



# I-100

## FIELD INSTALLATION HANDBOOK

For NPS and Metric Carbon Steel,  
Stainless Steel, and Aluminum Products

- GASKET INFORMATION
- PIPE PREPARATION
- PRODUCT INSTALLATION
- PRODUCT DATA

### 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 serious personal injury and/or property damage.

If you need additional copies of any instructions, or if you have questions about the safe and proper installation or operation of Victaulic products, contact Victaulic.

For the most up-to-date information on Victaulic products, visit:  
[www.victaulic.com](http://www.victaulic.com)

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## NOTICE

- For ease of reference, pages that include information pertaining to FireLock® branded products have been identified with a black band on the side of the page.

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# General Information

# HAZARD IDENTIFICATION

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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

- The 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

- The 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

- The 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

- The use of the word “NOTICE” identifies special instructions that are important but not related to hazards.

## INTRODUCTION

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This field assembly and installation handbook is a basic field reference guide for Victaulic mechanical piping products for NPS and metric carbon steel, stainless steel, and aluminum pipe. This handbook provides easy reference to proper installation information. In addition to this handbook, Victaulic offers the following handbooks for other products/materials:

- I-300 – Installation Instructions for AWWA Products
- I-500 – Installation Instructions for Pressfit Products
- I-P500 – Installation Instructions for Vic-Press Schedules 5S and 10S Stainless Steel Products
- I-600 – Installation Instructions for Copper Connection Products
- I-900 – Installation Instructions for HDPE Products

Additional copies of installation information are available from Victaulic, or Victaulic stocking distributors, upon request.

Always follow good piping practices. Specified pressures, temperatures, external loads, internal loads, performance standards, and tolerances must never be exceeded.

Many applications require recognition of special conditions, code requirements, and the use of safety factors. Qualified engineers should reference Section 26 of the Victaulic General Catalog (G-100) and Victaulic publication 05.01, “Gasket Selection Guide,” when determining requirements for special applications.



## NOTICE

- Victaulic Company 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 THE COMPANY 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 other Victaulic literature supersedes all previously published information.
- Drawings and/or pictures in this manual may be exaggerated for clarity.
- The 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 ITS 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

Victaulic grooved pipe couplings are designed for use only with pipe that is grooved to meet Victaulic specifications. In addition, Victaulic grooved pipe couplings are for use only with Victaulic grooved-end fittings, valves, and related grooved-end components. Victaulic grooved pipe couplings are not intended for use with plain-end pipe and/or fittings.

Victaulic plain-end pipe couplings are designed for use only with plain-end or beveled-end steel pipe and Victaulic plain-end fittings, unless indicated otherwise. Victaulic plain-end pipe couplings must not be used with grooved-end or threaded pipe and/or fittings.

Gaskets for Victaulic grooved and plain-end pipe couplings must be lubricated for proper assembly. Lubrication prevents gasket pinching and assists installation. A thin coat of Victaulic Lubricant or another compatible material, such as silicone or soap-based lubricants, is required. Always refer to the specific coupling installation instructions for complete lubrication requirements.

Victaulic gaskets are designed to perform in a wide range of temperatures and operating conditions. As with all installations, there is a direct relationship between temperature, continuity of service, and gasket life. Victaulic publication 05.01, "Gasket Selection Guide," must be referenced to determine gasket grade recommendations for each application.

**Canadian Customers – Provincial Boilers and Pressure Vessels Acts:** For piping applications that fall under the jurisdiction of the Provincial Boilers and Pressure Vessels Acts, intended users should obtain Victaulic Technical Sheet TS-226, which outlines approved services, products, pressure ratings, and temperature ratings.



# OPERATOR SAFETY GUIDELINES FOR TOOLS

## NOTICE

- Although Victaulic pipe preparation tools are manufactured for safe, dependable operation, it is impossible to anticipate all combinations of circumstances that could result in an accident. The following instructions are recommended for safe operation of Victaulic pipe preparation tools. Always refer to the specific operating and maintenance instructions manual for complete safety guidelines.

- 1. Read and understand the operating and maintenance instruction manual for the tool.** Read the supplied manual carefully before operating or performing maintenance on any tool. Become familiar with the tool's features, operations, applications, and limitations. Be particularly aware of its specific hazards. Store the operator's manual in a readily available location. If you require additional copies of any literature, contact Victaulic.
- 2. Secure the tool, power drive, and equipment.** Make sure that the tool and power drive are fastened securely to the floor.
- 3. Prevent accidental start-ups.** Place any power switches in the "OFF" position before plugging the tool into the electrical system. Always use a safety foot switch for the power source.
- 4. Ground the power source.** Make sure the power source is connected to an internally grounded electrical system.
- 5. Operating environment.** Do not operate tools in damp locations. Wear hearing protection in noisy shop operations. Ensure that the work area is well lit.
- 6. Wear proper clothing.** Do not wear unbuttoned jackets, loose sleeve cuffs, neckties, or anything else that can become tangled in moving parts. Always wear safety glasses and foot protection.
- 7. Stay alert.** Do not operate tools if you are drowsy from medication or fatigue. Avoid horseplay around the equipment, and keep bystanders a safe distance away from the equipment.
- 8. Inspect the equipment.** Before starting the tool, check all moveable parts for any obstructions. Make sure the guards and tool parts are installed and secured properly.
- 9. Keep work areas clean.** Keep the work area around the tool clear of obstructions that could limit the movement of the operator. Clean up all oil and coolant spills. Remove shavings from the tool to maintain proper operation.
- 10. Use pipe supports.** For long sections of pipe and heavier work, use floor-mounted pipe stands. Make sure that the work is secured properly in a pipe vise that is fastened securely to the floor.
- 11. Operate the tool on the switch side only.** Operate tools with a safety foot switch located at an easily accessible area. Never reach across moving parts or material being worked on. The safety foot switch must always be accessible to the operator.
- 12. Do not misuse tools.** Perform only the functions for which the tool was designed. Do not force the tool. Do not operate the tool at speeds exceeding those specified in the operating and maintenance instructions manual.
- 13. Disconnect the power cord before servicing tool.** Only authorized personnel should attempt to service tools. Always disconnect the power source before servicing or making any adjustments.
- 14. Always maintain tools.** Keep tools clean and cutting tools sharp for safe, dependable operation. Follow all lubricating instructions. Report any unsafe conditions to authorized personnel for immediate correction.



# PIPE PREPARATION

The grooved 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 published Victaulic pressure ratings.

Victaulic cut grooving tools are designed for use on standard, heavy-wall metallic; cast gray iron; ductile iron; or plastic pipe. Roll grooving tools accommodate standard-wall pipe, light-wall pipe, and some X-Strong pipe.



## WARNING



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

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

Pipe must 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 all pipe preparation and groove specification sections of this manual for detailed information.

Victaulic recommends square-cut pipe for use with grooved-end and plain-end pipe products. Square-cut pipe **MUST** be used with Victaulic FlushSeal® and EndSeal® gaskets. 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 (37½°) or ASTM A-53 (30°). **NOTE:** Roll grooving beveled-end pipe may result in unacceptable flare.

For AGS products, beveled carbon steel pipe may be used, provided the wall thickness is standard wall (0.375 inch/9.5 mm) and the bevel meets ASTM A53 and/or API 5L (30° +5°-0°). **NOTE:** Roll grooving beveled-end pipe may result in unacceptable flare.

## NOTICE

### FOR STANDARD COUPLINGS WITH RATINGS ON LIGHT-WALL STAINLESS STEEL PIPE:

- Victaulic RX rolls **MUST** be used when roll grooving light-wall stainless steel pipe for use with standard couplings.

### FOR AGS COUPLINGS WITH RATINGS ON STAINLESS STEEL PIPE:

- Victaulic AGS RW roll sets **must** be used when roll grooving standard-weight stainless steel pipe. Victaulic AGS RWX roll sets **must** be used when roll grooving light-wall stainless steel pipe.

## TOOL RATINGS

The "Tool Ratings" tables featured in this manual contain general information about tool capacities. Certain tools are designed for high-use shop fabrication, while others are designed for field fabrication. For detailed information on tools, refer to Victaulic publication 24.01. For information about maintenance and operation of tools, refer to the applicable operating and maintenance instructions manual for the tool. **NOTE:** Victaulic cut grooving tools are designed for use on AWWA ductile iron pipe as well as NPS steel and other NPS materials.



# PIPE LENGTHS SUITABLE FOR GROOVING

The table below identifies the minimum pipe lengths that can be grooved safely by using Victaulic Grooving Tools. In addition, this table identifies the maximum pipe lengths that can be grooved without the use of a pipe stand. Pipe that exceeds the maximum lengths listed in this table requires the use of a pipe stand. Always refer to the operating and maintenance manual for the applicable grooving tool for proper setup and grooving techniques.

## Pipe Lengths Suitable for Grooving

| Size                         |                                           | Length – inches/mm |         |
|------------------------------|-------------------------------------------|--------------------|---------|
| Nominal Size<br>inches or mm | Actual Pipe Outside<br>Diameter inches/mm | Minimum            | Maximum |
| ¾                            | 1.050                                     | 8                  | 36      |
|                              | 26.9                                      | 205                | 915     |
| 1                            | 1.315                                     | 8                  | 36      |
|                              | 33.7                                      | 205                | 915     |
| 1¼                           | 1.660                                     | 8                  | 36      |
|                              | 42.4                                      | 205                | 915     |
| 1½                           | 1.900                                     | 8                  | 36      |
|                              | 48.3                                      | 205                | 915     |
| 2                            | 2.375                                     | 8                  | 36      |
|                              | 60.3                                      | 205                | 915     |
| 2½                           | 2.875                                     | 8                  | 36      |
|                              | 73.0                                      | 205                | 915     |
| 76.1 mm                      | 3.000                                     | 8                  | 36      |
|                              | 76.1                                      | 205                | 915     |
| 3                            | 3.500                                     | 8                  | 36      |
|                              | 88.9                                      | 205                | 915     |
| 3½                           | 4.000                                     | 8                  | 36      |
|                              | 101.6                                     | 205                | 915     |
| 108.0 mm                     | 4.250                                     | 8                  | 36      |
|                              | 108.0                                     | 205                | 915     |
| 4                            | 4.500                                     | 8                  | 36      |
|                              | 114.3                                     | 205                | 915     |
| 4½                           | 5.000                                     | 8                  | 32      |
|                              | 127.0                                     | 205                | 815     |
| 133.0 mm                     | 5.250                                     | 8                  | 32      |
|                              | 133.0                                     | 205                | 815     |
| 139.7 mm                     | 5.500                                     | 8                  | 32      |
|                              | 139.7                                     | 205                | 815     |
| 5                            | 5.563                                     | 8                  | 32      |
|                              | 141.3                                     | 205                | 815     |
| 152.4 mm                     | 6.000                                     | 10                 | 30      |
|                              | 152.4                                     | 255                | 765     |
| 159.0 mm                     | 6.250                                     | 10                 | 30      |
|                              | 159.0                                     | 255                | 765     |
| 165.1 mm                     | 6.500                                     | 10                 | 30      |
|                              | 165.1                                     | 255                | 765     |
| 6                            | 6.625                                     | 10                 | 28      |
|                              | 168.3                                     | 255                | 715     |
| 203.2 mm                     | 8.000                                     | 10                 | 24      |
|                              | 203.2                                     | 255                | 610     |
| 216.3 mm                     | 8.500                                     | 10                 | 24      |
|                              | 216.3                                     | 255                | 610     |
| 8                            | 8.625                                     | 10                 | 24      |
|                              | 219.1                                     | 255                | 610     |
| 254.0 mm                     | 10.000                                    | 10                 | 20      |
|                              | 254.0                                     | 255                | 510     |
| 267.4 mm                     | 10.500                                    | 10                 | 20      |
|                              | 267.4                                     | 255                | 510     |
| 10                           | 10.750                                    | 10                 | 20      |
|                              | 273.0                                     | 255                | 510     |
| 304.8 mm                     | 12.000                                    | 12                 | 18      |
|                              | 304.8                                     | 305                | 460     |
| 318.5 mm                     | 12.500                                    | 12                 | 18      |
|                              | 318.5                                     | 305                | 460     |
| 12                           | 12.750                                    | 12                 | 18      |
|                              | 323.9                                     | 305                | 460     |



## Pipe Lengths Suitable for Grooving (Continued)

| Size                         |                                           | Length – inches/mm                                                                                                                                         |           |
|------------------------------|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Nominal Size<br>inches or mm | Actual Pipe Outside<br>Diameter inches/mm | Minimum                                                                                                                                                    | Maximum   |
| 14 OD                        | 14.000<br>355.6                           | 12<br>305                                                                                                                                                  | 16<br>410 |
| 377.0 mm                     | 14.843<br>377.0                           | 12<br>305                                                                                                                                                  | 16<br>410 |
| 15 OD                        | 15.000<br>381.0                           | 12<br>305                                                                                                                                                  | 16<br>410 |
| 16 OD                        | 16.000<br>406.4                           | 12<br>305                                                                                                                                                  | 16<br>410 |
| 426.0 mm                     | 16.772<br>426.0                           | 12<br>305                                                                                                                                                  | 16<br>410 |
| 18 OD                        | 18.000<br>457                             | <b>NOTE: Always use a pipe stand when roll grooving pipe in these sizes. DO NOT roll groove pipe lengths shorter than 18 inches/457 mm in these sizes.</b> |           |
| 480.0 mm                     | 18.898<br>480                             |                                                                                                                                                            |           |
| 20 OD                        | 20.000<br>508                             |                                                                                                                                                            |           |
| 530.0 mm                     | 20.866<br>530                             |                                                                                                                                                            |           |
| 22 OD                        | 22.000<br>559                             |                                                                                                                                                            |           |
| 24 OD                        | 24.000<br>610                             |                                                                                                                                                            |           |
| 650.0 mm                     | 25.591<br>650                             |                                                                                                                                                            |           |
| 26 OD                        | 26.000<br>660                             |                                                                                                                                                            |           |
| 28 OD                        | 28.000<br>711                             |                                                                                                                                                            |           |
| 30 OD                        | 30.000<br>762                             |                                                                                                                                                            |           |
| 32 OD                        | 32.000<br>813                             |                                                                                                                                                            |           |
| 36 OD                        | 36.000<br>914                             |                                                                                                                                                            |           |
| 40 OD                        | 40.000<br>1016                            |                                                                                                                                                            |           |
| 42 OD                        | 42.000<br>1067                            |                                                                                                                                                            |           |
| 46 OD                        | 46.000<br>1168                            |                                                                                                                                                            |           |
| 48 OD                        | 48.000<br>1219                            |                                                                                                                                                            |           |
| 54 OD                        | 54.000<br>1372                            |                                                                                                                                                            |           |
| 56 OD                        | 56.000<br>1422                            |                                                                                                                                                            |           |
| 60 OD                        | 60.000<br>1524                            |                                                                                                                                                            |           |
| 72 OD                        | 72.000<br>1829                            |                                                                                                                                                            |           |

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

**EXAMPLE:** A 20-foot, 4-inch/6.2-m length of 10-inch/273.0-mm diameter steel pipe is required to finish a section and only 20-foot/6.1-m lengths are available. Instead of roll grooving a 20-foot/6.1-m length of steel pipe and a 4-inch/102-mm length of steel pipe, follow these steps:

1. Refer to the table above, and note that for 10-inch/273.0-mm diameter steel pipe, the minimum length that should be roll grooved is 10 inches/255 mm.
2. Roll groove a 19-foot, 6-inch/5.9-m length of pipe and a 10-inch/255-mm length of pipe.



