to prevent joint separation. If pipe is not square, re-cut the end to square.**

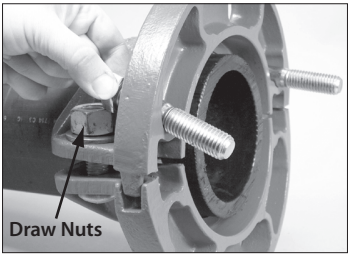
Failure to follow these instructions may cause joint leakage, resulting in property damage.



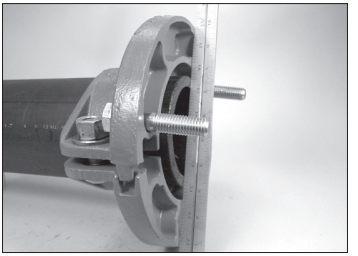
2. INSTALL FLANGE: Wear gloves while handling the flange adapter. Retainer teeth are sharp and may cause injury. Install the flange adapter housings over the HDPE pipe.



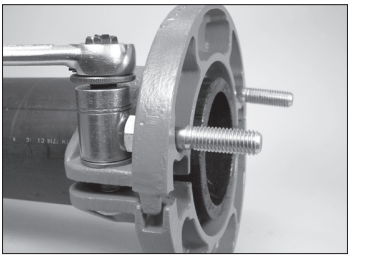
3. INSTALL DRAW BOLTS: Insert the draw bolts into the flange adapter housings. **Install a washer onto the end of each bolt.** Thread a nut loosely onto the end of each draw bolt.

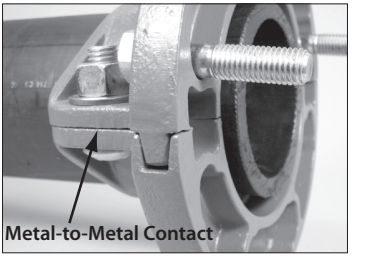


4. INSTALL FLANGE BOLTS: Insert a standard flange bolt into each hole closest to the draw nuts, as shown.



5. CHECK PIPE END: Using a straight edge, ensure that the HDPE pipe end is flush with the outside flange surface, as shown.





6. TIGHTEN NUTS: Ensure that the oval neck of the draw bolts seat properly in the bolt holes. Tighten the draw nuts evenly by alternating sides until metal-to-metal contact occurs at the bolt pads. **NOTE:** It is important to tighten the nuts evenly to achieve metal-to-metal contact. The use of a geared torque multiplier is recommended, since a high level of torque may be required to achieve metal-to-metal contact at the bolt pads (especially in colder temperatures).

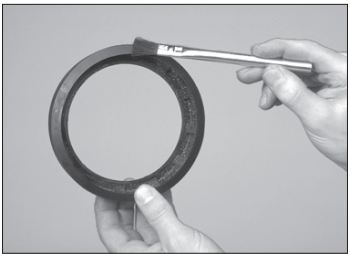
⚠ CAUTION

- **A compatible lubricant must be used to prevent the gasket from pinching/tearing during installation.**
- **Due to variations in HDPE pipe, always consult with the pipe manufacturer for lubricant compatibility requirements.**

Failure to follow these instructions will void the Victaulic warranty and may cause joint leakage, resulting in property damage.

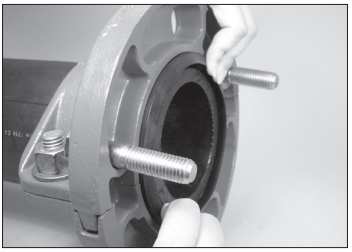
Lubricant Compatibility for Gaskets

Gasket	Lubricant	
	Victaulic Lubricant, Soap-Based Solutions, Glycerin, Silicone Oil, or Silicone Release Agent	Corn Oil, Soybean Oil, Hydrocarbon-Based Oils, or Petroleum-Based Greases
Compatibility with Grade "E" EPDM Gaskets	Good	Not Recommended
Compatibility with Grade "T" Nitrile Gaskets	Good	Good

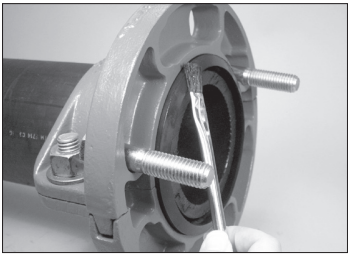


7. LUBRICATE GASKET: Check the gasket to ensure that it is suitable for the intended service. The color code identifies the gasket grade. Lubricate the gasket in accordance with the "Lubricant Compatibility for Gaskets" table above. Always consult the pipe manufacturer for lubricant compatibility requirements.

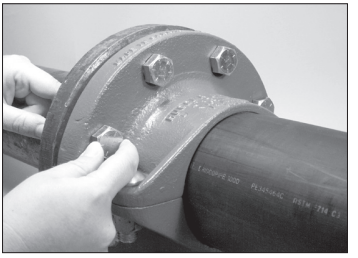
Apply a thin film of lubricant to all exterior surfaces and lips, as shown on page 10.



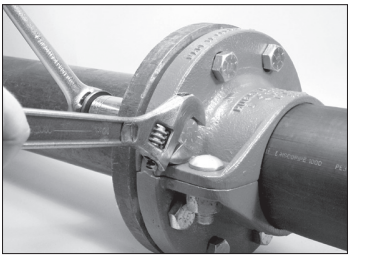
8. INSTALL GASKET: Install the gasket into the cavity between the outside diameter of the pipe and the flange adapter. **NOTE:** The markings on the outside of the gasket must face the flange adapter. When the gasket is installed correctly, the lettering will not be visible. Ensure that the gasket is completely pressed into this cavity around the entire circumference.



9. LUBRICATE LIP: After the gasket is in place, apply additional lubricant to the outer gasket lip that will seal on the mating flange face. Refer to the "Lubricant Compatibility for Gaskets" table above.



10. INSTALL BOLTS: Join the mating flange with the flange adapter by aligning the two bolts with the mating flange holes. Install the remaining standard bolts through the flange adapter and mating flange. Thread a nut onto the end of each bolt.



11. TIGHTEN NUTS: Tighten all nuts evenly in a crossing pattern, in accordance with a regular flange assembly. Continue to tighten all nuts until the standard, flanged joint torque requirement is reached.

⚠ WARNING

- **Draw bolts/nuts must be tightened evenly until metal-to-metal contact occurs at the bolt pads.**
- **Flange bolts/nuts must be tightened in an even, crossing pattern until the standard, flanged joint torque recommendation for the mating flange is achieved.**

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

Style 994 Helpful Information

Size		Assembly Bolts‡		Draw Bolts§			Required Mating Face Sealing Surface in/mm	
Nominal Size inches	Actual Pipe Outside Diameter in/mm	Required Number of Bolts‡	Bolt Size inches	Required Number of Bolts‡	Bolt Size inches	Socket Size inches	"A" Max.	"B" Min.
4	4.500 114.3	8	⅝ x 3	2	⅝ x 1 ¾	1 1⁄16	4.500 114.3	5.780 146.8
6	6.625 168.3	8	¾ x 3½	2	¾ x 2¼	1 ¼	6.630 168.4	7.970 202.4
8	8.625 219.1	8	¾ x 3½	2	¾ x 2¼	1 ¼	8.630 219.2	10.000 254.0

‡ Victaulic does not supply flange bolts/nuts. The flange bolt sizes, listed above, are for conventional flange-to-flange connections.

§ Draw bolts are supplied with 4–8-inch/114.3–219.1-mm Style 994 *Vic-Flange* Adapters.

Larger bolts are required when the *Vic-Flange* Adapter is used with wafer-type valves.

1. The gray area of the mating face (Figure 1) must be free from gouges, undulations, and deformities of any type for proper sealing. Heavy, serrated finishes are not acceptable.

2. When the Style 994 *Vic-Flange* Adapter is used with rubber-seated, wafer-type butterfly valves, a flat metal adapter plate must be used between the *Vic-Flange* Adapter and mating flange.

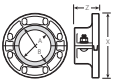
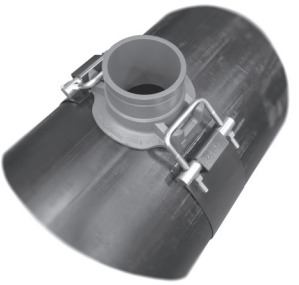


FIGURE 1

Hole-Cut Product for HDPE Pipe

Installation Instructions

Style 920 and Style 920N *Mechanical-T*



Style 926 *Mechanical-T* Spigot

Victaulic®

I-900_51

Style 920
Mechanical-T Bolted Branch Outlet

Style 920N
Mechanical-T Bolted Branch Outlet

⚠ WARNING

- **Read and understand all instructions before attempting to install, remove, adjust, or maintain 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.**

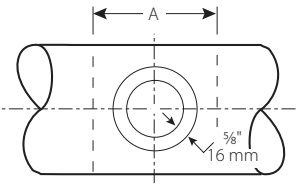
Failure to follow these instructions may result in death or serious personal injury and/or property damage.

Pipe Preparation for *Mechanical-T* Outlet Installation

NOTICE

- **Victaulic hole-cutting tools are recommended for proper hole preparation.**
- **Cross connections can be made ON METAL PIPE ONLY by using two upper housings of the same size. Different branch sizes are allowable. DO NOT make cross assemblies on HDPE pipe.**

1. Proper preparation of the hole is essential for sealing and performance. Ensure that the correct hole saw size is being used. Refer to the "Style 920/920N *Mechanical-T* Outlet Pipe Preparation Dimensions" table on page 53 for the proper hole saw size.
2. Holes MUST be drilled on the centerline of the pipe.
3. Ensure that a ⅝-inch/16-mm area around the hole is clean, smooth, and free from indentations and/or projections that could affect gasket sealing (refer to the sketch below). Remove any burrs or rough edges from the hole. Burrs and rough edges might affect assembly, proper seating of the locating collar, flow from the outlet, or gasket sealing.
4. The pipe around the entire circumference within the "A" dimension must be free of any dirt, scratches, abrasions, or projections that might prevent the housing from seating fully on the pipe. Refer to the "Style 920/920N *Mechanical-T* Outlet Pipe Preparation Dimensions" table on page 53 for the "A" dimension.