Roll Grooving Tool Capacities

| Tool Model                       | Pipe Material | PIPE SIZE/SCHEDULE<br>inches/mm |      |          |      |      |          |      |       |                   |       |          |       |       |       |
|----------------------------------|---------------|---------------------------------|------|----------|------|------|----------|------|-------|-------------------|-------|----------|-------|-------|-------|
|                                  |               | ¾                               | 1    | 1 ¼      | 1 ½  | 2    | 2 ½      | 3    | 3 ½   | 4                 | 4 ½   | 5        | 6     | 8     | 10    |
|                                  |               | 26.9                            | 33.7 | 42.4     | 48.3 | 60.3 | 73.0     | 88.9 | 101.6 | 114.3             | 127.0 | 141.3    | 168.3 | 219.1 | 273.0 |
| VE12                             | Steel         | 5 – 10                          |      | 5 – 40   |      |      |          |      |       |                   |       |          |       |       |       |
|                                  | Stainless     |                                 |      | 40S Only |      |      |          |      |       |                   |       |          |       |       |       |
|                                  | Aluminum †    | 5 – 10                          |      | 5 – 40   |      |      |          |      |       |                   |       |          |       |       |       |
|                                  | PVC Plastic   |                                 |      | 40       |      |      |          |      |       |                   |       |          |       |       |       |
| VE26S                            | Steel         |                                 |      |          |      |      | 5 – 40   |      |       |                   |       | 5 – 10   |       |       |       |
| VE26C                            | Stainless     |                                 |      |          |      |      | 40S Only |      |       |                   |       |          |       |       |       |
| VE26P                            | Copper        |                                 |      |          |      |      |          |      |       | K, L, M, & DWV    |       |          |       |       |       |
|                                  | Aluminum †    |                                 |      |          |      |      |          |      |       |                   |       |          |       |       |       |
|                                  | PVC Plastic   |                                 |      |          |      |      | 5 – 40   |      |       |                   |       | 5 – 10   |       |       |       |
| VE26SS                           | Lt. Wall SS   |                                 |      |          |      |      |          |      | 40    |                   |       |          |       |       |       |
| VE46                             | Steel         |                                 |      |          |      |      |          |      |       | 5S – 10S          |       |          |       |       |       |
| VE46P                            | Stainless     |                                 |      |          |      |      |          |      |       |                   |       | 5 – 40   |       |       |       |
|                                  | Aluminum †    |                                 |      |          |      |      |          |      |       |                   |       | 40S Only |       |       |       |
|                                  | PVC Plastic   |                                 |      |          |      |      |          |      |       |                   |       | 5 – 40   |       |       |       |
| VE106<br>VE108H<br>(Groove-N-Go) | Steel ϕ       |                                 |      |          |      |      |          |      | 40    |                   |       | 40 – 80  |       |       |       |
|                                  | Stainless     |                                 |      |          |      |      |          |      |       | 5 – 40 Std. Rolls |       |          |       |       |       |
|                                  | Lt. Wall SS   |                                 |      |          |      |      |          |      |       | 40S Std. Rolls    |       |          |       |       |       |
|                                  | Copper        |                                 |      |          |      |      |          |      |       | 5S – 10S RX Rolls |       |          |       |       |       |

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Roll Grooving Tool Capacities

| Tool Model | Pipe Material | PIPE SIZE/SCHEDULE<br>inches/mm |          |      |          |        |          |                             |        |       |        |        |       |       |                   |       |       |       |
|------------|---------------|---------------------------------|----------|------|----------|--------|----------|-----------------------------|--------|-------|--------|--------|-------|-------|-------------------|-------|-------|-------|
|            |               | ¾                               | 1        | 1¼   | 1½       | 2      | 2½       | 3                           | 3½     | 4     | 4½     | 5      | 6     | 8     | 10                | 12    | 14    | 16    |
| VE226S     | Steel         | 26.9                            | 33.7     | 42.4 | 48.3     | 60.3   | 73.0     | 88.9                        | 101.6  | 114.3 | 127.0  | 141.3  | 168.3 | 219.1 | 273.0             | 323.9 | 355.6 | 406.4 |
|            | Stainless     |                                 |          |      | 5 – 40   |        |          |                             | 5 – 10 |       |        |        |       |       |                   |       |       |       |
| VE226B     | Steel         |                                 | 5 – 40   |      | 40S Only |        |          |                             |        |       |        |        |       |       |                   |       |       |       |
|            | Stainless     |                                 | 40S Only |      |          |        |          |                             |        |       |        |        |       |       |                   |       |       |       |
|            | Aluminum †    |                                 | 5 – 40   |      |          |        |          |                             |        |       |        |        |       |       |                   |       |       |       |
|            | PVC Plastic   | 40                              | 40 – 80  |      |          |        |          |                             |        |       |        |        |       |       |                   |       |       |       |
| VE226M     | Steel         |                                 |          |      |          |        | 5 – 40   |                             |        |       | 5 – 10 |        |       |       |                   |       |       |       |
| VE226C     | Stainless     |                                 |          |      |          |        | 40S Only |                             |        |       |        |        |       |       |                   |       |       |       |
| VE226BSS   | Copper        |                                 |          |      |          |        |          | K, L, M, & DWV              |        |       |        |        |       |       |                   |       |       |       |
| VE226MSS   | Lt. Wall SS   |                                 | 5S – 10S |      |          |        |          |                             |        |       |        |        |       |       |                   |       |       |       |
| VE226P     | Lt. Wall SS   |                                 |          |      |          |        |          | 5S – 10S                    |        |       |        | 5 – 10 |       |       |                   |       |       |       |
|            | Aluminum †    |                                 |          |      |          |        | 5 – 40   |                             |        |       | 40     |        |       |       |                   |       |       |       |
|            | PVC Plastic   |                                 |          |      | 40 – 80  |        |          |                             |        |       |        |        |       |       |                   |       |       |       |
|            | Steel Ø       |                                 |          |      |          |        |          | 5 – 40 Std. Rolls           |        |       |        |        |       |       | 5 – 20 Std. Rolls |       |       |       |
| VE272FS †  | Stainless     |                                 |          |      |          |        |          | 40S Std. Rolls              |        |       |        |        |       |       |                   |       |       |       |
|            | Lt. Wall SS   |                                 |          |      |          |        |          | 5S – 10S RX Rolls           |        |       |        |        |       |       |                   |       |       |       |
|            | Aluminum †*   |                                 |          |      |          |        |          | 5 – 40RP Rolls              |        |       |        |        |       |       | 5 – 20 RP Rolls   |       |       |       |
|            | PVC Plastic * |                                 |          |      |          | 40 * 5 |          | 40 – 80 RP Rolls            |        |       |        |        |       | 40 *  |                   |       |       |       |
|            | Copper        |                                 |          |      |          |        |          | K, L, M, & DWV Copper Rolls |        |       |        |        |       |       |                   |       |       |       |
|            |               |                                 |          |      |          |        |          |                             |        |       |        |        |       |       |                   |       |       |       |

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TOOL RATINGS

Roll Grooving Tool Capacities

| Tool Model           | Pipe Material | PIPE SIZE/SCHEDULE<br>inches/mm |      |      |      |                             |                  |      |       |       |       |       |       |       |       |                 |             |       |  |
|----------------------|---------------|---------------------------------|------|------|------|-----------------------------|------------------|------|-------|-------|-------|-------|-------|-------|-------|-----------------|-------------|-------|--|
|                      |               | ¾                               | 1    | 1 ¼  | 1 ½  | 2                           | 2 ½              | 3    | 3 ½   | 4     | 4 ½   | 5     | 6     | 8     | 10    | 12              | 14          | 16    |  |
| VE268<br>VE269       | Steel Ø       | 26.9                            | 33.7 | 42.4 | 48.3 | 60.3                        | 73.0             | 88.9 | 101.6 | 114.3 | 127.0 | 141.3 | 168.3 | 219.1 | 273.0 | 323.9           | 355.6       | 406.4 |  |
|                      | Stainless     | 5 – 40 Std. Rolls               |      |      |      |                             |                  |      |       |       |       |       |       |       |       |                 |             |       |  |
|                      | Lt. Wall SS   | 40S Std. Rolls                  |      |      |      |                             |                  |      |       |       |       |       |       |       |       |                 |             |       |  |
|                      | Aluminum †*   |                                 |      |      |      | 5 – 40 RP Rolls             |                  |      |       |       |       |       |       |       |       | 5 – 20 RP Rolls |             |       |  |
|                      | PVC Plastic * |                                 |      |      |      | 40 * S                      | 40 – 80 RP Rolls |      |       |       |       |       |       |       |       |                 | 40 RP Rolls |       |  |
|                      | Copper        |                                 |      |      |      | K, L, M, & DWV Copper Rolls |                  |      |       |       |       |       |       |       |       |                 |             |       |  |
| VE270FSD<br>VE271FSD | Steel Ø       | 5 – 40 Std. Rolls               |      |      |      |                             |                  |      |       |       |       |       |       |       |       |                 |             |       |  |
|                      | Stainless     | 40S Std. Rolls                  |      |      |      |                             |                  |      |       |       |       |       |       |       |       |                 |             |       |  |
|                      | Lt. Wall SS   | 5S – 10S RX Rolls               |      |      |      |                             |                  |      |       |       |       |       |       |       |       |                 |             |       |  |
|                      | Aluminum †*   |                                 |      |      |      | 5 – 40 RP Rolls             |                  |      |       |       |       |       |       |       |       | 5 – 20 RP Rolls |             |       |  |
|                      | PVC Plastic * |                                 |      |      |      | 40 * S                      | 40 – 80 RP Rolls |      |       |       |       |       |       |       |       |                 | 40 *        |       |  |
|                      | Copper        |                                 |      |      |      | K, L, M, & DWV Copper Rolls |                  |      |       |       |       |       |       |       |       |                 |             |       |  |

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Roll Grooving Tool Capacities

| Tool Model          | Pipe Material | PIPE SIZE/SCHEDULE<br>Inches/mm                         |      |      |      |      |      |      |       |       |       |       |       |       |
|---------------------|---------------|---------------------------------------------------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
|                     |               | ¾                                                       | 1    | 1¼   | 1½   | 2    | 2½   | 3    | 3½    | 4     | 4½    | 5     | 6     | 8     |
| VE272SES<br>VE266FS | Steel Ø       | 26.9                                                    | 33.7 | 42.4 | 48.3 | 60.3 | 73.0 | 88.9 | 101.6 | 114.3 | 127.0 | 141.3 | 168.3 | 219.1 |
|                     | Stainless     | 5 – 40 Std. Rolls                                       |      |      |      |      |      |      |       |       |       |       |       |       |
|                     | LT. Wall SS   | 40S Std. Rolls                                          |      |      |      |      |      |      |       |       |       |       |       |       |
|                     | Aluminum †*   | 5S – 10S RX Rolls                                       |      |      |      |      |      |      |       |       |       |       |       |       |
|                     | PVC Plastic*  | 5 – 40 RP Rolls                                         |      |      |      |      |      |      |       |       |       |       |       |       |
|                     | Copper        | 40 * \$ 40 – 80 RP Rolls<br>K, L, M, & DWV Copper Rolls |      |      |      |      |      |      |       |       |       |       |       |       |
| VE274 †             | Steel Ø       | 5 – 40 Std. Rolls                                       |      |      |      |      |      |      |       |       |       |       |       |       |
|                     | Stainless     | 40S Std. Rolls                                          |      |      |      |      |      |      |       |       |       |       |       |       |
|                     | Lt. Wall SS   | 5S – 10S RX Rolls                                       |      |      |      |      |      |      |       |       |       |       |       |       |
|                     | Aluminum †*   | 5 – 40 RP Rolls                                         |      |      |      |      |      |      |       |       |       |       |       |       |
|                     | PVC Plastic * | 40 * \$ 40 – 80 RP Rolls                                |      |      |      |      |      |      |       |       |       |       |       |       |
|                     | Copper        | K, L, M, & DWV Copper Rolls                             |      |      |      |      |      |      |       |       |       |       |       |       |

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GENERAL INFORMATION REV\_E

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Roll Grooving Tool Capacities

| Tool Model          | Pipe Material   | PIPE SIZE/SCHEDULE<br>Inches/mm |      |      |      |      |      |      |       |       |       |       |       |       |       |
|---------------------|-----------------|---------------------------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|
|                     |                 | ¾                               | 1    | 1¼   | 1½   | 2    | 2½   | 3    | 3½    | 4     | 4½    | 5     | 6     | 8     | 10    |
| VE416FS<br>VE416FSD | Steel Ø         | 26.9                            | 33.7 | 42.4 | 48.3 | 60.3 | 73.0 | 88.9 | 101.6 | 114.3 | 127.0 | 141.3 | 168.3 | 219.1 | 273.0 |
|                     |                 | 5 – 40 Std. Rolls               |      |      |      |      |      |      |       |       |       |       |       |       |       |
|                     | Stainless       | 40S Std. Rolls                  |      |      |      |      |      |      |       |       |       |       |       |       |       |
|                     | Lt. Wall SS     | 5S – 10S RX Rolls               |      |      |      |      |      |      |       |       |       |       |       |       |       |
|                     | Aluminum †*     | 5 – 40 RP Rolls                 |      |      |      |      |      |      |       |       |       |       |       |       |       |
|                     | PVC Plastic *   | 40 – 80 RP Rolls                |      |      |      |      |      |      |       |       |       |       |       |       |       |
|                     | Copper          | K, L, M, & DWV Copper Rolls     |      |      |      |      |      |      |       |       |       |       |       |       |       |
|                     | AGS Steel       | 80 * §                          |      |      |      |      |      |      |       |       |       |       |       |       |       |
|                     | AGS Stainless   | 40 *                            |      |      |      |      |      |      |       |       |       |       |       |       |       |
|                     | AGS Lt. Wall SS | 5 – Std. Wall*                  |      |      |      |      |      |      |       |       |       |       |       |       |       |

|                              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| 5 – Std. Wall                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Std. Wall Only               |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5S – 10 RX Rolls             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 – Std. Wall*               |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| .220" – .375" Wall, RW Rolls |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Std. Wall, RW Rolls          |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5S – 10S RWX Rolls #         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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Roll Grooving Tool Capacities

| Tool Model | Pipe Material   | PIPE SIZE/SCHEDULE<br>inches/mm |             |            |                |            |             |                                         |             |             |           |           |           |           |
|------------|-----------------|---------------------------------|-------------|------------|----------------|------------|-------------|-----------------------------------------|-------------|-------------|-----------|-----------|-----------|-----------|
|            |                 | 4<br>114.3                      | 4½<br>127.0 | 5<br>141.3 | 6<br>168.3     | 8<br>219.1 | 10<br>273.0 | 12<br>323.9                             | 14<br>355.6 | 16<br>406.4 | 18<br>457 | 20<br>508 | 22<br>559 | 24<br>610 |
| VE424MC ‡  | Steel Ø         | 5 – 80                          |             |            | 40S Std. Rolls |            |             | 5 – Std. Wall                           |             |             |           |           |           |           |
|            | Stainless       |                                 |             |            |                |            |             | Std. Wall, Std. Rolls                   |             |             |           |           |           |           |
|            | Lt. Wall SS     | 5S – 10S RX Rolls               |             |            |                |            |             | 5S/10S/10 RX Rolls                      |             |             |           |           |           |           |
|            | Aluminum †*     | 5 – 40 RP Rolls                 |             |            |                |            |             |                                         |             |             |           |           |           |           |
|            | PVC Plastic *   | 40 – 80 *                       |             |            | 40 *           |            |             |                                         |             |             |           |           |           |           |
|            | AGS Steel       |                                 |             |            |                |            |             |                                         |             |             |           |           |           |           |
|            | AGS Stainless   |                                 |             |            |                |            |             |                                         |             |             |           |           |           |           |
|            | AGS Lt. Wall SS |                                 |             |            |                |            |             |                                         |             |             |           |           |           |           |
|            | Steel Ø         | 5 – 40                          |             |            |                |            |             | Sch. 5 – Std. Wall Original Groove Only |             |             |           |           |           |           |
|            |                 |                                 |             |            |                |            |             | Sch. 10 & Std. Wall RW-AGS              |             |             |           |           |           |           |
|            | Stainless       | 40S Std. Rolls                  |             |            |                |            |             | Std. Wall, Std. Rolls                   |             |             |           |           |           |           |
| VE450FSD   | Lt. Wall SS     |                                 |             |            |                |            |             |                                         |             |             |           |           |           |           |
|            | AGS Lt. Wall SS | 5S – 10S RX Rolls ∞             |             |            |                |            |             |                                         |             |             |           |           |           |           |
|            | Aluminum †*     |                                 |             |            |                |            |             |                                         |             |             |           |           |           |           |
|            | PVC Plastic *   | 40 – 80                         |             |            | 40             |            |             | 10S RWX Rolls #                         |             |             |           |           |           |           |

See notes on Page 16.



Roll Grooving Tool Capacities

| Tool Model | Pipe Material       | PIPE SIZE/SCHEDULE<br>Inches/mm |             |                   |            |            |             |                                 |             |             |           |           |           |           |                       |
|------------|---------------------|---------------------------------|-------------|-------------------|------------|------------|-------------|---------------------------------|-------------|-------------|-----------|-----------|-----------|-----------|-----------------------|
|            |                     | 4<br>114.3                      | 4½<br>127.0 | 5<br>141.3        | 6<br>168.3 | 8<br>219.1 | 10<br>273.0 | 12<br>323.9                     | 14<br>355.6 | 16<br>406.4 | 18<br>457 | 20<br>508 | 22<br>559 | 24<br>610 | 26 - 48<br>660 - 1219 |
| VE48MC ‡   | Steel ⌀             | 5 – 80                          |             | 40S Std. Rolls    |            | 5 – 40 @   |             | 5 – Extra Strong (0.500 inch) @ |             |             |           |           |           |           |                       |
|            | Stainless           |                                 |             | 40S Std. Rolls    |            |            |             | Std. Wall, Std. Rolls           |             |             |           |           |           |           |                       |
|            | Lt. Wall SS         |                                 |             | 5S – 10S RX Rolls |            |            |             | 5S/10S/10 RX Rolls              |             |             |           |           |           |           |                       |
|            | Aluminum †*         |                                 |             | 5 – 40 RP Rolls   |            |            |             |                                 |             |             |           |           |           |           |                       |
|            | PVC Plastic *       | 40 – 80 *                       |             | 40 *              |            |            |             |                                 |             |             |           |           |           |           |                       |
|            | AGS Steel           |                                 |             |                   |            |            |             |                                 |             |             |           |           |           |           |                       |
|            | AGS Stainless       |                                 |             |                   |            |            |             |                                 |             |             |           |           |           |           |                       |
|            | AGS Lt. Wall SS     |                                 |             |                   |            |            |             |                                 |             |             |           |           |           |           |                       |
|            |                     | Std. Wall, RW Rolls             |             |                   |            |            |             |                                 |             |             |           |           |           |           |                       |
|            | Std. Wall, RW Rolls |                                 |             |                   |            |            |             |                                 |             |             |           |           |           |           |                       |
|            | 5S – 10S RWX Rolls  |                                 |             |                   |            |            |             |                                 |             |             |           |           |           |           |                       |

See notes on Page 16.

Roll Grooving Tool Capacities

| Tool Model | Pipe Material   | PIPE SIZE/SCHEDULE<br>inches/mm |       |       |       |       |       |       |       |     |     |     |     |     |     |
|------------|-----------------|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-----|-----|-----|-----|-----|-----|
|            |                 | 4                               | 5     | 6     | 8     | 10    | 12    | 14    | 16    | 18  | 20  | 22  | 24  | 26  | 28  |
| VE436MC ‡  | Steel ∅         | 114.3                           | 141.3 | 168.3 | 219.1 | 273.0 | 323.9 | 355.6 | 406.4 | 457 | 508 | 559 | 610 | 660 | 711 |
|            |                 | 5 – 80                          |       |       |       |       |       |       |       |     |     |     |     |     |     |
|            | Stainless       | 40S Std. Rolls                  |       |       |       |       |       |       |       |     |     |     |     |     |     |
|            | Lt. Wall SS     | 5S – 10S RX Rolls               |       |       |       |       |       |       |       |     |     |     |     |     |     |
|            | Aluminum †*     | 5 – 40 RP Rolls                 |       |       |       |       |       |       |       |     |     |     |     |     |     |
|            | PVC Plastic     | 40 – 80 *                       |       |       |       |       |       |       |       |     |     |     |     |     |     |
|            | AGS Steel       | 40 – 80 *                       |       |       |       |       |       |       |       |     |     |     |     |     |     |
|            | AGS Stainless   | 40 – 80 *                       |       |       |       |       |       |       |       |     |     |     |     |     |     |
|            | AGS Lt. Wall SS | 40 – 80 *                       |       |       |       |       |       |       |       |     |     |     |     |     |     |
|            |                 | 5 – Extra Strong (0.500 inch) @ |       |       |       |       |       |       |       |     |     |     |     |     |     |
|            |                 | Std. Wall, Std. Rolls           |       |       |       |       |       |       |       |     |     |     |     |     |     |
|            |                 | 5S/10S/10 RX Rolls              |       |       |       |       |       |       |       |     |     |     |     |     |     |
|            |                 | .220" – .492" Wall, RW Rolls Δ  |       |       |       |       |       |       |       |     |     |     |     |     |     |
|            |                 | Std. Wall, RW Rolls             |       |       |       |       |       |       |       |     |     |     |     |     |     |
|            |                 | 5S – 10S RWX Rolls #            |       |       |       |       |       |       |       |     |     |     |     |     |     |

\* Use RP Rolls.

† 6061-T4 or 6063-T4 must be used. RP Rolls must be used.

‡ Tool has been discontinued.

# Special rolls for grooving true Sch. 10 (0.250 inch/6.4 mm) are available.

@ For 6 – 14-inch/168.3 – 355.6-mm sizes, special tooling is available for grooving extra-strong pipe. For 8 – 24-inch/219.1 – 610-mm sizes, the maximum wall thickness is limited to standard wall for pipe lengths shorter than 4 feet/1.2 m

\$ A special lower roll exclusively for grooving 2-inch/60.3-mm Sch. 80 PVC is available.

Δ The VE436MC is capable of grooving .492-inch/12.5-mm wall carbon steel pipe to AGS specifications. Pipe hardness is limited to a Brinell Hardness Number (BHN) of 150 maximum.

∞ These rolls are not interchangeable with roll sets from other tool models. Contact Victaulic for ordering information.

∅ EndSeal (ES) rolls are available. Contact Victaulic for details.



Roll Grooving Tool Capacities

| Tool Model | Pipe Material                                                                         | PIPE SIZE/SCHEDULE<br>inches/mm |            |            |            |                  |             |             |             |                               |           |                          |           |           |           |           |           |           |           |            |            |              |            |            |  |                         |  |  |  |  |  |
|------------|---------------------------------------------------------------------------------------|---------------------------------|------------|------------|------------|------------------|-------------|-------------|-------------|-------------------------------|-----------|--------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|--------------|------------|------------|--|-------------------------|--|--|--|--|--|
|            |                                                                                       | 4<br>114.3                      | 5<br>141.3 | 6<br>168.3 | 8<br>219.1 | 10<br>273.0      | 12<br>323.9 | 14<br>355.6 | 16<br>406.4 | 18<br>457                     | 20<br>508 | 22<br>559                | 24<br>610 | 26<br>660 | 28<br>711 | 30<br>762 | 32<br>813 | 36<br>914 | 38<br>965 | 40<br>1016 | 42<br>1067 | 48<br>1219   | 60<br>1524 | 72<br>1829 |  |                         |  |  |  |  |  |
| VE460      | Steel                                                                                 | 5 - 80                          |            |            |            | 5 - Extra Strong |             |             |             | 10 - Extra Strong (.500)* AGS |           |                          |           |           |           |           |           |           |           |            |            |              |            |            |  | Std. (.375 - .500)* AGS |  |  |  |  |  |
|            | Stainless                                                                             | Sch. 40 Only                    |            |            |            | .375             |             |             |             | Std. (.375 - .500)* AGS       |           |                          |           |           |           |           |           |           |           |            |            |              |            |            |  |                         |  |  |  |  |  |
|            | Lt. Wall SS                                                                           | 5S - 10S RX                     |            |            |            |                  |             |             |             | 5S - 10S - 10 RWX             |           |                          |           |           |           |           |           |           |           |            |            |              |            |            |  |                         |  |  |  |  |  |
|            | Aluminum ± #                                                                          | 5 - 40                          |            |            |            |                  |             |             |             |                               |           |                          |           |           |           |           |           |           |           |            |            |              |            |            |  |                         |  |  |  |  |  |
|            | PVC Plastic ±                                                                         | 40 - 80                         |            |            |            | 40               |             |             |             |                               |           |                          |           |           |           |           |           |           |           |            |            |              |            |            |  |                         |  |  |  |  |  |
|            | Grooving Capabilities for Original Groove System (OGS) Couplings (Styles 07, 77, 770) |                                 |            |            |            |                  |             |             |             |                               |           |                          |           |           |           |           |           |           |           |            |            |              |            |            |  |                         |  |  |  |  |  |
|            | Steel                                                                                 |                                 |            |            |            |                  |             |             |             |                               |           | 5 - Extra Strong (.500)* |           |           |           |           |           |           |           |            |            | .250 - .500* |            |            |  |                         |  |  |  |  |  |
|            | Stainless                                                                             |                                 |            |            |            |                  |             |             |             |                               |           | Std. (.375)              |           |           |           |           |           |           |           |            |            |              |            |            |  |                         |  |  |  |  |  |
|            | Lt. Wall SS                                                                           |                                 |            |            |            |                  |             |             |             |                               |           | 5S - 10S - 10 RX Rolls   |           |           |           |           |           |           |           |            |            |              |            |            |  |                         |  |  |  |  |  |

\* Maximum ratings are limited to pipe that does not exceed the yield strength of API-5L Grade "B", ASTM Grade "B", 150 Brinell Hardness Number (BHN) maximum.  
‡ RP rolls must be used  
# Aluminum alloys 6061-T4 or 6063-T4 must be used. RP rolls must be used.