Style 920/920N *Mechanical-T* Outlet Pipe Preparation Dimensions

Nominal Outlet Size in/mm	Hole Dimensions in/mm		Surface Preparation "A" Dimension in/mm
	Minimum Hole Diameter/ Hole Saw Size	Maximum Allowable Diameter	
All ½-inch/ 21.3 outlets	1½ 38	1⅝ 41	3½ 89
All ¾-inch/ 26.9 outlets	1½ 38	1⅝ 41	3½ 89
All 1-inch/ 33.7 outlets	1½ 38	1⅝ 41	3½ 89
All 1 ¼-inch/ 42.4 outlets	1¾ 44	1⅞ 48	4 102
All 1 ½-inch/ 48.3 outlets	2† 51	2⅛ 54	4 102
All 2-inch/ 60.3 outlets	2½ ‡ 64	2⅝ 67	4½ 114
All 2 ½-inch/ 73.0 outlets	2¾ 70	2⅞ 73	5 127
All 76.1-mm outlets	2¾ 70	2⅞ 73	5½ 140
All 3-inch/ 88.9 outlets	3½ 89	3⅝ 92	5½ 140
All 4-inch/ 114.3 outlets	4½ 114	4⅝ 118	6½ 165
All 108.0-mm outlets	4½ 114	4⅝ 118	6½ 165

† 2 x 1½-inch/60.3 x 48.3-mm Style 920N products require a 1¾-inch/44.5-mm hole.

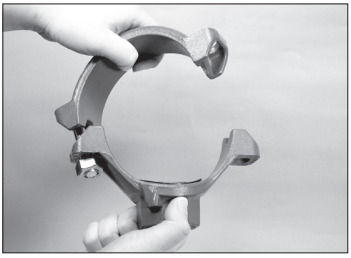
‡ 8 x 2-inch/219.1 x 60.3-mm Style 920 products require a 2¾-inch/69.9-mm size hole.

Mechanical-T Installation

⚠ CAUTION

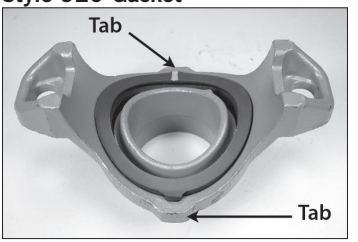
- **Ensure that pipe is prepared properly in accordance with the instructions on the previous page.**

Failure to prepare pipe according to these instructions could cause improper gasket sealing, resulting in property damage.

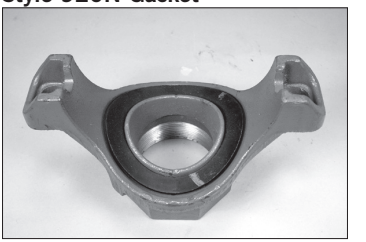


1. ASSEMBLE HOUSINGS: Insert a bolt into the two housings. Thread a nut loosely onto the end of the bolt.

Style 920 Gasket



Style 920N Gasket



2a. CHECK GASKET: Inspect the sealing surface of the gasket to ensure that no debris is present. For Style 920N *Mechanical-T* Outlets, it is not necessary to remove the gasket from the housing. **GASKETS FOR THE STYLE 920 ARE NOT INTERCHANGEABLE WITH GASKETS FOR THE STYLE 920N. THE CORRECT GASKET IS SHIPPED WITH THE APPROPRIATE PRODUCT.**

Style 920 Gaskets have a narrower gasket sealing area and two pronounced alignment tabs for proper positioning inside the housing. Style 920N gaskets have a wider gasket sealing area. Refer to the photos above for differences between the gaskets.

2b. LUBRICATE GASKET: Lubricate the gasket in accordance with the "Lubricant Compatibility for Gaskets" table below. Always consult the pipe manufacturer for lubricant compatibility requirements.

Apply a thin film of lubricant to all exterior surfaces and lips, as shown on page 10.

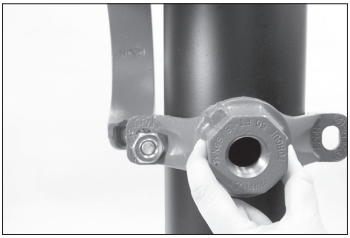
⚠ CAUTION

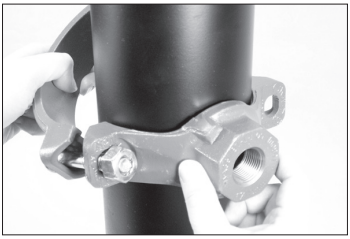
- **A compatible lubricant shall be used to prevent the gasket from pinching/tearing during installation.**
- **Due to variations in HDPE pipe, always consult with the pipe manufacturer for lubricant compatibility requirements.**

Failure to follow these instructions will void the Victaulic warranty and may cause joint leakage, resulting in property damage.

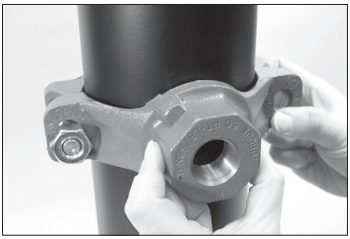
Lubricant Compatibility for Gaskets

	Lubricant	
Gasket	Victaulic Lubricant, Soap-Based Solutions, Glycerin, Silicone Oil, or Silicone Release Agent	Corn Oil, Soybean Oil, Hydrocarbon-Based Oils, or Petroleum-Based Greases
Compatibility with Grade "E" EPDM Gaskets	Good	Not Recommended
Compatibility with Grade "T" Nitrile Gaskets	Good	Good

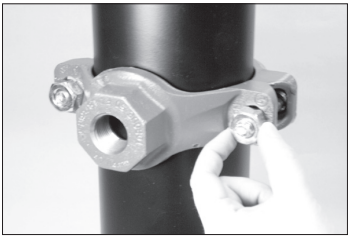




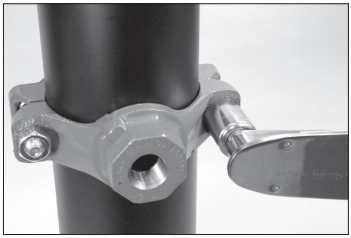
3a. INSTALL HOUSINGS: Rotate the lower housing so that it is positioned approximately 90° to the upper (outlet) housing, as shown above. Place the upper (outlet) housing onto the face of the pipe in line with the outlet hole cut into the pipe. Rotate the lower housing around the pipe.



3b. Ensure that the locating collar engages the outlet hole properly. Check this engagement by rocking the upper (outlet) housing in the hole.



4. INSTALL REMAINING BOLT/NUT: Insert the remaining bolt. Thread a nut onto the bolt finger-tight. Ensure that the bolt track heads seat properly in the bolt holes.



5a. TIGHTEN NUTS: Ensure that the locating collar is still positioned properly in the outlet hole. Tighten the nuts evenly by alternating sides until the upper (outlet) housing contacts the pipe completely.

5b. TORQUE NUTS: The nuts must be torqued to 50 ft-lbs/68 N•m. **NOTE:** On HDPE pipe, it is normal for bolt pads to contact when the nuts are tightened to 50 ft-lbs/68 N•m. **DO NOT** exceed 70 ft-lbs/95 N•m of torque on the nuts.

NOTICE

- **For grooved outlets, refer to the applicable coupling installation instructions.**
- **For threaded outlets, complete the assembly using standard threading practices.**

⚠ WARNING

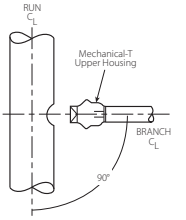
- **Nuts must be torqued to 50 ft-lbs/68 N•m.**
- **DO NOT exceed 70 ft-lbs/ 95 N•m of torque on the nuts. Increased torque will not improve sealing and may cause product failure.**

Failure to torque nuts properly could cause product failure, resulting in serious personal injury and/or property damage.

BRANCH CONNECTIONS

If a branch connection is made to the upper housing before the *Mechanical-T* is installed on the pipe, ensure that the branch connection is 90° to the pipe run before completing the tightening sequence of the *Mechanical-T* assembly.

- When the *Mechanical-T* is used as a transition piece between two runs, it must be assembled onto the runs before the branch connection is made.
- Victaulic female threaded products are designed to accommodate standard ANSI male pipe threads only. Use of male threaded products with special features, such as probes or dry pendent sprinkler heads, should be verified as suitable for use with this product. Failure to verify suitability in advance may result in assembly problems or leakage.



Exaggerated for clarity

Style 920 Helpful Information

Size		Nut Size	Socket Size
Nominal Size in or mm	**Actual Pipe Outside Diameter in/mm**	**inches/ Metric**	**inches/ Metric**
76.1 mm	3.000 76.1	½ M12	⅞ 22
108.0 mm	4.250 108.0	½ M12	⅞ 22
4 in	4.500 114.3	½ M12	⅞ 22
133.0 mm	5.250 133.0	⅝ M16	1 to 1 1⁄16 27
139.7 mm	5.500 139.7	⅝ M16	1 to 1 1⁄16 27
5 to 6 in	5.563–6.625 141.3–168.3	⅝ M16	1 to 1 1⁄16 27
159.0 mm	6.250 159.0	⅝ M16	1 to 1 1⁄16 27
165.1 mm	6.500 165.1	⅝ M16	1 to 1 1⁄16 27
200A (JIS)	— 216.3	¾ M20	1 ¼ 32
8 in	8.625 219.1	¾ M20	1 ¼ 32

Style 920N Helpful Information

Size		Nut Size	Socket Size
Nominal Size in or mm	**Actual Pipe Outside Diameter in/mm**	**inches/ Metric**	**inches/ Metric**
2 to 6 in	2.375–6.625 60.3–168.3	½ M12	⅞ 22
76.1–139.7 mm	3.000–5.500 76.1–139.7	½ M12	⅞ 22
159.0 mm	6.250 159.0	⅝ M16	1 1⁄16 27
165.1 mm	6.500 165.1	½ M12	⅞ 22

⚠ WARNING

- **Read and understand all instructions before attempting to install, remove, adjust, or maintain 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.**

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

The following procedures are designed as a guide for proper assembly of the Style 926 *Mechanical-T* Spigot. Request Victaulic publication 11.07 for additional information.