Cut Grooving Tool Capacities

| Tool Model                | Pipe Material | PIPE SIZE/SCHEDULE<br>inches/mm |      |       |       |         |       |      |       |          |         |       |       |          |                |       |          |       |
|---------------------------|---------------|---------------------------------|------|-------|-------|---------|-------|------|-------|----------|---------|-------|-------|----------|----------------|-------|----------|-------|
|                           |               | 3/4                             | 1    | 1 1/4 | 1 1/2 | 2       | 2 1/2 | 3    | 3 1/2 | 4        | 4 1/2   | 5     | 6     | 8        | 10             | 12    | 14       | 16    |
| Vic-Groover Individual ‡  | Steel         | 26.9                            | 33.7 | 42.4  | 48.3  | 60.3    | 73.0  | 88.9 | 101.6 | 114.3    | 127.0   | 141.3 | 168.3 | 219.1    | 273.0          | 323.9 | 355.6    | 406.4 |
|                           | Stainless     |                                 |      |       |       | 40 – 80 |       |      |       |          |         |       |       |          |                |       |          |       |
|                           | Aluminum      |                                 |      |       |       | 40 – 80 |       |      |       |          |         |       |       |          |                |       |          |       |
|                           | PVC           |                                 |      |       |       | 40 – 80 |       |      |       |          |         |       |       |          |                |       |          |       |
| Vic-Groover Adjustable ‡  | Steel         |                                 |      |       |       |         |       |      |       |          | 40 – 80 |       |       |          |                |       |          |       |
|                           | Stainless     |                                 |      |       |       |         |       |      |       |          | 40 – 80 |       |       |          |                |       |          |       |
|                           | Aluminum      |                                 |      |       |       |         |       |      |       |          | 40 – 80 |       |       |          |                |       |          |       |
| Vic-Groover               | Ductile Iron  |                                 |      |       |       |         |       |      |       | Class 53 |         |       |       | Class 53 |                |       |          |       |
|                           |               |                                 |      |       |       |         |       |      |       | 40 – 80  |         |       |       |          |                |       |          |       |
| VG28GD Adjustable Groover | Steel         |                                 |      |       |       |         |       |      |       | 40 – 80  |         |       |       |          |                |       |          |       |
|                           | Stainless     |                                 |      |       |       |         |       |      |       | 40 – 80  |         |       |       |          |                |       |          |       |
|                           | Aluminum      |                                 |      |       |       |         |       |      |       | 40 – 80  |         |       |       |          |                |       |          |       |
|                           | Ductile Iron  |                                 |      |       |       |         |       |      |       | 40 – 80  |         |       |       |          |                |       |          |       |
| VG824 Cut Groover         | Steel         |                                 |      |       |       |         |       |      |       |          |         |       |       |          | 40 – 80        |       |          |       |
|                           | Stainless     |                                 |      |       |       |         |       |      |       |          |         |       |       |          | 30 – Std. Wall |       |          |       |
|                           | Aluminum      |                                 |      |       |       |         |       |      |       |          |         |       |       |          | 30 – Std. Wall |       |          |       |
|                           | Ductile Iron  |                                 |      |       |       |         |       |      |       |          |         |       |       |          |                |       | Class 53 |       |
| VG828 AGS Cut Groover     | Steel         |                                 |      |       |       |         |       |      |       |          |         |       |       |          |                |       |          |       |
| VG412                     | Steel         |                                 |      |       |       |         |       |      |       |          |         |       |       |          |                |       |          |       |
| Adjustable Groover        | Ductile Iron  |                                 |      |       |       |         |       |      |       |          |         |       |       |          |                |       |          |       |
| VPG26                     | PVC           |                                 |      |       |       |         |       |      |       |          |         |       |       |          |                |       |          |       |
| VPG824                    | PVC           |                                 |      |       |       |         |       |      |       |          |         |       |       |          |                |       |          |       |

‡ Vic-Groover Individual and Adjustable Tools are size and material specific.

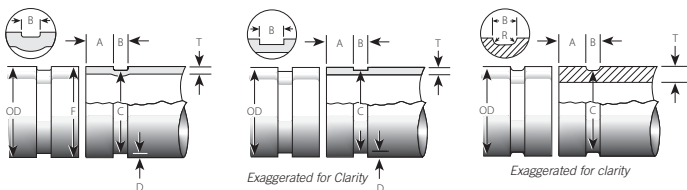


# EXPLANATION OF CRITICAL ROLL GROOVE AND CUT GROOVE DIMENSIONS FOR STANDARD PRODUCTS

## WARNING

- Pipe dimensions and groove dimensions must be within the tolerances specified in the tables on the following pages to ensure proper joint performance.

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



Standard Roll Groove

Standard Cut Groove

Radius Cut Groove

*Illustrations are exaggerated for clarity*

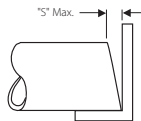
## NOTICE

### FOR STANDARD COUPLINGS WITH RATINGS ON LIGHT-WALL STAINLESS STEEL PIPE:

- Victaulic RX rolls **MUST** be used when roll grooving light-wall stainless steel pipe for use with standard couplings.

**Pipe Outside Diameter – Nominal NPS Pipe Size (ANSI B36.10) and Basic Metric Pipe Size (ISO 4200)** – The average pipe outside diameter must not vary from the specifications listed in the tables on the following pages. Maximum allowable pipe ovality should not vary by more than 1%. Greater variations between the major and minor diameters will result in difficult coupling assembly.

**For NPS pipe, the maximum allowable tolerance from square-cut pipe ends is:**  $\frac{1}{32}$  inch/0.8 mm for  $\frac{3}{4}$  – 3  $\frac{1}{2}$ -inch/26.9 – 101.6-mm sizes;  $\frac{1}{16}$  inch/1.6 mm for 4 – 24-inch/114.3 – 610-mm sizes; and  $\frac{3}{32}$  inch/2.4 mm for 26-inch/660-mm and larger sizes. This is measured from the true square line.



Any internal and external weld beads or seams must be ground flush to the pipe surface. The inside diameter of the pipe end must be cleaned to remove coarse scale, dirt, and other foreign material that might interfere with or damage grooving rolls. The front edge of the pipe end shall be uniform with no concave/convex surface features that will cause improper grooving roll tracking and result in difficulties during coupling assembly.

**“A” Dimension** – The “A” dimension, or the distance from the pipe end to the groove, identifies the gasket seating area. This area must be free from indentations, projections (including weld seams), and roll marks from the pipe end to the groove to ensure a leak-tight seal. All foreign material, such as loose paint, scale, oil, grease, chips, rust, and dirt must be removed.

**“B” Dimension** – The “B” dimension, or groove width, controls expansion, contraction, and angular deflection of flexible couplings by the distance it is located from the pipe and its width in relation to the coupling housings’ “key” width. The bottom of the groove must be free of all foreign material, such as dirt, chips, rust, and scale that may interfere with proper coupling assembly.



**“C” Dimension** – The “C” dimension is the average diameter at the base of the groove. This dimension must be within the diameter’s tolerance and concentric with the OD for proper coupling fit. The groove must be of uniform depth for the entire pipe circumference.

**“D” Dimension** – The “D” dimension is the normal depth of the groove and is a reference for a “trial groove” only. Variations in pipe OD affect this dimension and must be altered, if necessary, to keep the “C” dimension within tolerance. The groove diameter must conform to the “C” dimension described above.

**“F” Dimension (Roll Groove Only)** – Maximum allowable pipe-end flare diameter is measured at the extreme pipe-end diameter. **NOTE:** This applies to average (pi tape) and single-point readings.

**“T” Dimension** – The “T” dimension is the lightest grade (minimum nominal wall thickness) of pipe that is suitable for cut or roll grooving. Pipe that is less than the minimum nominal wall thickness for cut grooving may be suitable for roll grooving or adapted for Victaulic couplings by using Vic-Ring® Adapters. Vic-Ring Adapters can be used in the following situations (contact Victaulic for details):

- When pipe is less than the minimum nominal wall thickness suitable for roll grooving
- When pipe outside diameter is too large to roll or cut groove
- When pipe is used in abrasive services

**“R” Dimension** – The “R” dimension is the radius necessary at the bottom of the groove to eliminate a point of stress concentration for cast pipe (gray and ductile) and PVC plastic pipe.

| NOTICE                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Coatings that are applied to the interior surfaces of Victaulic grooved and plain-end pipe couplings must not exceed 0.010 inch/0.25 mm. This includes the bolt pad mating surfaces.</li><li>• In addition, the coating thickness applied to the gasket-sealing surface and within the groove on the pipe exterior must not exceed 0.010 inch/0.25 mm.</li></ul> |

# GROOVE SPECIFICATIONS

Roll Groove Specifications for Steel Pipe and All Materials Grooved with Standard and RX Rolls †

| Dimensions – inches/millimeters |                                                 |                       |                |               |               |                 |               |              |              |                  |                |              |                                                                 |
|---------------------------------|-------------------------------------------------|-----------------------|----------------|---------------|---------------|-----------------|---------------|--------------|--------------|------------------|----------------|--------------|-----------------------------------------------------------------|
| Size                            |                                                 | Pipe Outside Diameter |                |               |               | Gasket Seat "A" |               |              |              | Groove Width "B" |                |              |                                                                 |
| Nominal Size<br>inches or<br>mm | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | Max.                  |                | Min.          |               | Basic           | Max.          |              | Min.         | Max.             |                | Min.         |                                                                 |
|                                 |                                                 |                       |                |               |               |                 |               |              |              |                  |                |              |                                                                 |
| ¾                               | 1.050<br>26.9                                   | 1.060<br>26.9         | 1.040<br>26.4  | 0.625<br>15.9 | 0.625<br>15.9 | 0.656<br>16.7   | 0.594<br>15.1 | 0.312<br>7.9 | 0.250<br>6.4 | 0.938<br>23.8    | 0.923<br>23.4  | 0.056<br>1.5 | Max. Allow.<br>Wall<br>Thick. "T"<br>Flare Dia.<br>1.15<br>29.2 |
| 1                               | 1.315<br>33.7                                   | 1.328<br>33.7         | 1.302<br>33.1  | 0.625<br>15.9 | 0.625<br>15.9 | 0.656<br>16.7   | 0.594<br>15.1 | 0.312<br>7.9 | 0.250<br>6.4 | 1.190<br>30.2    | 1.175<br>29.9  | 0.063<br>1.6 | 0.049<br>1.2<br>1.43<br>36.3                                    |
| 1 ¼                             | 1.660<br>42.4                                   | 1.676<br>42.6         | 1.644<br>41.8  | 0.625<br>15.9 | 0.625<br>15.9 | 0.656<br>16.7   | 0.594<br>15.1 | 0.312<br>7.9 | 0.250<br>6.4 | 1.535<br>39.0    | 1.520<br>38.6  | 0.063<br>1.6 | 0.049<br>1.2<br>1.77<br>45.0                                    |
| 1 ½                             | 1.900<br>48.3                                   | 1.919<br>48.7         | 1.881<br>47.8  | 0.625<br>15.9 | 0.625<br>15.9 | 0.656<br>16.7   | 0.594<br>15.1 | 0.312<br>7.9 | 0.250<br>6.4 | 1.775<br>45.1    | 1.760<br>44.7  | 0.063<br>1.6 | 0.049<br>1.2<br>2.01<br>51.1                                    |
| 570mm                           | 2.244<br>57.0                                   | 2.267<br>57.6         | 2.222<br>56.4  | 0.625<br>15.9 | 0.625<br>15.9 | 0.656<br>16.7   | 0.594<br>15.1 | 0.344<br>8.7 | 0.313<br>8.0 | 2.118<br>53.8    | 2.102<br>53.4  | 0.063<br>1.6 | 0.049<br>1.2<br>2.35<br>59.7                                    |
| 2                               | 2.375<br>60.3                                   | 2.399<br>60.9         | 2.351<br>59.7  | 0.625<br>15.9 | 0.625<br>15.9 | 0.656<br>16.7   | 0.594<br>15.1 | 0.344<br>8.7 | 0.313<br>8.0 | 2.250<br>57.2    | 2.235<br>56.8  | 0.063<br>1.6 | 0.049<br>1.2<br>2.48<br>63.0                                    |
| 2 ½                             | 2.875<br>73.0                                   | 2.904<br>73.8         | 2.846<br>72.3  | 0.625<br>15.9 | 0.625<br>15.9 | 0.656<br>16.7   | 0.594<br>15.1 | 0.344<br>8.7 | 0.313<br>8.0 | 2.720<br>69.1    | 2.702<br>68.6  | 0.078<br>2.0 | 0.078<br>2.0<br>2.98<br>75.7                                    |
| 76.1 mm                         | 3.000<br>76.1                                   | 3.030<br>77.0         | 2.970<br>75.4  | 0.625<br>15.9 | 0.625<br>15.9 | 0.656<br>16.7   | 0.594<br>15.1 | 0.344<br>8.7 | 0.313<br>8.0 | 2.845<br>72.3    | 2.827<br>71.8  | 0.078<br>2.0 | 0.078<br>2.0<br>3.10<br>78.7                                    |
| 3                               | 3.500<br>88.9                                   | 3.535<br>89.8         | 3.469<br>88.1  | 0.625<br>15.9 | 0.625<br>15.9 | 0.656<br>16.7   | 0.594<br>15.1 | 0.344<br>8.7 | 0.313<br>8.0 | 3.344<br>84.9    | 3.326<br>84.5  | 0.078<br>2.0 | 0.078<br>2.0<br>3.60<br>91.4                                    |
| 3 ½                             | 4.000<br>101.6                                  | 4.040<br>102.6        | 3.969<br>100.8 | 0.625<br>15.9 | 0.625<br>15.9 | 0.656<br>16.7   | 0.594<br>15.1 | 0.344<br>8.7 | 0.313<br>8.0 | 3.834<br>97.4    | 3.814<br>96.9  | 0.083<br>2.2 | 0.078<br>2.0<br>4.10<br>104.1                                   |
| 108.0 mm                        | 4.250<br>108.0                                  | 4.293<br>109.0        | 4.219<br>107.2 | 0.625<br>15.9 | 0.625<br>15.9 | 0.656<br>16.7   | 0.594<br>15.1 | 0.344<br>8.7 | 0.313<br>8.0 | 4.084<br>103.7   | 4.064<br>103.2 | 0.083<br>2.2 | 0.078<br>2.0<br>4.35<br>110.5                                   |

† See note on page 25.

GROOVE SPECIFICATIONS

Roll Groove Specifications for Steel Pipe and All Materials Grooved with Standard and RX Rolls (Continued) †

| Size                         |                                                 | Dimensions – inches/millimeters |       |                 |       |       |                  |       |       |       |                     |       |                               |                                   |                              |
|------------------------------|-------------------------------------------------|---------------------------------|-------|-----------------|-------|-------|------------------|-------|-------|-------|---------------------|-------|-------------------------------|-----------------------------------|------------------------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | Pipe Outside Diameter           |       | Gasket Seat “A” |       |       | Groove Width “B” |       |       |       | Groove Diameter “C” |       | Groove<br>Depth<br>“D” (ref.) | Min. Allow.<br>Wall<br>Thick. “T” | Max.<br>Allow.<br>Flare Dia. |
|                              |                                                 | Max.                            | Min.  | Basic           | Max.  | Min.  | Basic            | Max.  | Min.  | Max.  | Min.                |       |                               |                                   |                              |
| 4                            | 4.500                                           | 4.545                           | 4.469 | 0.625           | 0.656 | 0.594 | 0.344            | 0.375 | 0.313 | 4.334 | 4.314               | 0.083 | 0.078                         | 4.60                              |                              |
|                              | 114.3                                           | 115.4                           | 113.5 | 15.9            | 16.7  | 15.1  | 8.7              | 9.5   | 8.0   | 110.1 | 109.6               | 2.2   | 2.0                           | 116.8                             |                              |
| 4½                           | 5.000                                           | 5.050                           | 4.969 | 0.625           | 0.656 | 0.594 | 0.344            | 0.375 | 0.313 | 4.834 | 4.814               | 0.083 | 0.078                         | 5.10                              |                              |
|                              | 127.0                                           | 128.3                           | 126.2 | 15.9            | 16.7  | 15.1  | 8.7              | 9.5   | 8.0   | 122.8 | 122.3               | 2.2   | 2.0                           | 129.5                             |                              |
| 133.0mm                      | 5.250                                           | 5.303                           | 5.219 | 0.625           | 0.656 | 0.594 | 0.344            | 0.375 | 0.313 | 5.084 | 5.064               | 0.083 | 0.078                         | 5.35                              |                              |
|                              | 133.0                                           | 134.7                           | 132.6 | 15.9            | 16.7  | 15.1  | 8.7              | 9.5   | 8.0   | 129.1 | 128.6               | 2.2   | 2.0                           | 135.9                             |                              |
| 139.7mm                      | 5.500                                           | 5.556                           | 5.469 | 0.625           | 0.656 | 0.594 | 0.344            | 0.375 | 0.313 | 5.334 | 5.314               | 0.083 | 0.078                         | 5.60                              |                              |
|                              | 139.7                                           | 141.1                           | 138.9 | 15.9            | 16.7  | 15.1  | 8.7              | 9.5   | 8.0   | 135.5 | 135.0               | 2.2   | 2.0                           | 142.2                             |                              |
| 5                            | 5.563                                           | 5.619                           | 5.532 | 0.625           | 0.656 | 0.594 | 0.344            | 0.375 | 0.313 | 5.395 | 5.373               | 0.084 | 0.078                         | 5.66                              |                              |
|                              | 141.3                                           | 142.7                           | 140.5 | 15.9            | 16.7  | 15.1  | 8.7              | 9.5   | 8.0   | 137.0 | 136.5               | 2.2   | 2.0                           | 143.8                             |                              |
| 152.4mm                      | 6.000                                           | 6.056                           | 5.969 | 0.625           | 0.656 | 0.594 | 0.344            | 0.375 | 0.313 | 5.830 | 5.808               | 0.085 | 0.078                         | 6.10                              |                              |
|                              | 152.4                                           | 153.8                           | 151.6 | 15.9            | 16.7  | 15.1  | 8.7              | 9.5   | 8.0   | 148.1 | 147.5               | 2.2   | 2.0                           | 154.9                             |                              |
| 159.0mm                      | 6.250                                           | 6.313                           | 6.219 | 0.625           | 0.656 | 0.594 | 0.344            | 0.375 | 0.313 | 6.032 | 6.002               | 0.109 | 0.109                         | 6.35                              |                              |
|                              | 159.0                                           | 160.4                           | 158.0 | 15.9            | 16.7  | 15.1  | 8.7              | 9.5   | 8.0   | 153.2 | 152.5               | 2.8   | 2.8                           | 161.3                             |                              |
| 165.1 mm                     | 6.500                                           | 6.563                           | 6.469 | 0.625           | 0.656 | 0.594 | 0.344            | 0.375 | 0.313 | 6.330 | 6.308               | 0.085 | 0.078                         | 6.60                              |                              |
|                              | 165.1                                           | 166.7                           | 164.3 | 15.9            | 16.7  | 15.1  | 8.7              | 9.5   | 8.0   | 160.8 | 160.2               | 2.2   | 2.8                           | 167.6                             |                              |
| 6                            | 6.625                                           | 6.688                           | 6.594 | 0.625           | 0.656 | 0.594 | 0.344            | 0.375 | 0.313 | 6.455 | 6.433               | 0.085 | 0.078                         | 6.73                              |                              |
|                              | 168.3                                           | 169.9                           | 167.5 | 15.9            | 16.7  | 15.1  | 8.7              | 9.5   | 8.0   | 164.0 | 163.4               | 2.2   | 2.8                           | 170.9                             |                              |
| 203.2 mm                     | 8.000                                           | 8.063                           | 7.969 | 0.750           | 0.781 | 0.719 | 0.469            | 0.500 | 0.438 | 7.816 | 7.791               | 0.092 | 0.109                         | 8.17                              |                              |
|                              | 203.2                                           | 204.8                           | 202.4 | 19.1            | 19.8  | 18.3  | 11.9             | 12.7  | 11.1  | 198.5 | 197.9               | 2.4   | 2.8                           | 207.5                             |                              |

† See note on page 25.



# GROOVE SPECIFICATIONS

Roll Groove Specifications for Steel Pipe and All Materials Grooved with Standard and RX Rolls (Continued) †

| Size                         |                                           | Dimensions – inches/millimeters |                 |                 |               |               |                  |               |               |                     |                 |                            |                             |                        |                |
|------------------------------|-------------------------------------------|---------------------------------|-----------------|-----------------|---------------|---------------|------------------|---------------|---------------|---------------------|-----------------|----------------------------|-----------------------------|------------------------|----------------|
| Nominal Size<br>inches or mm | Actual Pipe Outside Diameter<br>inches/mm | Pipe Outside Diameter           |                 | Gasket Seat "A" |               |               | Groove Width "B" |               |               | Groove Diameter "C" |                 | Groove Depth<br>"D" (ref.) | Min. Allow. Wall Thick. "T" | Max. Allow. Flare Dia. |                |
|                              |                                           | Max.                            | Min.            | Basic           | Max.          | Min.          | Basic            | Max.          | Min.          | Max.                | Min.            |                            |                             |                        |                |
| 216.3mm                      | 8.515<br>216.3                            | 8.578<br>217.9                  | 8.484<br>215.5  | 0.750<br>19.1   | 0.781<br>19.8 | 0.719<br>18.3 | 0.719<br>18.3    | 0.469<br>11.9 | 0.500<br>12.7 | 0.438<br>11.1       | 8.331<br>211.6  | 8.306<br>211.0             | 0.092<br>2.4                | 0.109<br>2.8           | 8.69<br>220.7  |
| 8                            | 8.625<br>219.1                            | 8.688<br>220.7                  | 8.594<br>218.3  | 0.750<br>19.1   | 0.781<br>19.8 | 0.719<br>18.3 | 0.719<br>18.3    | 0.469<br>11.9 | 0.500<br>12.7 | 0.438<br>11.1       | 8.441<br>214.4  | 8.416<br>213.8             | 0.092<br>2.4                | 0.109<br>2.8           | 8.80<br>223.5  |
| 254.0mm                      | 10.000<br>254.0                           | 10.063<br>255.6                 | 9.969<br>253.2  | 0.750<br>19.1   | 0.781<br>19.8 | 0.719<br>18.3 | 0.719<br>18.3    | 0.469<br>11.9 | 0.500<br>12.7 | 0.438<br>11.1       | 9.812<br>249.2  | 9.785<br>248.5             | 0.094<br>2.4                | 0.134<br>3.4           | 10.17<br>258.3 |
| 267.4mm                      | 10.528<br>267.4                           | 10.591<br>269.0                 | 10.497<br>266.6 | 0.750<br>19.1   | 0.781<br>19.8 | 0.719<br>18.3 | 0.719<br>18.3    | 0.469<br>11.9 | 0.500<br>12.7 | 0.438<br>11.1       | 10.340<br>262.6 | 10.313<br>262.0            | 0.094<br>2.4                | 0.134<br>3.4           | 10.70<br>271.8 |
| 10                           | 10.750<br>273.0                           | 10.813<br>274.7                 | 10.719<br>272.3 | 0.750<br>19.1   | 0.781<br>19.8 | 0.719<br>18.3 | 0.719<br>18.3    | 0.469<br>11.9 | 0.500<br>12.7 | 0.438<br>11.1       | 10.562<br>268.3 | 10.535<br>267.6            | 0.094<br>2.4                | 0.134<br>3.4           | 10.92<br>277.4 |
| 304.8mm                      | 12.000<br>304.8                           | 12.063<br>306.4                 | 11.969<br>304.0 | 0.750<br>19.1   | 0.781<br>19.8 | 0.719<br>18.3 | 0.719<br>18.3    | 0.469<br>11.9 | 0.500<br>12.7 | 0.438<br>11.1       | 11.781<br>299.2 | 11.751<br>298.5            | 0.109<br>2.8                | 0.156<br>4.0           | 12.17<br>309.1 |
| 318.5mm                      | 12.539<br>318.5                           | 12.602<br>320.1                 | 12.508<br>317.7 | 0.750<br>19.1   | 0.781<br>19.8 | 0.719<br>18.3 | 0.719<br>18.3    | 0.469<br>11.9 | 0.500<br>12.7 | 0.438<br>11.1       | 12.321<br>313.0 | 12.291<br>312.2            | 0.109<br>2.8                | 0.156<br>4.0           | 12.71<br>322.8 |
| 12                           | 12.750<br>323.9                           | 12.813<br>325.5                 | 12.719<br>323.1 | 0.750<br>19.1   | 0.781<br>19.8 | 0.719<br>18.3 | 0.719<br>18.3    | 0.469<br>11.9 | 0.500<br>12.7 | 0.438<br>11.1       | 12.531<br>318.3 | 12.501<br>317.5            | 0.109<br>2.8                | 0.156<br>4.0           | 12.92<br>328.2 |
| 14 OD *                      | 14.000<br>355.6                           | 14.063<br>357.2                 | 13.969<br>354.8 | 0.938<br>23.8   | 0.969<br>24.6 | 0.907<br>23.0 | 0.907<br>23.0    | 0.469<br>11.9 | 0.500<br>12.7 | 0.438<br>11.1       | 13.781<br>350.0 | 13.751<br>349.3            | 0.109<br>2.8                | 0.156<br>4.0           | 14.16<br>359.7 |
| 377.0mm                      | 14.843<br>377.0                           | 14.937<br>379.4                 | 14.811<br>376.2 | 0.938<br>23.8   | 0.969<br>24.6 | 0.907<br>23.0 | 0.907<br>23.0    | 0.469<br>11.9 | 0.500<br>12.7 | 0.438<br>11.1       | 14.611<br>371.1 | 14.581<br>370.4            | 0.116<br>2.9                | 0.177<br>4.5           | 15.00<br>381.0 |

† See note on page 25.