Maximum service life is dependent upon proper gasket selection and installation. Be sure to note the gasket grade being supplied, and ensure that it is suited for the intended service. For more detailed information, consult the Victaulic Seal Selection Guide (publication 05.01) or contact Victaulic.

Pipe Preparation for *Mechanical-T* Spigot

To prepare the pipe for Victaulic products, a hole must first be cut into the pipe. Proper preparation of the hole is essential for sealing and performance. Ensure that the correct hole saw is used. Refer to the "Helpful Information" table for the proper hole size.

⚠ WARNING

- **When cutting a hole for the *Mechanical-T* spigot, DO NOT cut over a previously fused seam or welded joint. The hole must be cut in a location that has not previously been altered or repaired.**

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

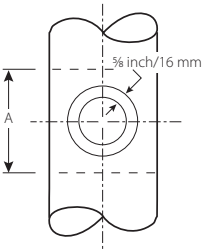
Holes MUST be drilled perpendicular to the centerline of the pipe. Improperly cut holes may prevent complete insertion of the locating collar and interfere with proper sealing.

NOTICE

- **A Milwaukee ½" Hole-Hawg® Drill 300/1200 RPM or similar hole saw is recommended for proper hole preparation.**
- **For a 4" HDPE outlet, the Miyanaga America† 115 mm Galvawood or similar bit is recommended.**
- **For a 6" HDPE outlet, the Miyanaga America 170 mm HDPE or similar bit is recommended.**

® Milwaukee Hole-Hawg is a registered trademark of Milwaukee Tool
† Miyanaga America is a trademark of MIYANAGA Co., Ltd.

Ensure that the pipe surface within ⅝ inch/16 mm of the hole is clean, smooth, and free from indentations and/or projections that could affect the sealing of the o-ring. Refer to the drawing below.



Exaggerated for clarity

Remove any burrs and sharp edges from the hole. Leftover burrs or sharp edges could affect the assemby, seating of the locating collar, flow from the spigot, or sealing of the o-ring.

The pipe around the entire circumference within the "A" dimension must be free of any dirt, scratches, abrasions, or projections that might prevent the strap or outlet from seating fully on the pipe.

Style 926 *Mechanical-T* Spigot Pipe Preparation Dimensions

Nominal Outlet Size in/mm	Hole Dimensions in/mm		Surface Preparation "A" Dimension in/mm
	Minimum Hole Diameter/ Hole Saw Size	Maximum Allowable Diameter	
4 100	4½ 115	4⅝ 117	8 203
6 150	6⅝ 168	6¾ 171	10 254

⚠ CAUTION

- **A compatible lubricant shall be used to prevent the o-ring from pinching/tearing during installation.**
- **Due to variations in HDPE pipe, always consult with the pipe manufacturer for lubricant compatibility requirements.**

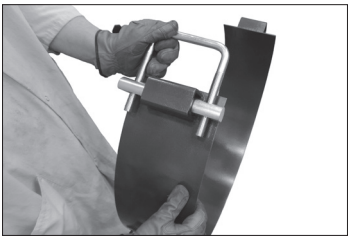
Failure to follow these instructions will void the Victaulic warranty and may cause joint leakage, resulting in property damage.

Lubricant Compatibility for O-Rings

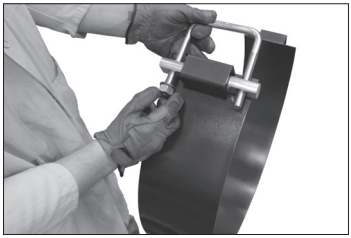
O-Ring	Lubricant	
	Victaulic Lubricant, Soap-Based Solutions, Glycerin, Silicone Oil, or Silicone Release Agent	Corn Oil, Soybean Oil, Hydrocarbon-Based Oils, or Petroleum-Based Greases
Compatibility with Grade "E" EPDM O-Rings	Good	Not Recommended
Compatibility with Grade "T" Nitrile O-Rings	Good	Good

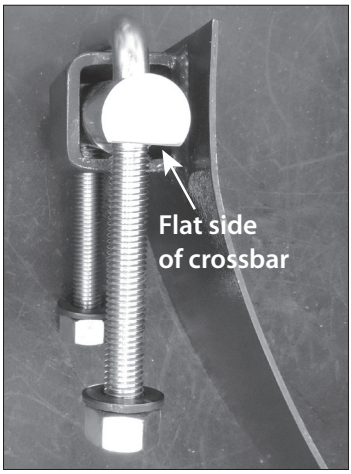
Mechanical-T Spigot Installation

1. INSERT CROSSBAR: Insert a crossbar into the retaining bracket on both sides of the strap. The flat side of the crossbar should face away from the open end of the strap, as pointed out in the profile view to the right.



2. INSERT U-BOLT: Insert a U-bolt into the crossbar on both sides of the strap. The threaded ends should protrude through the flat sides of the crossbars.





3. LOOSELY THREAD NUTS: Place one washer over each end of the U-bolts, then loosely thread a nut over each washer. The nuts should only be tight enough to hold the assembly in place.

NOTE: Over-tightening may prevent ease of assembly when placing U-bolts over the housing.

4. LUBRICATE GROOVE: Lubricate the groove in accordance with the "Lubricant Compatibility for O-Rings" table on page 58. Always consult the pipe manufacturer for lubricant compatibility requirements.

Apply a thin coat of Victaulic Lubricant or silicone lubricant only to the o-ring groove on the underside of the spigot housing.

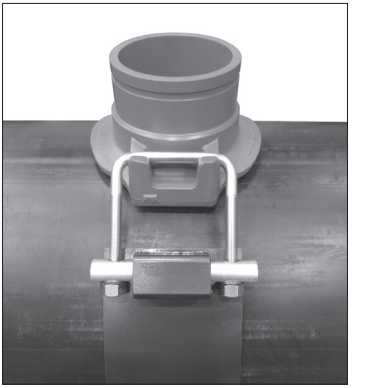
5. INSTALL O-RING: Press the o-ring into the groove on the underside of the spigot housing. Do NOT place the o-ring on the pipe and then attempt to push the locating collar through it. This may push the o-ring into the hole, and will prevent proper sealing.

6. PLACE HOUSING: Place the housing by inserting the locating collar into the hole in the pipe. Ensure that the o-ring remains in the groove on the housing and does not fall into the hole.

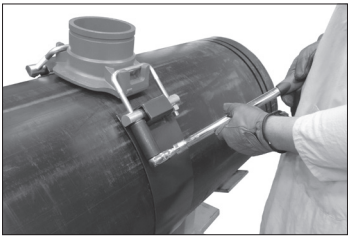
7. PLACE STRAP: Push one end of the strap underneath the pipe and hook one U-bolt over the retaining gusset of the spigot housing.

8. ATTACH STRAP: On the opposite side of the pipe, pull the second U-bolt up and hook it over the second retaining gusset of the spigot housing.

NOTE: If there is inadequate length to perform this step, loosen the nuts on the U-bolts to lengthen the assembly.

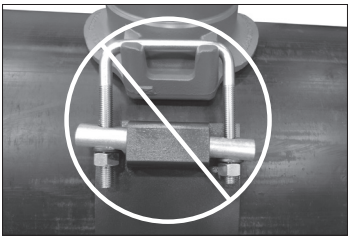


9. POSITION FOR TIGHTENING: Position the U-bolts, crossbars, and strap so that a deep well socket can fit around all nuts for tightening.



10. TIGHTEN HARDWARE: Using a 1 1⁄16-inch sized deep-well socket, tighten both nuts on each U-bolt evenly by alternating between them. Drive one nut no more than ¼ inch/ 6.4 mm beyond the location of the second nut on a given U-bolt. Torque the nuts to 75–100 t-lbs/ 102–136 N•m, with even spacing between the housing and the strap on both sides.

NOTE: HDPE pipe of wall thickness less than 0.75 in/19 mm may not allow nut torque value to be achieved. In this case, disregard step 12 in favor of tightening the hardware until 360° of contact is achieved between the pipe and housing.

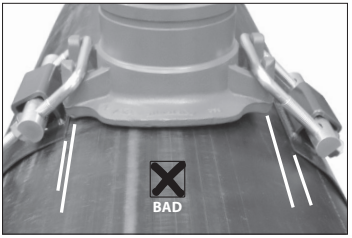


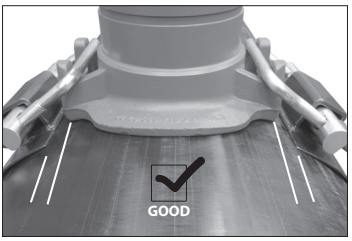
NOTE: Over-tightening one nut can cause damage to the threads and may cause the assembly to shift position, as shown above.

⚠ WARNING

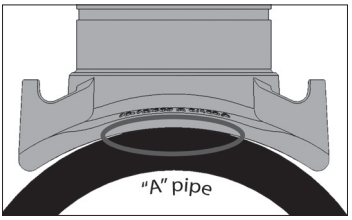
- **DO NOT exceed 100 ft-lbs/136 N•m of torque on the nuts. Increased torque will not improve sealing and may cause product failure.**

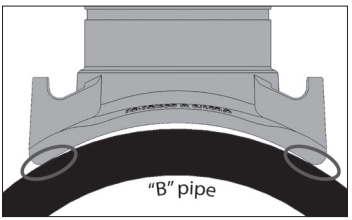
Failure to torque nuts properly could cause product failure, resulting in serious personal injury and/or property damage.