GROOVE SPECIFICATIONS

Roll Groove Specifications for Steel Pipe and All Materials Grooved with Standard and RX Rolls (Continued) †

| Size                         |                                           | Dimensions – inches/millimeters |        |                 |       |       |                  |       |       |        |                     |       |                         |                             |                        |
|------------------------------|-------------------------------------------|---------------------------------|--------|-----------------|-------|-------|------------------|-------|-------|--------|---------------------|-------|-------------------------|-----------------------------|------------------------|
| Nominal Size<br>Inches or mm | Actual Pipe Outside Diameter<br>inches/mm | Pipe Outside Diameter           |        | Gasket Seat “A” |       |       | Groove Width “B” |       |       |        | Groove Diameter “C” |       | Groove Depth “D” (ref.) | Min. Allow. Wall Thick. “T” | Max. Allow. Flare Dia. |
|                              |                                           | Max.                            | Min.   | Basic           | Max.  | Min.  | Basic            | Max.  | Min.  | Max.   | Min.                |       |                         |                             |                        |
| 15 OD                        | 15.000                                    | 15.063                          | 14.969 | 0.938           | 0.969 | 0.907 | 0.469            | 0.500 | 0.438 | 14.781 | 14.751              | 0.109 | 0.165                   | 15.16                       |                        |
|                              | 381.0                                     | 382.6                           | 380.2  | 23.8            | 24.6  | 23.0  | 11.9             | 12.7  | 11.1  | 375.4  | 374.7               | 2.8   | 4.2                     | 385.1                       |                        |
| 16 OD *                      | 16.000                                    | 16.063                          | 15.969 | 0.938           | 0.969 | 0.907 | 0.469            | 0.500 | 0.438 | 15.781 | 15.751              | 0.109 | 0.165                   | 16.16                       |                        |
|                              | 406.4                                     | 408.0                           | 405.6  | 23.8            | 24.6  | 23.0  | 11.9             | 12.7  | 11.1  | 400.8  | 400.1               | 2.8   | 4.2                     | 410.5                       |                        |
| 426 mm                       | 16.772                                    | 16.866                          | 16.740 | 0.938           | 0.969 | 0.907 | 0.469            | 0.500 | 0.438 | 16.514 | 16.479              | 0.129 | 0.177                   | 16.93                       |                        |
|                              | 426                                       | 428.4                           | 425.2  | 23.8            | 24.6  | 23.0  | 11.9             | 12.7  | 11.1  | 419.5  | 418.6               | 3.3   | 4.5                     | 430.0                       |                        |
| 18 OD *                      | 18.000                                    | 18.063                          | 17.969 | 1.000           | 1.031 | 0.969 | 0.469            | 0.500 | 0.438 | 17.781 | 17.751              | 0.109 | 0.165                   | 18.16                       |                        |
|                              | 457                                       | 458.8                           | 456.4  | 25.4            | 26.2  | 24.6  | 11.9             | 12.7  | 11.1  | 451.6  | 450.9               | 2.8   | 4.2                     | 461.3                       |                        |
| 480 mm                       | 18.898                                    | 18.992                          | 18.867 | 1.000           | 1.031 | 0.969 | 0.469            | 0.500 | 0.438 | 18.626 | 18.591              | 0.136 | 0.236                   | 19.06                       |                        |
|                              | 480                                       | 482.4                           | 479.2  | 25.4            | 26.2  | 24.6  | 11.9             | 12.7  | 11.1  | 473.1  | 472.2               | 3.5   | 6.0                     | 484.1                       |                        |
| 20 OD *                      | 20.000                                    | 20.063                          | 19.969 | 1.000           | 1.031 | 0.969 | 0.469            | 0.500 | 0.438 | 19.781 | 19.751              | 0.109 | 0.188                   | 20.16                       |                        |
|                              | 508                                       | 509.6                           | 507.2  | 25.4            | 26.2  | 24.6  | 11.9             | 12.7  | 11.1  | 502.4  | 501.7               | 2.8   | 4.8                     | 512.1                       |                        |
| 530 mm                       | 20.866                                    | 20.960                          | 20.835 | 1.000           | 1.031 | 0.969 | 0.469            | 0.500 | 0.438 | 20.572 | 20.537              | 0.147 | 0.236                   | 21.03                       |                        |
|                              | 530                                       | 532.4                           | 529.2  | 25.4            | 26.2  | 24.6  | 11.9             | 12.7  | 11.1  | 522.5  | 521.6               | 3.7   | 6.0                     | 534.2                       |                        |
| 22 OD *                      | 22.000                                    | 22.063                          | 21.969 | 1.000           | 1.031 | 0.969 | 0.500            | 0.531 | 0.469 | 21.656 | 21.626              | 0.172 | 0.188                   | 22.20                       |                        |
|                              | 559                                       | 560.4                           | 558.0  | 25.4            | 26.2  | 24.6  | 12.7             | 13.5  | 11.9  | 550.1  | 549.3               | 4.4   | 4.8                     | 563.9                       |                        |
| 580 mm                       | 22.835                                    | 22.929                          | 22.803 | 1.000           | 1.031 | 0.969 | 0.500            | 0.531 | 0.469 | 22.488 | 22.457              | 0.172 | 0.276                   | 23.03                       |                        |
|                              | 580                                       | 582.4                           | 579.2  | 25.4            | 26.2  | 24.6  | 12.7             | 13.5  | 11.9  | 571.2  | 570.4               | 4.4   | 7.0                     | 585.0                       |                        |
| 24 OD *                      | 24.000                                    | 24.063                          | 23.969 | 1.000           | 1.031 | 0.969 | 0.500            | 0.531 | 0.469 | 23.656 | 23.626              | 0.172 | 0.218                   | 24.20                       |                        |
|                              | 610                                       | 611.2                           | 608.8  | 25.4            | 26.2  | 24.6  | 12.7             | 13.5  | 11.9  | 600.9  | 600.1               | 4.4   | 5.5                     | 614.7                       |                        |
| 630 mm                       | 24.803                                    | 24.897                          | 24.772 | 1.000           | 1.031 | 0.969 | 0.500            | 0.531 | 0.469 | 24.459 | 24.424              | 0.172 | 0.276                   | 25.00                       |                        |
|                              | 630                                       | 632.4                           | 629.2  | 25.4            | 26.2  | 24.6  | 12.7             | 13.5  | 11.9  | 621.3  | 620.4               | 4.4   | 7.0                     | 635.0                       |                        |

† \* See notes on page 25.



# GROOVE SPECIFICATIONS

Roll Groove Specifications for Steel Pipe and All Materials Grooved with Standard and RX Rolls (Continued) †

| Size                |                                        | Dimensions – inches/millimeters |                  |                 |               |               |                  |               |               |                     |                  |                         |                             |                        |
|---------------------|----------------------------------------|---------------------------------|------------------|-----------------|---------------|---------------|------------------|---------------|---------------|---------------------|------------------|-------------------------|-----------------------------|------------------------|
|                     |                                        | Pipe Outside Diameter           |                  | Gasket Seat "A" |               |               | Groove Width "B" |               |               | Groove Diameter "C" |                  | Groove Depth "D" (ref.) | Min. Allow. Wall Thick. "T" | Max. Allow. Flare Dia. |
| Nominal Size inches | Actual Pipe Outside Diameter inches/mm | Max.                            | Min.             | Basic           | Max.          | Min.          | Basic            | Max.          | Min.          | Max.                | Min.             |                         |                             |                        |
| 26 OD *             | 26.000<br>660                          | 26.093<br>662.8                 | 25.969<br>659.6  | 1.750<br>44.5   | 1.781<br>45.2 | 1.687<br>42.8 | 0.625<br>15.9    | 0.656<br>16.7 | 0.594<br>15.1 | 25.000<br>647.7     | 25.437<br>646.1  | 0.250<br>6.4            | 0.250<br>6.4                | 26.20<br>665.5         |
| 28 OD *             | 28.000<br>711                          | 28.093<br>713.6                 | 27.969<br>710.4  | 1.750<br>44.5   | 1.781<br>45.2 | 1.687<br>42.8 | 0.625<br>15.9    | 0.656<br>16.7 | 0.594<br>15.1 | 27.500<br>698.5     | 27.437<br>696.9  | 0.250<br>6.4            | 0.250<br>6.4                | 28.20<br>716.3         |
| 30 OD *             | 30.000<br>762                          | 30.093<br>764.4                 | 29.969<br>761.2  | 1.750<br>44.5   | 1.781<br>45.2 | 1.687<br>42.8 | 0.625<br>15.9    | 0.656<br>16.7 | 0.594<br>15.1 | 29.500<br>749.3     | 29.437<br>747.7  | 0.250<br>6.4            | 0.250<br>6.4                | 30.20<br>767.1         |
| 32 OD *             | 32.000<br>813                          | 32.093<br>815.2                 | 31.969<br>812.0  | 1.750<br>44.5   | 1.781<br>45.2 | 1.687<br>42.8 | 0.625<br>15.9    | 0.656<br>16.7 | 0.594<br>15.1 | 31.500<br>800.1     | 31.437<br>798.5  | 0.250<br>6.4            | 0.250<br>6.4                | 32.20<br>817.9         |
| 36 OD *             | 36.000<br>914                          | 36.093<br>916.8                 | 35.969<br>913.6  | 1.750<br>44.5   | 1.781<br>45.2 | 1.687<br>42.8 | 0.625<br>15.9    | 0.656<br>16.7 | 0.594<br>15.1 | 35.500<br>901.7     | 35.437<br>900.1  | 0.250<br>6.4            | 0.250<br>6.4                | 36.20<br>919.5         |
| 42 OD *             | 42.000<br>1067                         | 42.093<br>1069.2                | 41.969<br>1066.0 | 2.000<br>50.8   | 2.031<br>51.6 | 1.937<br>49.2 | 0.625<br>15.9    | 0.656<br>16.7 | 0.594<br>15.1 | 41.500<br>1054.1    | 41.437<br>1052.5 | 0.250<br>6.4            | 0.250<br>6.4                | 42.20<br>1071.9        |
| 48 OD *             | 48.000<br>1219                         | 48.093<br>1221.6                | 47.969<br>1218.4 | 2.000<br>50.8   | 2.031<br>51.6 | 1.937<br>49.2 | 0.625<br>15.9    | 0.656<br>16.7 | 0.594<br>15.1 | 47.500<br>1206.5    | 47.437<br>1204.9 | 0.250<br>6.4            | 0.250<br>6.4                | 48.20<br>1224.3        |

† Coatings that are applied to the interior surfaces of Victaulic grooved and plain-end pipe couplings must not exceed 0.010inch/0.25mm. This includes the bolt pad mating surfaces. In addition, the coating thickness applied to the gasket-sealing surface and within the groove on the pipe exterior must not exceed 0.010inch/0.25mm..

\* Standard grooving specifications. For AGS grooving specifications in these sizes, refer to pages 35 - 38.

GROOVE SPECIFICATIONS

Standard Cut Groove Specifications for Steel and Other NPS Pipe †

| Size                         |                                           | Dimensions – inches/millimeters |                |                 |               |               |                  |               |              |                     |                |                         |                             |
|------------------------------|-------------------------------------------|---------------------------------|----------------|-----------------|---------------|---------------|------------------|---------------|--------------|---------------------|----------------|-------------------------|-----------------------------|
| Nominal Size<br>inches or mm | Actual Pipe Outside Diameter<br>inches/mm | Pipe Outside Diameter           |                | Gasket Seat "A" |               |               | Groove Width "B" |               |              | Groove Diameter "C" |                | Groove Depth "D" (ref.) | Min. Allow. Wall Thick. "T" |
|                              |                                           | Max.                            | Min.           | Basic           | Max.          | Min.          | Basic            | Max.          | Min.         | Max.                | Min.           |                         |                             |
| ¾                            | 1.050<br>26.9                             | 1.060<br>26.9                   | 1.040<br>26.4  | 0.625<br>15.9   | 0.656<br>16.7 | 0.594<br>15.1 | 0.313<br>8.0     | 0.344<br>8.7  | 0.282<br>7.2 | 0.938<br>23.8       | 0.923<br>23.4  | 0.056<br>1.5            | 0.113<br>2.9                |
| 1                            | 1.315<br>33.7                             | 1.328<br>33.7                   | 1.302<br>33.1  | 0.625<br>15.9   | 0.656<br>16.7 | 0.594<br>15.1 | 0.313<br>8.0     | 0.344<br>8.7  | 0.282<br>7.2 | 1.190<br>30.2       | 1.175<br>29.9  | 0.063<br>1.6            | 0.133<br>3.4                |
| 1¼                           | 1.660<br>42.4                             | 1.676<br>42.6                   | 1.644<br>41.8  | 0.625<br>15.9   | 0.656<br>16.7 | 0.594<br>15.1 | 0.313<br>8.0     | 0.344<br>8.7  | 0.282<br>7.2 | 1.535<br>39.0       | 1.520<br>38.6  | 0.063<br>1.6            | 0.140<br>3.6                |
| 1½                           | 1.900<br>48.3                             | 1.919<br>48.7                   | 1.881<br>47.8  | 0.625<br>15.9   | 0.656<br>16.7 | 0.594<br>15.1 | 0.313<br>8.0     | 0.344<br>8.7  | 0.282<br>7.2 | 1.775<br>45.1       | 1.760<br>44.7  | 0.063<br>1.6            | 0.145<br>3.7                |
| 2                            | 2.375<br>60.3                             | 2.399<br>60.9                   | 2.351<br>59.7  | 0.625<br>15.9   | 0.656<br>16.7 | 0.594<br>15.1 | 0.313<br>8.0     | 0.344<br>8.7  | 0.282<br>7.2 | 2.250<br>57.2       | 2.235<br>56.8  | 0.063<br>1.6            | 0.154<br>3.9                |
| 2½                           | 2.875<br>73.0                             | 2.904<br>73.8                   | 2.846<br>72.3  | 0.625<br>15.9   | 0.656<br>16.7 | 0.594<br>15.1 | 0.313<br>8.0     | 0.344<br>8.7  | 0.282<br>7.2 | 2.720<br>69.1       | 2.702<br>68.6  | 0.078<br>2.0            | 0.188<br>4.8                |
| 76.1 mm                      | 3.000<br>76.1                             | 3.030<br>77.0                   | 2.970<br>75.4  | 0.625<br>15.9   | 0.656<br>16.7 | 0.594<br>15.1 | 0.313<br>8.0     | 0.344<br>8.7  | 0.282<br>7.2 | 2.845<br>72.3       | 2.827<br>71.8  | 0.078<br>2.0            | 0.188<br>4.8                |
| 3                            | 3.500<br>88.9                             | 3.535<br>89.8                   | 3.469<br>88.1  | 0.625<br>15.9   | 0.656<br>16.7 | 0.594<br>15.1 | 0.313<br>8.0     | 0.344<br>8.7  | 0.282<br>7.2 | 3.344<br>84.9       | 3.326<br>84.5  | 0.078<br>2.0            | 0.188<br>4.8                |
| 3½                           | 4.000<br>101.6                            | 4.040<br>102.6                  | 3.969<br>100.8 | 0.625<br>15.9   | 0.656<br>16.7 | 0.594<br>15.1 | 0.313<br>8.0     | 0.344<br>8.7  | 0.282<br>7.2 | 3.834<br>97.4       | 3.814<br>96.9  | 0.083<br>2.2            | 0.188<br>4.8                |
| 108.0 mm                     | 4.250<br>108.0                            | 4.293<br>109.0                  | 4.219<br>107.2 | 0.625<br>15.9   | 0.656<br>16.7 | 0.594<br>15.1 | 0.375<br>9.5     | 0.406<br>10.3 | 0.344<br>8.7 | 4.084<br>103.7      | 4.064<br>103.2 | 0.083<br>2.2            | 0.203<br>5.2                |

† See note on page 30.