11. INSPECT ASSEMBLY GAPS: Ensure that the spigot housing is an equal distance from the strap on each side. If the strap hardware does not grip the housing evenly from both sides, the assembly may be pulled out of alignment, causing the housing to angle into the hole and creating improper compression of the o-ring.





12. INSPECT ASSEMBLY CONTACT POINTS: The spigot housing must contact the pipe at a minimum of two separate locations. First, reference the charts on page 62 to determine if the pipe size used falls under the "A" or "B" category. Second, see the illustrations above for appropriate points of contact for that category.

4" Outlet Size	
IPS HDPE & Steel	
"A" pipe	"B" pipe
12 in	10 in
16 in	14 in
22 in	18 in
24 in	20 in
26 in	28 in
–	30 in
–	32 in

6" Outlet Size	
IPS HDPE & Steel	
"A" pipe	"B" pipe
16 in	18 in
20 in	26 in
22 in	32 in
24 in	36 in
28 in	48 in
30 in	–
42 in	–

ISO HDPE	
"A" pipe	"B" pipe
250 mm	280 mm
315 mm	355 mm
400 mm	500 mm
450 mm	710 mm
560 mm	800 mm
630 mm	–

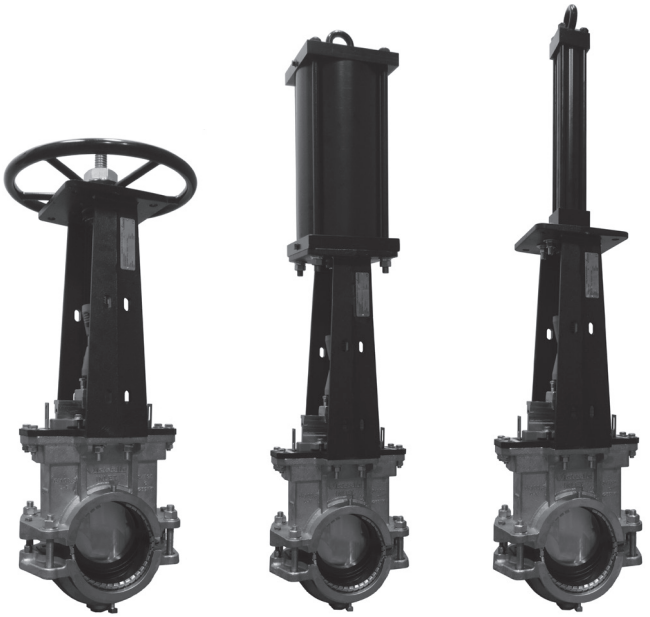
ISO HDPE	
"A" pipe	"B" pipe
500 mm	450 mm
560 mm	630 mm
710 mm	900m
800 mm	1200 mm
1000 mm	–

AWWA HDPE & DI	
"A" pipe	"B" pipe
12 in	10 in
16 in	14 in
20 in	18 in
24 in	30 in

AWWA HDPE & DI	
"A" pipe	"B" pipe
18 in	16 in
36 in	20 in
–	24 in
–	30 in

Knife Gate Valve for Plain-End HDPE Pipe

Installation Instructions



Series 906 Knife Gate Valve for Plain-End HDPE Pipe

Victaulic®

I-900_63

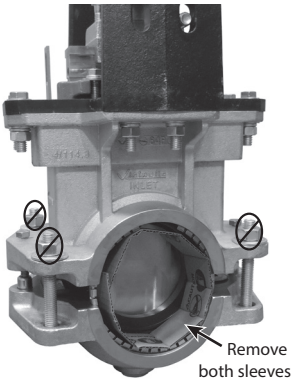
Series 906
Knife Gate Valve for Plain-End HDPE Pipe

⚠ WARNING

- **Read and understand all instructions before attempting to install, remove, adjust, or maintain any Victaulic piping products.**
- **Depressurize and drain the piping system before attempting to install, remove, adjust, or maintain any Victaulic piping products.**
- **Wear gloves while handling valve housings. The teeth machined into the housings are sharp and can cause injury.**
- **Wear safety glasses, hardhat, and foot protection.**

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

ALWAYS REFERENCE THE FULL PUBLISHED I-795/906 MANUAL FOR COMPLETE INSTALLATION AND MAINTENANCE INSTRUCTIONS. THIS MANUAL CAN BE DOWNLOADED AT VICTAULIC.COM.

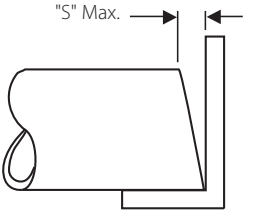


1a. DO NOT DISASSEMBLE THE VALVE: Series 906 Knife Gate Valves are designed so that the installer does not need to remove the assembly hardware for installation. This design facilitates installation by allowing the installer to directly insert HDPE pipe ends into each opening of the valve.

1b. Remove all packaging (cardboard sleeves, zip ties, etc.) from the valve.

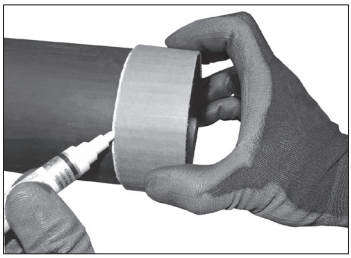
NOTE: One of the cardboard sleeves will be used as a guide for marking the pipe ends in step 3.

1c. Check the pipe gaskets to ensure that they are suitable for the intended service. The color code identifies the gasket grade. For the color code reference, refer to page 11 of this handbook, or to Victaulic publication 05.01, which can be downloaded at victaulic.com.



2a. PIPE END PREPARATION: Square-cut the HDPE pipe ends ("S" dimension shown) within ⅛ inch/3 mm for all sizes.

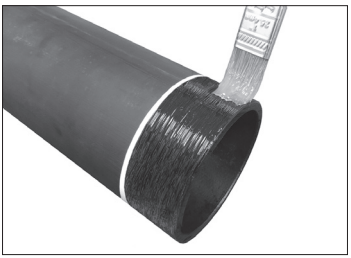
2b. Ensure that the pipe ends are clean and free from damage and scratches within 2½ inches/64 mm from the ends. All oil, grease, dirt, and cutting particles must be removed. Failure to do so will result in difficult assembly and potential joint leakage.



3. MARK PIPE: Using one of the cardboard sleeves and a paint stick, mark each HDPE pipe end around the full circumference:

- 2½ inches/64 mm for 3–4-inch pipe sizes
- 2⅝ inches/67 mm for 6–8-inch pipe sizes

This mark will be used for visual inspection to ensure that the HDPE pipe is inserted properly in the valve. If a full circumferential mark cannot be achieved, make at least four marks equally-spaced around the circumference of each HDPE pipe end.



4. LUBRICATE PIPE END: Apply a thin coat of lubricant to the pipe end from the end of the pipe to the paint mark made in step 3.

Lubricate each pipe end in accordance with the "Lubricant Compatibility" table below. Always consult the pipe manufacturer for lubricant compatibility requirements.

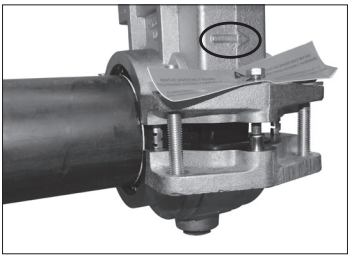
⚠ CAUTION

- **Pipe gaskets are designed for one-time use only. DO NOT attempt to reuse pipe gaskets.**
- **A compatible lubricant shall be used to prevent the gasket from pinching/tearing during installation.**
- **Due to variations in HDPE pipe, always consult with the pipe manufacturer for lubricant compatibility requirements.**

Failure to follow these instructions will void the Victaulic warranty and may cause joint leakage, resulting in property damage.

Lubricant Compatibility for Gaskets

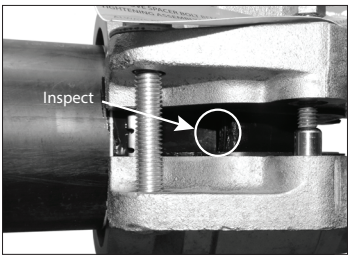
	Lubricant	
Gasket	Victaulic Lubricant, Soap-Based Solutions, Glycerin, Silicone Oil, or Silicone Release Agent	Corn Oil, Soybean Oil, Hydrocarbon-Based Oils, or Petroleum-Based Greases
Compatibility with Grade "E" EPDM Gaskets	Good	Not Recommended
Compatibility with Grade "T" Nitrile Gaskets	Good	Good



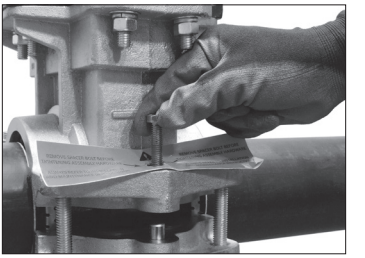
5a. ASSEMBLE JOINT: Wear gloves while handling valve. Retainer teeth are sharp and may cause injury. Assemble the joint by inserting the marked HDPE pipe ends into each opening of the valve. Ensure that the flow arrows on the body match system flow direction.

The HDPE pipe ends shall be inserted into the valve until (1) contact with the seat occurs **AND** (2) the paint marks on the HDPE pipe ends indicate full insertion into the valve body, as shown above.

NOTE: The distance from the edge of the valve body to the pipe insertion paint marks should be a uniform distance around the circumference of each pipe end.



5b. INSPECT SEAT: Each pipe end shall be inserted into the valve until contact with the seat occurs, as shown above. A visual check is required to verify that the pipe ends are in contact with the seat.



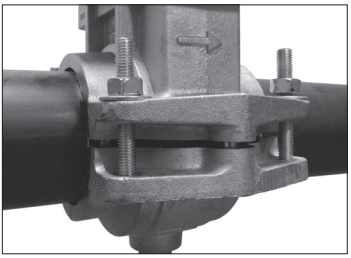
5c. REMOVE ONLY THE SPACER BOLTS: There is one spacer bolt on each bolt pad to maintain spacing between the bolt pads during shipping and assembly. After inserting pipes, remove only the spacer bolts and the attached warning tags before tightening the four nuts in step 6.

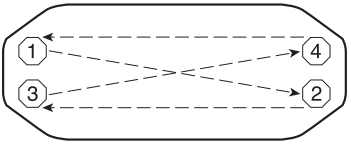
⚠ CAUTION

- **Spacer bolts are designed to keep the valve's housings at the proper spacing during installation of the pipe ends.**
- **These spacer bolts must be removed prior to tightening the hex nuts to bring the bolt pads into metal-to-metal contact. The bolts will prevent proper tightening of the valve housings.**

Failure to follow these instructions will cause damage to the valve components. This may result in joint leakage or property damage, and could void the product warranty.

NOTE: Do NOT discard the spacer bolts. Reinstall the spacer bolts to finger-tight after valve installation is complete. If the valve must be removed from the system, the spacer bolts will be necessary to separate housings and maintain spacing between the bolt pads during storage, shipping, and reinstallation.





6. TIGHTEN NUTS: Tighten the hex nuts evenly by alternating sides in a crossing pattern (as shown in the sequence above) until metal-to-metal contact occurs at the bolt pads.

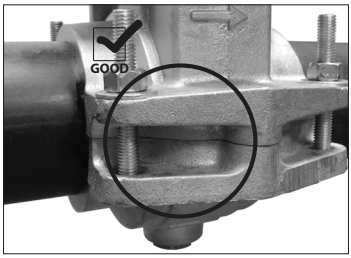
NOTE: It is important to tighten the hex nuts evenly by alternating sides to prevent pinching of the pipe gaskets. An impact wrench or standard socket wrench with a deep-well socket can be used to bring the bolt pads into metal-to-metal contact.

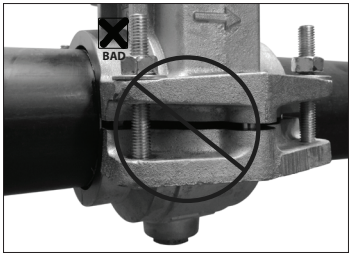
Refer to the "Series 906 Helpful Information" and "Impact Wrench Usage Guidelines" sections.

⚠ WARNING

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

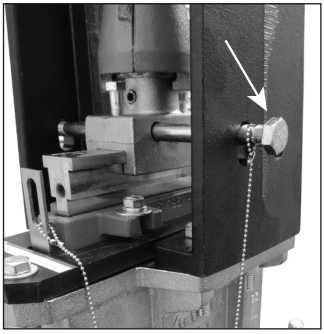
Failure to follow these instructions could cause joint failure, resulting in serious personal injury and/or property damage.





7. INSPECT PADS: Visually inspect the bolt pads at each joint to ensure that metal-to-metal contact is achieved across the entire bolt pad section.

NOTICE



A locking pin is provided to assist with Lockout/Tagout procedures during installation and maintenance. Ensure that the pin is removed before attempting to place the valve into service.

Impact Wrench Usage Guidelines

⚠ WARNING

- **It is important to tighten the nuts evenly by alternating sides until metal-to-metal contact occurs at the bolt pads.**
- **DO NOT continue to tighten the nuts after the visual installation guidelines for the product are achieved.**

Failure to follow these instructions could cause gasket pinching and product 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 that 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 the bolts or the bolt pads during installation. **DO NOT continue to tighten the nuts after the visual installation guidelines 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 that the visual installation guidelines for the product 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 product installation.

⚠ WARNING

Failure to follow instructions for tightening product hardware could result in:

- **Bolt fractures**
- **Damaged or broken bolt pads or product fractures**
- **Joint leakage**
- **Pinched gasket**

Series 906 Helpful Information

Valve Size	Spacer Bolt Size	Spacer Bolt Socket in/mm	Coupling Nut Size	Coupling Nut Deep-Well Socket in/mm
3	⅜" - 16 UNC x 2"	9⁄16	½" - 13 Heavy Hex	⅞
		14		19
4	⅜" - 16 UNC x 2"	9⁄16	½" - 13 Heavy Hex	⅞
		14		19
6	⅜" - 16 UNC x 3"	9⁄16	⅝" - 11 Heavy Hex	1 1⁄16
		14		27
8	⅜" - 16 UNC x 3"	9⁄16	⅝" - 11 Heavy Hex	1 1⁄16
		14		27

Helpful Information

English to Metric Conversion Chart

Measurement	English Unit	Abbreviation	Metric Unit	Abbreviation
Length	1 inch	in	25.400 millimeters	mm
	1 foot	ft	0.305 meters	m
Weight	1 ounce	oz	28.349 grams	g
	1 pound	lb	0.454 kilograms	kg
Pressure	1 pound per square inch	psi	6.895 kilopascals	kPa
	1 pound per square inch	psi	0.069 Bars	Bar
Power	1 horsepower	hp	745.700 watts	w
End Load	1 pound	lb	4.448 Newtons	N
Torque	1 foot pound	ft-lb	1.356 Newton meters	N•m
Volume/Time	1 gallon per minute	gpm	3.785 liters per minute	lpm
	1 gallon per minute	gpm	0.004 cubic meters per minute	m^3/m
Temperature	degrees Fahrenheit	°F	$\frac{(°F-32)}{1.8}$ degrees Celsius	°C

Metric to English Conversion Chart

Measurement	Metric Unit	Abbreviation	English Unit	Abbreviation
Length	1 millimeter	mm	0.039 inches	in
	1 meter	m	3.281 feet	ft
Weight	1 gram	g	0.035 ounces	oz
	1 kilogram	kg	2.205 pounds	lb
Pressure	1 kilopascal	kPa	0.145 pounds per square inch	psi
	1 Bar	Bar	14.504 pounds per square inch	psi
Power	1 watt	w	0.001 horsepower	hp
End Load	1 Newton	N	0.225 pounds	lb
Torque	1 Newton meter	N•m	0.738 foot pounds	ft-lb
Volume/Time	1 liter per minute	lpm	0.264 gallons per minute	gpm
	1 cubic meter per minute	m^3/m	264.172 gallons per minute	gpm
Temperature	degrees Celsius	°C	(°C × 1.8) + 32 degrees Fahrenheit	°F

Decimal Equivalents of Fractions

Fraction in inches	Decimal Equivalent inches	Decimal Equivalent millimeters
1/64	0.016	0.397
1/32	0.031	0.794
3/64	0.047	1.191
1/16	0.063	1.588
5/64	0.781	1.984
3/32	0.094	2.381
7/64	0.109	2.778
1/8	0.125	3.175
9/64	0.141	3.572
5/32	0.156	3.969
11/64	0.172	4.366
3/16	0.188	4.763
13/64	0.203	5.159
7/32	0.219	5.556
15/64	0.234	5.953
1/4	0.250	6.350
17/64	0.266	6.747
9/32	0.281	7.144
19/64	0.297	7.541
5/16	0.313	7.938
21/64	0.328	8.334
1/3	0.333	8.467
11/32	0.344	8.731
23/64	0.359	9.128
3/8	0.375	9.525
25/64	0.391	9.922
13/32	0.406	10.319
27/64	0.422	10.716
7/16	0.438	11.113
29/64	0.453	11.509
15/32	0.469	11.906
1/2	0.500	12.700

Fraction in inches	Decimal Equivalent inches	Decimal Equivalent millimeters
33/64	0.516	13.097
17/32	0.531	13.494
35/64	0.547	13.891
9/16	0.563	14.288
37/64	0.578	14.684
19/32	0.594	15.081
39/64	0.609	15.478
5/8	0.625	15.875
41/64	0.641	16.272
21/32	0.656	16.669
43/64	0.672	17.066
11/16	0.688	17.463
45/64	0.703	17.859
23/32	0.719	18.256
47/64	0.734	18.653
3/4	0.750	19.050
49/64	0.766	19.447
25/32	0.781	19.844
51/64	0.797	20.241
13/16	0.813	20.638
53/64	0.828	21.034
27/32	0.844	21.431
55/64	0.859	21.828
7/8	0.875	22.225
57/64	0.891	22.622
29/32	0.906	23.019
59/64	0.922	23.416
15/16	0.938	23.813
61/64	0.953	24.209
31/32	0.969	24.606
63/64	0.984	25.003
1	1.000	25.400

Pressure to Feet-of-Head of Water

Pounds per Square inch	Feet of Head
1	2.31
2	4.62
3	6.93
4	9.24
5	11.54
6	13.85
7	16.16
8	18.47
9	20.78
10	23.09
15	34.63
20	46.18
25	57.72
30	69.27
40	92.36
50	115.45
60	138.54
70	161.63
80	184.72
90	207.81

Pounds per Square inch	Feet of Head
100	230.90
110	253.93
120	277.07
130	300.16
140	323.25
150	346.34
160	369.43
170	392.52
180	415.61
200	461.78
250	577.24
300	692.69
350	808.13
400	922.58
500	1154.48
600	1385.39
700	1616.30
800	1847.20
900	2078.10
1000	2309.00

Feet-of-Head of Water to Pressure

Feet of Head	Pounds per Square inch
1	0.43
2	0.87
3	1.30
4	1.73
5	2.17
6	2.60
7	3.03
8	3.46
9	3.90
10	4.33
15	6.50
20	8.66
25	10.83
30	12.99
40	17.32
50	21.65
60	25.99
70	30.32
80	34.65
90	39.98

Feet of Head	Pounds per Square inch
100	43.31
110	47.64
120	51.97
130	56.30
140	60.63
150	64.96
160	69.29
170	73.63
180	77.96
200	86.62
250	108.27
300	129.93
350	151.58
400	173.24
500	216.55
600	259.85
700	303.16
800	346.47
900	389.78
1000	433.00