GROOVE SPECIFICATIONS

Standard Cut Groove Specifications for Steel and Other NPS Pipe (Continued) †

| Size                   |                                                 | Dimensions – inches/millimeters |       |                    |       |       |                     |       |       |                        |       |                               |                                   |
|------------------------|-------------------------------------------------|---------------------------------|-------|--------------------|-------|-------|---------------------|-------|-------|------------------------|-------|-------------------------------|-----------------------------------|
| Nominal<br>Size inches | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | Pipe<br>Outside Diameter        |       | Gasket Seat<br>“A” |       |       | Groove Width<br>“B” |       |       | Groove Diameter<br>“C” |       | Groove Depth<br>“D”<br>(ref.) | Min. Allow.<br>Wall Thick.<br>“E” |
|                        |                                                 | Max.                            | Min.  | Basic              | Max.  | Min.  | Basic               | Max.  | Min.  | Max.                   | Min.  |                               |                                   |
| 4                      | 4.500<br>114.3                                  | 4.545                           | 4.469 | 0.625              | 0.656 | 0.594 | 0.375               | 0.406 | 0.344 | 4.334                  | 4.314 | 0.083                         | 0.203                             |
|                        |                                                 | 115.4                           | 113.5 | 15.9               | 16.7  | 15.1  | 9.5                 | 10.3  | 8.7   | 110.1                  | 109.6 | 2.2                           | 5.2                               |
| 4½                     | 5.000<br>127.0                                  | 5.050                           | 4.969 | 0.625              | 0.656 | 0.594 | 0.375               | 0.406 | 0.344 | 4.834                  | 4.814 | 0.083                         | 0.203                             |
|                        |                                                 | 128.3                           | 126.2 | 15.9               | 16.7  | 15.1  | 9.5                 | 10.3  | 8.7   | 122.8                  | 122.3 | 2.2                           | 5.2                               |
| 5¼ OD                  | 5.250<br>133.0                                  | 5.303                           | 5.219 | 0.625              | 0.656 | 0.594 | 0.375               | 0.406 | 0.344 | 5.084                  | 5.064 | 0.083                         | 0.203                             |
|                        |                                                 | 134.7                           | 132.6 | 15.9               | 16.7  | 15.1  | 9.5                 | 10.3  | 8.7   | 129.1                  | 128.6 | 2.2                           | 5.2                               |
| 5½ OD                  | 5.500<br>139.7                                  | 5.556                           | 5.469 | 0.625              | 0.656 | 0.594 | 0.375               | 0.406 | 0.344 | 5.334                  | 5.314 | 0.083                         | 0.203                             |
|                        |                                                 | 141.1                           | 138.9 | 15.9               | 16.7  | 15.1  | 9.5                 | 10.3  | 8.7   | 135.5                  | 135.0 | 2.2                           | 5.2                               |
| 5                      | 5.563<br>141.3                                  | 5.619                           | 5.532 | 0.625              | 0.656 | 0.594 | 0.375               | 0.406 | 0.344 | 5.395                  | 5.373 | 0.084                         | 0.203                             |
|                        |                                                 | 142.7                           | 140.5 | 15.9               | 16.7  | 15.1  | 9.5                 | 10.3  | 8.7   | 137.0                  | 136.5 | 2.2                           | 5.2                               |
| 6 OD                   | 6.000<br>152.4                                  | 6.056                           | 5.969 | 0.625              | 0.656 | 0.594 | 0.375               | 0.406 | 0.344 | 5.830                  | 5.808 | 0.085                         | 0.219                             |
|                        |                                                 | 153.8                           | 151.6 | 15.9               | 16.7  | 15.1  | 9.5                 | 10.3  | 8.7   | 148.1                  | 147.5 | 2.2                           | 5.6                               |
| 6¼ OD                  | 6.250<br>159.0                                  | 6.313                           | 6.219 | 0.625              | 0.656 | 0.594 | 0.375               | 0.406 | 0.344 | 6.032                  | 6.002 | 0.109                         | 0.249                             |
|                        |                                                 | 160.4                           | 158.0 | 15.9               | 16.7  | 15.1  | 9.5                 | 10.3  | 8.7   | 153.2                  | 152.5 | 2.8                           | 6.3                               |
| 6½ OD                  | 6.500<br>165.1                                  | 6.563                           | 6.469 | 0.625              | 0.656 | 0.594 | 0.375               | 0.406 | 0.344 | 6.330                  | 6.308 | 0.085                         | 0.219                             |
|                        |                                                 | 166.7                           | 164.3 | 15.9               | 16.7  | 15.1  | 9.5                 | 10.3  | 8.7   | 160.8                  | 160.2 | 2.2                           | 5.6                               |
| 6                      | 6.625<br>168.3                                  | 6.688                           | 6.594 | 0.625              | 0.656 | 0.594 | 0.375               | 0.406 | 0.344 | 6.455                  | 6.433 | 0.085                         | 0.219                             |
|                        |                                                 | 169.9                           | 167.5 | 15.9               | 16.7  | 15.1  | 9.5                 | 10.3  | 8.7   | 164.0                  | 163.4 | 2.2                           | 5.6                               |
| 8 OD                   | 8.000<br>203.2                                  | 8.063                           | 7.969 | 0.750              | 0.781 | 0.719 | 0.438               | 0.469 | 0.407 | 7.816                  | 7.791 | 0.092                         | 0.238                             |
|                        |                                                 | 204.8                           | 202.4 | 19.1               | 19.8  | 18.3  | 11.1                | 11.9  | 10.3  | 198.5                  | 197.9 | 2.4                           | 6.1                               |

† See note on page 30.



GROOVE SPECIFICATIONS

Standard Cut Groove Specifications for Steel and Other NPS Pipe (Continued) †

| Dimensions – inches/millimeters |                                        |                       |        |       |                 |       |       |                  |       |       |                     |        |                             |
|---------------------------------|----------------------------------------|-----------------------|--------|-------|-----------------|-------|-------|------------------|-------|-------|---------------------|--------|-----------------------------|
| Size                            |                                        | Pipe Outside Diameter |        |       | Gasket Seat "A" |       |       | Groove Width "B" |       |       | Groove Diameter "C" |        | Min. Allow. Wall Thick. "T" |
| Nominal Size inches or mm       | Actual Pipe Outside Diameter inches/mm | Max.                  | Min.   |       | Basic           | Max.  | Min.  | Basic            | Max.  | Min.  | Max.                | Min.   |                             |
| 216.3mm                         | 8.515                                  | 8.578                 | 8.484  | 0.750 | 0.781           | 0.719 | 0.407 | 0.438            | 0.469 | 0.407 | 8.331               | 8.306  | 0.238                       |
|                                 | 216.3                                  | 217.9                 | 215.5  | 19.1  | 19.8            | 18.3  | 10.3  | 11.1             | 11.9  | 10.3  | 211.6               | 211.0  | 6.1                         |
| 8                               | 8.625                                  | 8.688                 | 8.594  | 0.750 | 0.781           | 0.719 | 0.407 | 0.438            | 0.469 | 0.407 | 8.441               | 8.416  | 0.238                       |
|                                 | 219.1                                  | 220.7                 | 218.3  | 19.1  | 19.8            | 18.3  | 10.3  | 11.1             | 11.9  | 10.3  | 214.4               | 213.8  | 6.1                         |
| 10 OD                           | 10.000                                 | 10.063                | 9.969  | 0.750 | 0.781           | 0.719 | 0.469 | 0.500            | 0.531 | 0.469 | 9.812               | 9.785  | 0.250                       |
|                                 | 254.0                                  | 255.6                 | 253.2  | 19.1  | 19.8            | 18.3  | 11.9  | 12.7             | 13.5  | 11.9  | 249.2               | 248.5  | 6.4                         |
| 267.4mm                         | 10.528                                 | 10.591                | 10.497 | 0.750 | 0.781           | 0.719 | 0.469 | 0.500            | 0.531 | 0.469 | 10.340              | 10.313 | 0.250                       |
|                                 | 267.4                                  | 269.0                 | 266.6  | 19.1  | 19.8            | 18.3  | 11.9  | 12.7             | 13.5  | 11.9  | 262.6               | 262.0  | 6.4                         |
| 10                              | 10.750                                 | 10.813                | 10.719 | 0.750 | 0.781           | 0.719 | 0.469 | 0.500            | 0.531 | 0.469 | 10.562              | 10.535 | 0.250                       |
|                                 | 273.0                                  | 274.7                 | 272.3  | 19.1  | 19.8            | 18.3  | 11.9  | 12.7             | 13.5  | 11.9  | 268.3               | 267.6  | 6.4                         |
| 304.8mm                         | 12.000                                 | 12.063                | 11.969 | 0.750 | 0.781           | 0.719 | 0.469 | 0.500            | 0.531 | 0.469 | 11.751              | 11.751 | 0.279                       |
|                                 | 304.8                                  | 306.4                 | 304.0  | 19.1  | 19.8            | 18.3  | 11.9  | 12.7             | 13.5  | 11.9  | 299.2               | 298.5  | 7.1                         |
| 318.5mm                         | 12.539                                 | 12.602                | 12.508 | 0.750 | 0.781           | 0.719 | 0.469 | 0.500            | 0.531 | 0.469 | 12.321              | 12.291 | 0.279                       |
|                                 | 318.5                                  | 320.1                 | 317.7  | 19.1  | 19.8            | 18.3  | 11.9  | 12.7             | 13.5  | 11.9  | 313.0               | 312.2  | 7.1                         |
| 12                              | 12.750                                 | 12.813                | 12.719 | 0.750 | 0.781           | 0.719 | 0.469 | 0.500            | 0.531 | 0.469 | 12.531              | 12.501 | 0.279                       |
|                                 | 323.9                                  | 325.5                 | 323.1  | 19.1  | 19.8            | 18.3  | 11.9  | 12.7             | 13.5  | 11.9  | 318.3               | 317.5  | 7.1                         |
| 14 OD                           | 14.000                                 | 14.063                | 13.969 | 0.938 | 0.969           | 0.907 | 0.469 | 0.500            | 0.531 | 0.469 | 13.751              | 13.751 | 0.281                       |
|                                 | 355.6                                  | 357.2                 | 354.8  | 23.8  | 24.6            | 23.0  | 11.9  | 12.7             | 13.5  | 11.9  | 350.0               | 349.3  | 7.1                         |
| 377.0mm                         | 14.843                                 | 14.937                | 14.811 | 0.938 | 0.969           | 0.907 | 0.469 | 0.500            | 0.531 | 0.469 | 14.611              | 14.581 | 0.315                       |
|                                 | 377.0                                  | 379.4                 | 376.2  | 23.8  | 24.6            | 23.0  | 11.9  | 12.7             | 13.5  | 11.9  | 371.1               | 370.4  | 8.0                         |

† See note on page 30.



# GROOVE SPECIFICATIONS

Standard Cut Groove Specifications for Steel and Other NPS Pipe (Continued) †

| Dimensions – inches/millimeters |                                        |                       |        |                 |       |       |                  |       |       |                     |        |                         |                             |
|---------------------------------|----------------------------------------|-----------------------|--------|-----------------|-------|-------|------------------|-------|-------|---------------------|--------|-------------------------|-----------------------------|
| Size                            |                                        | Pipe Outside Diameter |        | Gasket Seat "A" |       |       | Groove Width "B" |       |       | Groove Diameter "C" |        | Groove Depth "D" (ref.) | Min. Allow. Wall Thick. "E" |
| Nominal Size inches or mm       | Actual Pipe Outside Diameter inches/mm | Max.                  | Min.   | Basic           | Max.  | Min.  | Basic            | Max.  | Min.  | Max.                | Min.   |                         |                             |
| 15 OD                           | 15.000                                 | 15.063                | 14.969 | 0.938           | 0.969 | 0.907 | 0.500            | 0.531 | 0.469 | 14.781              | 14.751 | 0.109                   | 0.312                       |
|                                 | 381.0                                  | 382.6                 | 380.2  | 23.8            | 24.6  | 23.0  | 12.7             | 13.5  | 11.9  | 374.7               | 374.7  | 2.8                     | 7.9                         |
| 16 OD                           | 16.000                                 | 16.063                | 15.969 | 0.938           | 0.969 | 0.907 | 0.500            | 0.531 | 0.469 | 15.781              | 15.751 | 0.109                   | 0.312                       |
|                                 | 406.4                                  | 408.0                 | 405.6  | 23.8            | 24.6  | 23.0  | 12.7             | 13.5  | 11.9  | 400.8               | 400.1  | 2.8                     | 7.9                         |
| 426.0 mm                        | 16.772                                 | 16.866                | 16.740 | 0.938           | 0.969 | 0.907 | 0.500            | 0.531 | 0.469 | 16.514              | 16.479 | 0.129                   | 0.335                       |
|                                 | 426                                    | 428.4                 | 425.2  | 23.8            | 24.6  | 23.0  | 12.7             | 13.5  | 11.9  | 419.5               | 418.6  | 3.3                     | 8.5                         |
| 18 OD                           | 18.000                                 | 18.063                | 17.969 | 1.000           | 1.031 | 0.969 | 0.500            | 0.531 | 0.469 | 17.781              | 17.751 | 0.109                   | 0.312                       |
|                                 | 457                                    | 458.8                 | 456.4  | 25.4            | 26.2  | 24.6  | 12.7             | 13.5  | 11.9  | 451.6               | 450.9  | 2.8                     | 7.9                         |
| 20 OD                           | 20.000                                 | 20.063                | 19.969 | 1.000           | 1.031 | 0.969 | 0.500            | 0.531 | 0.469 | 19.781              | 19.751 | 0.109                   | 0.312                       |
|                                 | 508                                    | 509.6                 | 507.2  | 25.4            | 26.2  | 24.6  | 12.7             | 13.5  | 11.9  | 502.4               | 501.7  | 2.8                     | 7.9                         |
| 22 OD                           | 22.000                                 | 22.063                | 21.969 | 1.000           | 1.031 | 0.969 | 0.563            | 0.594 | 0.532 | 21.656              | 21.626 | 0.172                   | 0.375                       |
|                                 | 559.0                                  | 560.4                 | 558.0  | 25.4            | 26.2  | 24.6  | 14.3             | 15.1  | 13.5  | 550.1               | 549.3  | 4.4                     | 9.5                         |
| 24 OD                           | 24.000                                 | 24.063                | 23.969 | 1.000           | 1.031 | 0.969 | 0.563            | 0.594 | 0.532 | 23.656              | 23.626 | 0.172                   | 0.375                       |
|                                 | 610                                    | 611.2                 | 608.8  | 25.4            | 26.2  | 24.6  | 14.3             | 15.1  | 13.5  | 600.9               | 600.1  | 4.4                     | 9.5                         |
| 26 OD                           | 26.000                                 | 26.093                | 25.969 | 1.750           | 1.781 | 1.687 | 0.625            | 0.656 | 0.594 | 25.500              | 25.437 | 0.250                   | 0.625                       |
|                                 | 660                                    | 662.8                 | 659.6  | 44.5            | 45.2  | 42.8  | 15.9             | 16.7  | 15.1  | 647.7               | 646.1  | 6.4                     | 15.9                        |
| 28 OD                           | 28.000                                 | 28.093                | 27.969 | 1.750           | 1.781 | 1.687 | 0.625            | 0.656 | 0.594 | 27.500              | 27.437 | 0.250                   | 0.625                       |
|                                 | 711                                    | 713.6                 | 710.4  | 44.5            | 45.2  | 42.8  | 15.9             | 16.7  | 15.1  | 698.5               | 696.9  | 6.4                     | 15.9                        |
| 28 ID                           | 28.875                                 | 28.938                | 28.844 | 1.000           | 1.031 | 0.969 | 0.625            | 0.656 | 0.594 | 28.531              | 28.501 | 0.172                   | 0.437                       |
|                                 | 733.4                                  | 735.0                 | 732.6  | 25.4            | 26.2  | 24.6  | 15.9             | 16.7  | 15.1  | 724.7               | 723.9  | 4.4                     | 11.1                        |