Pressure to Meter Water Column

kPa	Meter Water Column
10	1.02
15	1.53
20	2.04
25	2.55
30	3.06
40	4.08
50	5.10
60	6.12
70	7.14
80	8.16
90	9.18
100	10.20
110	11.22
120	12.24
130	13.26
140	14.28
150	15.30
160	16.32
170	17.34
180	18.36

kPa	Meter Water Column
180	18.36
190	19.38
200	20.40
250	25.50
300	30.60
400	40.80
500	51.00
600	61.20
700	71.40
800	81.60
900	91.80
1000	102.00
1500	153.00
2000	204.00
2500	255.00
3000	306.00
4000	408.00
5000	510.00
6000	612.00
7000	714.00

Meter Water Column to Pressure

Meter Water Column	kPa
1	9.8
2	19.6
3	29.4
4	39.2
5	49.0
6	58.8
7	68.6
8	78.4
9	88.2
10	98.0
11	108.0
12	118.0
13	127.0
14	137.0
15	147.0
20	196.0
25	245.0
30	194.0
35	343.0
40	392.0

Meter Water Column	kPa
45	441.0
50	490.0
55	539.0
60	588.0
70	686.0
80	784.0
90	882.0
100	980.0
150	1470.0
200	1960.0
250	2450.0
300	2940.0
350	3430.0
400	3920.0
450	4410.0
500	4900.0
550	5390.0
600	5880.0
650	6370.0
700	6860.0

HDPE Pipe Size/Tolerances — IPS

Nominal Pipe Size inches	Dimensions – inches/millimeters		
	Pipe Outside Diameter*		
	Maximum	Minimum	Maximum Ovality*
2	2.381 60.5	2.369 60.2	± 0.038 ± 0.97
3	3.516 89.3	3.484 88.5	± 0.045 ± 1.14
4	4.520 114.8	4.480 113.8	± 0.058 ± 1.47
5	5.588 141.9	5.538 140.7	± 0.070 ± 1.78
6	6.655 169.0	6.595 167.5	± 0.083 ± 2.11
8	8.664 220.1	8.586 218.1	± 0.108 ± 2.74
10	10.798 274.3	10.702 271.8	± 0.168 ± 4.27
12	12.807 325.3	12.693 322.4	± 0.224 ± 5.69
14	14.063 357.2	13.937 354.0	± 0.246 ± 6.25
16	16.072 408.2	15.928 404.6	± 0.279 ± 7.09
18	18.081 459.3	17.919 455.1	± 0.311 ± 7.90
20	20.090 510.3	19.910 505.7	± 0.349 ± 8.86
22	22.099 561.3	21.901 556.3	± 0.384 ± 9.75
24	24.108 612.3	23.892 606.9	± 0.419 ± 10.64
26	26.117 663.4	25.883 657.4	± 0.454 ± 11.53
28	28.126 714.4	27.874 708.0	± 0.489 ± 12.42
30	30.135 765.4	29.865 758.6	± 0.523 ± 13.28
32	32.144 816.5	31.856 809.1	± 0.557 ± 14.15
34	34.153 867.5	33.847 859.7	± 0.592 ± 15.04
36	36.162 918.5	35.838 910.3	± 0.627 ± 15.93

*At ambient temperature

HDPE Pipe Size/Tolerances — Metric

Nominal Pipe Size mm	Dimensions – millimeters/inches		
	Pipe Outside Diameter*		
	Maximum	Minimum	Maximum Ovality*
63	63.6 2.504	63.0 2.480	± 0.97 ± 0.038
75	75.7 2.980	75.0 2.953	± 1.02 ± 0.040
90	90.9 3.579	90.0 3.543	± 1.14 ± 0.045
110	111.0 4.370	110.0 4.331	± 1.40 ± 0.055
125	126.2 4.969	125.0 4.921	± 1.60 ± 0.063
140	141.3 5.563	140.0 5.512	± 1.78 ± 0.070
160	161.5 6.358	160.0 6.299	± 2.03 ± 0.080
180	181.7 7.154	180.0 7.087	± 2.29 ± 0.090
200	201.8 7.945	200.0 7.874	± 2.54 ± 0.100
225	227.1 8.941	225.0 8.858	± 2.87 ± 0.113
250	252.3 9.933	250.0 9.843	± 3.61 ± 0.142
280	282.6 11.126	280.0 11.024	± 4.90 ± 0.193
315	317.9 12.516	315.0 12.402	± 5.56 ± 0.219
355	358.2 14.102	355.0 13.976	± 6.25 ± 0.246
400	403.6 15.890	400.0 15.748	± 7.01 ± 0.276
450	454.1 17.878	450.0 17.717	± 7.80 ± 0.307
500	504.5 19.862	500.0 19.685	± 8.74 ± 0.344
560	656.0 22.244	560.0 22.047	± 9.80 ± 0.386
630	635.7 25.028	630.0 24.803	± 11.05 ± 0.435
710	716.4 28.205	710.0 27.953	± 12.45 ± 0.490
800	807.2 31.780	800.0 31.496	± 14.00 ± 0.551
900	908.1 35.752	900.0 35.433	± 15.75 ± 0.620

*At ambient temperature

Where to Find Installation Instructions for Additional Products

The following table provides a listing of products and installation information. If you need additional copies of any installation information, contact Victaulic at 1-800-PICK VIC.
NOTE: If two sources of instructions are referenced in this index, Victaulic recommends the use of both to ensure proper product installation.

Product	Where to Find Instructions
FireLock™ Automatic Sprinkler Products	I-40
FireLock™ Fire Protection Valves and Accessories	Manual Shipped with Valve or Accessory
Pipe Preparation Tools	Manual Shipped with Tool
Vic-Press™ Schedule 10S System Products	I-P500
VicFlex™ Products	Instructions Shipped with Product
Victaulic Aquamine™ Spline Couplings	I-Aquamine
Victaulic Bolted Split-Sleeve Couplings	Instructions Shipped with Coupling
Series 317 AWWA Check Valve	I-317
Series 365 AWWA *Vic-Plug* Valve (3–12-inch/88.9–323.9-mm sizes)	I-365/366/377.3-12
Series 377 *Vic-Plug* Balancing Valve	I-365/366/377.3-12
Series 608N Copper Connection Butterfly Valve	I-600
Series 700 Butterfly Valve	Manual Shipped with Valve and I-100
Series 705 FireLock™ Butterfly Valve	I-765/705
Series 706 Butterfly Valve	I-100
Series 707C Supervised Closed Butterfly Valve	I-766/707C
Series 709 Butterfly Valve	I-100
Series 712/712S Swinger Check Valve	I-100
Series 713 Swinger Check Valve	I-100
Series 716H/716 *Vic-Check* Valve	I-100
Series 717H/717 Check Valve	I-100
Series 717HR/717R Check Valve	I-100
Series 723/723S Diverter Ball Valve	I-100
Series 726/726S *Vic-Ball* Valve	I-100
Series 728 FireLock™ Ball Valve	I-728
Series 730 *Vic-Strainer* Tee Type	I-730/732/AGS
Series W730 AGS *Vic-Strainer* Tee Type	I-730/732/AGS
Series 731-D Suction Diffuser	I-731D
Series W731-D AGS Suction Diffuser	I-731I/W731I
Series 732 *Vic-Strainer* Wye Type	I-730/732/AGS
Series W732 AGS *Vic-Strainer* Wye Type	I-730/732/AGS

Product	Where to Find Instructions
Series 733 Venturi Indicator	I-100
Series 747M FireLock™ Zone Control Riser Module Assembly	I-747M
Series 761 Vic-300 MasterSeal™ Butterfly Valve	I-VIC300MS and I-100
Series W761 AGS Vic-300 Butterfly Valve	I-AGS.GO and I-100
Series 763 Butterfly Valve	I-100
Series 765 FireLock™ Butterfly Valve	I-765/705
Series 766 Butterfly Valve with Supervised-Closed Switches	I-766/707C
Series 779 Venturi Check Valve	I-100
Series 782/783 Bypass	Instructions Shipped with Valve
Series 785 TBVS Sweated-End Mini Circuit Balancing Valve	Instructions Shipped with Valve
Series 786 STAS Soldered-End Circuit Balancing Valve	Instructions Shipped with Valve
Series 787 STAD NPT Female Threaded Circuit Balancing Valve	Instructions Shipped with Valve
Series 788 STAF Flanged-End Circuit Balancing Valve	Instructions Shipped with Valve
Series 789 STAG Grooved-End Circuit Balancing Valve	Instructions Shipped with Valve
Style 005 FireLock™ Rigid Coupling	I-100
Style 009N FireLock EZ™ Rigid Coupling	I-009H/009/009V and I-100
Style 07 Zero-Flex™ Rigid Coupling (1–12-inch/33.7–323.9-mm sizes)	I-100
Style 07 Zero-Flex™ Rigid Coupling (14–24-inch/355.6–610.0-mm sizes)	I-100 and IT-07
Style W07 AGS Rigid Coupling	I-100 and I-W07/W77
Style 22 Coupling for *Vic-Ring* Adapters and Shouldered-End Pipe	I-6000
Style 31 Coupling for AWWA Ductile Iron	I-300
Style 31 Coupling for *Vic-Ring* Adapters and Shouldered-End Pipe	I-6000
Style 41 Coupling for *Vic-Ring* Adapters and Shouldered-End Pipe	I-6000
Style 44 Coupling for *Vic-Ring* Adapters and Shouldered-End Pipe	I-6000
Style 72 Outlet Coupling	I-100
Style 75 Flexible Coupling	I-100
Style 77/77A/77S Flexible Coupling	I-100
Style W77 AGS Flexible Coupling	I-100 and I-W07/W77

Product	Where to Find Instructions
Style 78/78A Snap-Joint™ Coupling	I-100
Style 89 Rigid Coupling for Stainless Steel	I-100 and IT-89
Style W89 AGS Rigid Coupling for Stainless Steel	I-W89
Style 99 *Roust-A-Bout* Coupling for Plain-End Steel	I-100 and IT-99
Style 107H/107 QuickVic™ Rigid Coupling for Steel Pipe	I-107H/107 and I-100
Style 150 *Mover* Expansion Joint	Submittal 09.04
Style 155 Expansion Joint	Submittal 09.05
Style W155 AGS Expansion Joint	Submittal 20.12
Style 177 QuickVic™ Flexible Coupling for Steel Pipe	I-177 and I-100
Style 307 Coupling for Grooved IPS Steel to Grooved AWWA Ductile Iron	I-300
Style 341 *Vic-Flange* Adapter for AWWA Ductile Iron	I-300
Style 441 *Vic-Flange* for Stainless Steel	I-100 and I-441
Style 475 Lightweight, Flexible Stainless Steel Coupling	I-100
Style 489 Rigid Coupling for Stainless Steel (1½–4-inch/48.3–114.3-mm sizes)	I-100 and IT-489.2-4
Style 489 Rigid Coupling for Stainless Steel (6–12-inch and 139.7–318.5-mm metric and JIS sizes)	I-100 and IT-489
Style 606 Rigid Coupling for Copper Tubing	I-600
Style 607 QuickVic™ Rigid Coupling for Copper Tubing	I-607 and I-600
Style 622 *Mechanical-T* Bolted Branch Outlet for Copper Tubing	I-622 and I-600
Style 641 *Vic-Flange* Adapter for Copper Tubing	I-600
Style 707-IJ Transition Coupling for NPS to JIS	I-100
Style 720 TestMaster™ II Alarm Test Module	I-720
Style 720 TestMaster™ II Alarm Test Module with Pressure Relief Option	I-720PR
Style 730 *Vic-Strainer* Tee-Type	I-730/732
Style 732 Wye-Type *Vic-Strainer*	I-730/732
Style 733 Venturi Flow Metering Sensor	I-100
Style 734/734S Orifice/Indicator Flow Metering System	I-100

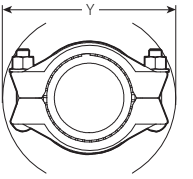
Product	Where to Find Instructions
Style 735 Fire Pump Test Meter	I-100
Style 738 Portable Differential Meter	Instructions Shipped with Meter
Style 739 Portable Master Meter	Instructions Shipped with Meter
Style 740 CBI Meter	Instructions Shipped with Meter
Style 741 IPS and Metric *Vic-Flange* Adapter	I-100
Style W741 AGS *Vic-Flange* Adapter	I-100 and IT-W741
Style 743 *Vic-Flange* Adapter	I-100
Style 744 FireLock™ Flange Adapter	I-100
Style 750 Reducing Coupling	I-100
Style 791 *Vic-Boltless* Coupling	I-100
Style 808 Coupling	I-808
Style 920 and 920N *Mechanical-T* Outlets	I-100 and I-920N
Style 922 FireLock™ Outlet-T	I-100 and I-922
Style 923 *Vic-Let* Strapless Outlet	I-100 and I-923
Style 924 *Vic-O-Well* Strapless Thermometer Outlet	I-100
Style 926 *Mechanical-T* Spigot Assembly	I-100 and I-926
Style 931 *Vic-Tap* II *Mechanical-T*	VT-II
Style 994 *Vic-Flange* Adapter for HDPE	I-900 and IT-994
Style 995N Coupling for Plain-End IPS and Metric HDPE	I-900 and IT-995
Style 997 Transition Coupling for HDPE to Steel	I-900 and IT-997
Style 2970 Aquamine™ Coupling for Plain-End IPS PVC	IT-2970
Style 2971 Aquamine™ Transition Coupling for Plain-End IPS PVC to Plain-End HDPE	IT-2971
Style 2972 Aquamine™ Transition Coupling for Plain-End IPS PVC to Grooved IPS Steel	IT-2972
Style HP-70 Rigid Coupling (2–12-inch/60.3–323.9-mm sizes)	I-100
Style HP-70 Rigid Coupling (14–16-inch/355.6–406.4-mm sizes)	I-100 and IT-70
Style HP-70ES Rigid Coupling with EndSeal™ Gasket (2–12-inch/60.3–323.9-mm sizes)	I-100

Product Data

The following information contains overall dimensions for couplings, adapters, outlets, and fittings. Refer to the current Victaulic submittal for complete dimensional information.

Style 905 Coupling

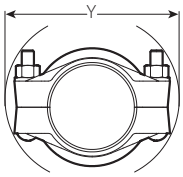
Pipe Size Nominal Diameter inches or mm	"Y" Dimension inches/mm
2 in	6.63 168
63 mm	6.63 168
75 mm	7.63 194
3 in	8.13 207
90 mm	8.25 210
110 mm	9.13 232
4 in	9.38 238
125 mm	10.75 273
5 in	11.25 286
140 mm	11.25 286
160 mm	12.00 305
6 in	12.63 321
180 mm	13.88 353
200 mm	14.50 368
8 in	14.88 378
225 mm	15.25 387



Style 905

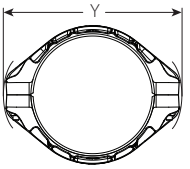
Style 907 Transition Coupling

Pipe Size Nominal Diameter inches or mm	"Y" Dimension inches/mm
2 in	6.13 156
63 mm	6.13 156
75 mm	7.50 191
3 in	7.63 194
90 mm	7.50 191
110 mm	9.00 229
4 in	8.88 226
125 mm	10.50 267
5 in	11.00 229
140 mm	11.00 229
160 mm	11.50 292
6 in	11.75 299
180 mm	12.63 321
200 mm	15.00 381
8 in	14.75 375
225 mm	15.00 381



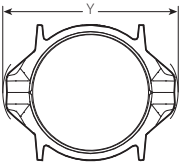
Style 907

Style 908 Coupling



Style 908
8–18-inch sizes
250–450-mm sizes

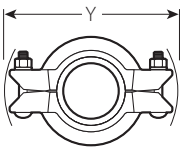
Pipe Size Nominal Diameter inches or mm	"Y" Dimension inches/mm
8 in	14.40 366
250 mm	15.90 404
10 in	17.36 441
280 mm	18.05 459
315 mm	18.71 475
12 in	18.76 477
14 in	21.29 541
355 mm	21.29 541
16 in	23.32 592
400 mm	23.33 593
450 mm	25.11 638
18 in	25.56 649
500 mm	27.84 707



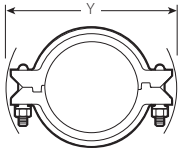
Style 908
20–36-inch sizes
500–900-mm sizes

Pipe Size Nominal Diameter inches or mm	"Y" Dimension inches/mm
20 in	27.82 707
560 mm	29.43 748
22 in	29.48 749
24 in	32.24 819
630 mm	32.24 819
710 mm	36.46 926
28 in	36.48 927
30 in	39.92 1014
800 mm	39.98 1016
32 in	40.70 1034
900 mm	44.25 1124
36 in	44.76 1137

Style 995 Coupling



Style 995
2–12-inch sizes
50–300-mm sizes



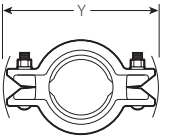
Style 995
14–20-inch sizes
350–500-mm sizes

Pipe Size Nominal Diameter inches or mm	"Y" Dimension inches/mm
2 in	6.25 159
63 mm	6.38 162
3 in	7.15 182
90 mm	7.15 182
110 mm	8.15 207
4 in	8.25 210
125 mm	8.66 220
140 mm	10.20 259
5 in	10.20 259
160 mm	10.87 276
6 in	11.13 283
180 mm	11.93 303
200 mm	13.23 336
8 in	13.50 343

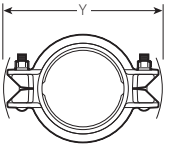
Pipe Size Nominal Diameter inches or mm	"Y" Dimension inches/mm
225 mm	13.58 345
250 mm	15.94 405
10 in	16.63 422
280 mm	16.93 430
315 mm	18.43 468
12 in	18.75 476
14 in	22.00 559
355 mm	22.00 559
400 mm	24.09 612
16 in	24.13 613
450 mm	25.98 660
18 in	25.98 660
20 in	27.76 705
500 mm	27.80 706

Style 997 Transition Coupling

Pipe Size Nominal Diameter inches	"Y" Dimension inches/mm
2	5.22 133
3	6.99 178
4	8.25 210
5	9.77 248
6	11.25 286
8	13.96 355
10	16.81 427
12	18.76 477



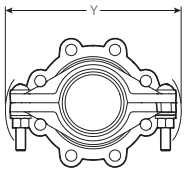
Style 997
2-inch size
50-mm size



Style 997
3–12-inch sizes
80–300-mm sizes

Style 904 Flange Adapter

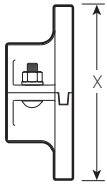
Pipe Size Nominal Diameter inches	"Y" Dimension inches/mm
3	8.88 226
4	11.25 286
6	14.13 359
8	17.25 438



Style 904

Style 994 *Vic-Flange* Adapter

Pipe Size Nominal Diameter inches	"X" Dimension inches/mm
4	9.00 229
6	11.00 279
8	13.50 343



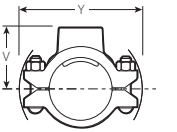
Style 994

Style 920 and Style 920N *Mechanical-T* Bolted Branch Outlets

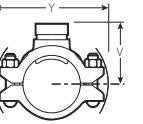
Nominal Size inches or mm			Dimensions inches/mm		
Run	X	Branch	"Y" Dimension	Female-Threaded "V" Dimension ‡	Grooved "V" Dimension ‡
2 in	X	½ in	5.35 136	2.53 64	—
	X	¾ in	5.35 136	2.53 64	—
	X	1 in	5.35 136	2.53 64	—
	X	1 ¼ in	5.35 136	2.75 70	3.00 76
	X	1 ½ in	5.35 136	2.75 70	3.12 79
2 ½ in	X	½ in	5.64 143	2.74 70	—
	X	¾ in	5.64 143	2.74 70	—
	X	1 in	5.64 143	2.74 70	—
	X	1 ¼ in	6.29 160	3.00 76	3.25 83
	X	1 ½ in	6.26 159	3.00 76	3.25 83
76.1 mm	X	½ in	6.46 164	2.75 70	—
	X	¾ in	6.46 164	2.75 70	—
	X	1 in	6.46 164	2.75 70	—
	X	1 ¼ in	6.29 160	3.00 76	3.31 84
	X	1 ½ in	6.29 160	3.00 76	3.31 84
3 in	X	½ in	6.15 156	3.05 78	—
	X	¾ in	6.15 156	3.05 78	—
	X	1 in	6.15 156	3.05 78	—
	X	1 ¼ in	6.15 156	3.25 83	3.56 90
	X	1 ½ in	6.15 156	3.50 89	3.56 90
	X	2 in	6.75 172	3.50 89	3.56 90
3 ½ in	X	2 in	6.72 171	—	3.75 95

‡ Center of run to end of fitting

Table continued on next page



Style 920 and Style 920N with Female Threaded Outlet



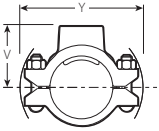
Style 920 and Style 920N with Grooved Outlet

Style 920 and Style 920N *Mechanical-T* Bolted Branch Outlets

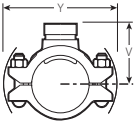
Nominal Size inches or mm			Dimensions inches/mm		
Run	X	Branch	"Y" Dimension	Female-Threaded "V" Dimension ‡	Grooved "V" Dimension ‡
4 in	X	½ in	7.01 178	3.56 90	—
	X	¾ in	7.01 178	3.56 90	—
	X	1 in	7.01 178	3.56 90	—
	X	1 ¼ in	7.01 178	3.78 96	4.00 102
	X	1 ½ in	7.01 178	4.00 102	4.00 102
	X	2 in	7.01 178	4.00 102	4.00 102
	X	2 ½ in	7.34 186	4.00 102	4.00 102
	X	76.1 mm	7.34 186	—	4.00 102
	X	3 in	7.73 196	4.50 114	4.12 105
108.0 mm	X	1 ¼ in	7.64 194	3.78 96	—
	X	1 ½ in	7.64 194	4.00 102	—
	X	2 in	7.64 194	4.00 102	—
	X	76.1 mm	7.64 194	4.00 102	4.00 102
	X	3 in	7.64 194	4.50 114	4.50 114
5 in	X	1 ½ in	9.70 246	4.75 121	4.75 121
	X	2 in	9.70 246	4.75 121	4.75 121
	X	2 ½ in	9.70 246	4.75 121	4.75 121
	X	76.1 mm	9.70 246	—	4.75 121
	X	3 in	9.70 246	5.00 127	4.63 118
133.0 mm	X	2 in	8.00 203	4.50 114	—
	X	3 in	9.46 240	5.00 127	—
139.7 mm	X	1 ½ in	8.23 209	4.50 114	—
	X	2 in	8.23 209	4.50 114	—

‡ Center of run to end of fitting

Table continued on next page



Style 920 and Style 920N with Female Threaded Outlet

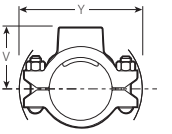


Style 920 and Style 920N with Grooved Outlet

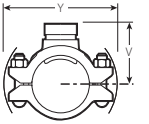
Style 920 and Style 920N *Mechanical-T* Bolted Branch Outlets

Nominal Size inches or mm			Dimensions inches/mm		
Run	X	Branch	"Y" Dimension	Female-Threaded "V" Dimension ‡	Grooved "V" Dimension ‡
6 in	X	1 ¼ in	9.15 232	5.13 130	5.13 130
	X	1 ½ in	9.15 232	5.13 130	5.13 130
	X	2 in	9.15 232	5.13 130	5.13 130
	X	2½ in	10.51 267	5.13 130	5.13 130
	X	76.1 mm	10.51 267	—	5.21 132
	X	3 in	10.51 267	5.50 140	5.13 130
	X	4 in	10.51 267	5.75 146	5.38 137
159.0 mm	X	1 ½ in	9.40 239	5.13 130	—
	X	2 in	9.40 239	5.13 130	—
	X	76.1 mm	9.40 239	5.50 140	5.13 130
	X	3 in	9.40 239	5.50 140	5.13 130
	X	108.0 mm	9.40 239	—	5.38 137
	X	4 in	9.40 239	5.75 146	—
165.1 mm	X	1 in	9.34 237	4.56 116	—
		1 ¼ in	9.34 237	5.13 130	—
	X	1 ½ in	9.34 237	5.13 130	5.13 130
	X	2 in	9.34 237	5.13 130	5.13 130
	X	76.1 mm	10.51 267	5.13 130	5.21 132
	X	3 in	10.51 267	5.50 140	5.13 130
	X	4 in	10.51 267	5.75 146	5.38 137
8 in	X	2 in	12.42 316	6.19 157	6.25 159
	X	2½ in	12.42 316	6.19 157	6.19 157
	X	76.1 mm	12.42 316	—	6.25 159
	X	3 in	12.42 316	6.50 165	6.50 165
	X	4 in	12.42 316	6.75 171	6.38 162

‡ Center of run to end of fitting



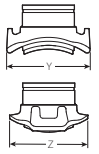
Style 920 and Style 920N with Female Threaded Outlet

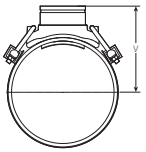


Style 920 and Style 920N with Grooved Outlet

Style 926 *Mechanical-T* Spigot Outlet

Nominal Size inches			Dimensions inches/mm		
Outlet	X	Host Pipe	"V" Dimension	"Y" Dimension	"Z" Dimension
4	X	10	10.25 260	8.50 216	8.00 203
	X	12	11.00 280	8.38 213	8.00 203
	X	14	11.75 299	8.38 213	8.00 203
	X	16	12.88 327	8.50 216	8.00 203
	X	18	13.88 353	8.50 216	8.00 203
	X	20	14.88 378	8.50 216	8.00 203
	X	22	15.88 403	8.50 216	8.00 203
	X	24	16.88 429	8.50 216	8.00 203
	X	26	17.75 451	8.50 216	8.00 203
	X	28	18.75 477	8.50 216	8.00 203
	X	30	19.75 502	8.50 216	8.00 203
	X	32	20.75 527	8.50 216	8.00 203
6	X	16	12.88 327	10.63 270	10.00 254
	X	18	13.88 353	10.63 270	10.00 254
	X	20	14.88 378	10.63 270	10.00 254
	X	22	15.88 403	10.63 270	10.00 254
	X	24	16.88 429	10.63 270	10.00 254
	X	26	17.88 454	10.63 270	10.00 254
	X	28	18.88 480	10.63 270	10.00 254
	X	30	19.88 505	10.63 270	10.00 254
	X	32	20.88 530	10.63 270	10.00 254
	X	36	22.88 581	10.63 270	10.00 254
	X	42	25.88 657	10.63 270	10.00 254
	X	48	28.88 734	10.63 270	10.00 254

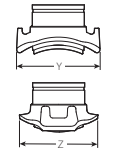


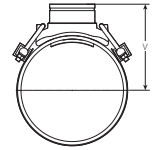


Style 926

Style 926 *Mechanical-T* Spigot Outlet

Nominal Size mm			Dimensions mm/inches		
Outlet	X	Host Pipe	"V" Dimension	"Y" Dimension	"Z" Dimension
100	X	250	246 9.69	215 8.46	203 7.99
	X	280	262 10.32	215 8.46	203 7.99
	X	315	255 10.04	212 8.35	203 7.99
	X	355	296 11.65	212 8.35	203 7.99
	X	400	321 12.64	214 8.43	203 7.99
	X	450	346 13.62	214 8.43	203 7.99
	X	500	371 14.61	214 8.43	203 7.99
	X	560	401 15.79	214 8.43	203 7.99
	X	630	436 17.17	214 8.43	203 7.99
	X	710	476 18.74	214 8.43	203 7.99
	X	800	521 20.51	214 8.43	203 7.99
150	X	400	323 12.72	269 10.59	254 10.00
	X	450	348 13.70	269 10.59	254 10.00
	X	500	373 14.69	269 10.59	254 10.00
	X	560	403 15.87	269 10.59	254 10.00
	X	630	438 17.24	269 10.59	254 10.00
	X	710	478 18.82	269 10.59	254 10.00
	X	800	523 20.59	269 10.59	254 10.00
	X	900	573 22.56	269 10.59	254 10.00
	X	1000	623 24.53	269 10.59	254 10.00
	X	1200	723 28.46	269 10.59	254 10.00



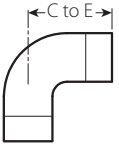


Style 926

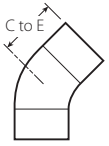
HDPE Plain End Fittings

No. H10 – 90° Elbow
No. H11 – 45° Elbow
No. H20 – Tee

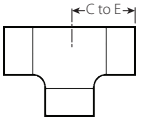
Pipe Size	No. H10 90° Elbow	No. H11 45° Elbow	No. H20 Tee
Nominal Diameter inches or mm	C to E inches/mm	C to E inches/mm	C to E inches/mm
2 in	4.38 111	3.63 92	4.38 111
63 mm	4.53 115	3.54 90	4.53 115
3 in	5.25 133	3.88 99	5.25 133
90 mm	5.12 130	3.94 100	5.12 130
4 in	6.00 152	4.50 114	6.00 152
110 mm	6.10 155	4.33 110	6.10 155
6 in	7.50 191	4.88 124	7.50 191
160 mm	7.28 185	4.92 125	7.28 185
8 in	9.25 235	5.25 133	9.25 235



No. H10



No. H11

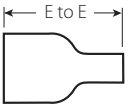


No. H20

HDPE Plain End Fittings

No. H50 – IPS Concentric Reducer

Nominal Size inches or mm			E to E inches/mm
3 in	×	2 in	7.00 178
90 mm	×	63 mm	7.00 178
4 in	×	2 in	8.00 203
		3 in	8.00 203
110 mm	×	63 mm	8.00 203
		90 mm	8.00 203
6 in	×	3 in	9.50 241
		4 in	9.50 241
160 mm	×	90 mm	9.50 241
		110 mm	9.50 241



No. H50

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