† See note on page 30.



GROOVE SPECIFICATIONS

Standard Cut Groove Specifications for Steel and Other NPS Pipe (Continued) †

| Size                |                                        | Dimensions – inches/millimeters |        |                 |       |       |                  |       |       |                     |        |                         |                             |
|---------------------|----------------------------------------|---------------------------------|--------|-----------------|-------|-------|------------------|-------|-------|---------------------|--------|-------------------------|-----------------------------|
|                     |                                        | Pipe Outside Diameter           |        | Gasket Seat "A" |       |       | Groove Width "B" |       |       | Groove Diameter "C" |        | Groove Depth "D" (ref.) | Min. Allow. Wall Thick. "E" |
| Nominal Size Inches | Actual Pipe Outside Diameter inches/mm | Max.                            | Min.   | Basic           | Max.  | Min.  | Basic            | Max.  | Min.  | Max.                | Min.   |                         |                             |
| 30 OD               | 30.000                                 | 30.093                          | 29.969 | 1.750           | 1.781 | 1.687 | 0.625            | 0.656 | 0.594 | 29.500              | 29.437 | 0.250                   | 0.625                       |
|                     | 762                                    | 764.4                           | 761.2  | 44.5            | 45.2  | 42.8  | 15.9             | 16.7  | 15.1  | 749.3               | 747.7  | 6.4                     | 15.9                        |
| 30 ID               | 31.000                                 | 31.063                          | 30.969 | 1.250           | 1.281 | 1.219 | 0.625            | 0.656 | 0.594 | 30.594              | 30.564 | 0.203                   | 0.500                       |
|                     | 787.4                                  | 789.0                           | 786.6  | 25.4            | 32.5  | 31.0  | 15.9             | 16.7  | 15.1  | 777.1               | 776.3  | 5.2                     | 12.7                        |
| 32 OD               | 32.000                                 | 32.093                          | 31.969 | 1.750           | 1.781 | 1.687 | 0.625            | 0.656 | 0.594 | 31.500              | 31.437 | 0.250                   | 0.625                       |
|                     | 813                                    | 815.2                           | 812.0  | 44.5            | 45.2  | 42.8  | 15.9             | 16.7  | 15.1  | 800.1               | 798.5  | 6.4                     | 15.9                        |
| 36 OD               | 36.000                                 | 36.093                          | 35.969 | 1.750           | 1.781 | 1.687 | 0.625            | 0.656 | 0.594 | 35.500              | 35.437 | 0.250                   | 0.625                       |
|                     | 914                                    | 916.8                           | 913.6  | 44.5            | 45.2  | 42.8  | 15.9             | 16.7  | 15.1  | 901.7               | 900.1  | 6.4                     | 15.9                        |
| 42 OD               | 42.000                                 | 42.093                          | 41.969 | 2.000           | 2.031 | 1.937 | 0.625            | 0.656 | 0.594 | 41.500              | 41.437 | 0.250                   | 0.625                       |
|                     | 1067                                   | 1069.2                          | 1066.0 | 50.8            | 51.6  | 49.2  | 15.9             | 16.7  | 15.1  | 1054.1              | 1052.5 | 6.4                     | 15.9                        |
| 48 OD               | 48.000                                 | 48.093                          | 47.969 | 2.000           | 2.031 | 1.937 | 0.625            | 0.656 | 0.594 | 47.500              | 47.437 | 0.250                   | 0.625                       |
|                     | 1219                                   | 1221.6                          | 1218.4 | 50.8            | 51.6  | 49.2  | 15.9             | 16.7  | 15.1  | 1206.5              | 1204.9 | 6.4                     | 15.9                        |

† Coatings applied to the interior surfaces, including bolt pad mating surfaces, must not exceed 0.010inch/0.3 mm. In addition, the coating thickness applied to the gasket-sealing surface and within the groove on the pipe exterior must not exceed 0.010inch/0.3 mm.



# GROOVE SPECIFICATIONS

**Roll Groove Specifications for Standard-Wall Pipe or Plastic-Coated Pipe Joined with Style HP-70ES EndSeal Couplings †**

| Dimensions – inches/millimeters |                                                 |                       |                 |  |                 |               |                  |              |  |                     |                 |                               |
|---------------------------------|-------------------------------------------------|-----------------------|-----------------|--|-----------------|---------------|------------------|--------------|--|---------------------|-----------------|-------------------------------|
| Size                            |                                                 | Pipe Outside Diameter |                 |  | Gasket Seat "A" |               | Groove Width "B" |              |  | Groove Diameter "C" |                 |                               |
| Nominal Size<br>Inches          | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | Max.                  | Min.            |  | Max.            | Min.          | Max.             | Min.         |  | Max.                | Min.            | Groove<br>Depth<br>"D" (ref.) |
| 2                               | 2.375<br>60.3                                   | 2.399<br>60.9         | 2.351<br>59.7   |  | 0.572<br>14.5   | 0.552<br>14.0 | 0.265<br>6.7     | 0.250<br>6.4 |  | 2.250<br>57.2       | 2.235<br>56.8   | 0.063<br>1.6                  |
| 2½                              | 2.875<br>73.0                                   | 2.904<br>73.8         | 2.846<br>72.3   |  | 0.572<br>14.5   | 0.552<br>14.0 | 0.265<br>6.7     | 0.250<br>6.4 |  | 2.720<br>69.1       | 2.702<br>68.6   | 0.078<br>2.0                  |
| 3                               | 3.500<br>88.9                                   | 3.535<br>89.8         | 3.469<br>88.1   |  | 0.572<br>14.5   | 0.552<br>14.0 | 0.265<br>6.7     | 0.250<br>6.4 |  | 3.344<br>84.9       | 3.326<br>84.5   | 0.083<br>2.1                  |
| 4                               | 4.500<br>114.3                                  | 4.545<br>115.4        | 4.469<br>113.5  |  | 0.610<br>15.5   | 0.590<br>15.0 | 0.320<br>8.1     | 0.300<br>7.6 |  | 4.334<br>110.1      | 4.314<br>109.6  | 0.083<br>2.1                  |
| 6                               | 6.625<br>168.3                                  | 6.688<br>169.9        | 6.594<br>167.5  |  | 0.610<br>15.5   | 0.590<br>15.0 | 0.320<br>8.1     | 0.300<br>7.6 |  | 6.455<br>164.0      | 6.433<br>163.4  | 0.085<br>2.2                  |
| 8                               | 8.625<br>219.1                                  | 8.688<br>220.7        | 8.594<br>218.3  |  | 0.719<br>18.3   | 0.699<br>17.8 | 0.410<br>10.4    | 0.390<br>9.9 |  | 8.441<br>214.4      | 8.416<br>213.8  | 0.092<br>2.3                  |
| 10                              | 10.750<br>273.0                                 | 10.813<br>274.7       | 10.719<br>272.3 |  | 0.719<br>18.3   | 0.699<br>17.8 | 0.410<br>10.4    | 0.390<br>9.9 |  | 10.562<br>268.3     | 10.535<br>267.6 | 0.094<br>2.4                  |
| 12                              | 12.750<br>323.9                                 | 12.813<br>325.5       | 12.719<br>323.1 |  | 0.719<br>18.3   | 0.699<br>17.8 | 0.410<br>10.4    | 0.390<br>9.9 |  | 12.531<br>318.3     | 12.501<br>317.5 | 0.109<br>2.8                  |
|                                 |                                                 |                       |                 |  |                 |               |                  |              |  |                     |                 |                               |

† Coatings applied to the interior surfaces, including bolt pad mating surfaces, must not exceed 0.010inch/0.3mm. In addition, the coating thickness applied to the gasket-sealing surface and within the groove on the pipe exterior must not exceed 0.010inch/0.3mm.



GROOVE SPECIFICATIONS

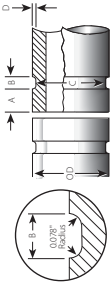
Cut Groove Specifications for Standard or Heavier-Wall Pipe or Plastic-Coated Pipe Joined with Style HP-70ES EndSeal Couplings †

| Size                |                                        | Dimensions – inches/millimeters |                 |                 |               |               |                  |               |               |                     |                 |                         |                             |              |
|---------------------|----------------------------------------|---------------------------------|-----------------|-----------------|---------------|---------------|------------------|---------------|---------------|---------------------|-----------------|-------------------------|-----------------------------|--------------|
|                     |                                        | Pipe Outside Diameter           |                 | Gasket Seat "A" |               |               | Groove Width "B" |               |               | Groove Diameter "C" |                 | Groove Depth "D" (ref.) | Min. Allow. Wall Thick. "T" |              |
| Nominal Size inches | Actual Pipe Outside Diameter inches/mm | Max.                            | Min.            | Basic           | Max.          | Min.          | Basic            | Max.          | Min.          | Max.                | Min.            |                         |                             |              |
| 2                   | 2.375<br>60.3                          | 2.399<br>60.9                   | 2.351<br>59.7   | 0.562<br>14.3   | 0.572<br>14.5 | 0.552<br>14.0 | 0.255<br>6.5     | 0.265<br>6.7  | 0.250<br>6.4  | 2.250<br>57.2       | 2.235<br>56.8   | 0.063<br>1.6            | 0.154<br>3.9                |              |
|                     | 2½<br>73.0                             | 2.904<br>73.8                   | 2.846<br>72.3   | 0.562<br>14.3   | 0.572<br>14.5 | 0.552<br>14.0 | 0.255<br>6.5     | 0.265<br>6.7  | 0.250<br>6.4  | 2.720<br>69.1       | 2.702<br>68.6   | 0.078<br>2.0            | 0.203<br>5.2                |              |
| 3                   | 3.500<br>88.9                          | 3.535<br>89.8                   | 3.469<br>88.1   | 0.562<br>14.3   | 0.572<br>14.5 | 0.552<br>14.0 | 0.255<br>6.5     | 0.265<br>6.7  | 0.250<br>6.4  | 3.344<br>84.9       | 3.326<br>84.5   | 0.078<br>2.0            | 0.216<br>5.5                |              |
|                     | 4                                      | 4.500<br>114.3                  | 4.545<br>115.4  | 4.469<br>113.5  | 0.605<br>15.4 | 0.620<br>15.7 | 0.590<br>15.0    | 0.305<br>7.7  | 0.315<br>8.0  | 0.300<br>7.6        | 4.334<br>110.1  | 4.314<br>109.6          | 0.083<br>2.1                | 0.237<br>6.0 |
| 6                   | 6.625<br>168.3                         | 6.688<br>169.9                  | 6.594<br>167.5  | 0.605<br>15.4   | 0.620<br>15.7 | 0.590<br>15.0 | 0.305<br>7.7     | 0.315<br>8.0  | 0.300<br>7.6  | 6.455<br>164.0      | 6.433<br>163.4  | 0.085<br>2.2            | 0.280<br>7.1                |              |
|                     | 8                                      | 8.625<br>219.1                  | 8.688<br>220.7  | 8.594<br>218.3  | 0.714<br>18.1 | 0.729<br>18.5 | 0.699<br>17.8    | 0.400<br>10.2 | 0.410<br>10.4 | 0.390<br>9.9        | 8.441<br>214.4  | 8.416<br>213.8          | 0.092<br>2.3                | 0.322<br>8.2 |
| 10                  | 10.750<br>273.0                        | 10.813<br>274.7                 | 10.719<br>272.3 | 0.714<br>18.1   | 0.729<br>18.5 | 0.699<br>17.8 | 0.400<br>10.2    | 0.410<br>10.4 | 0.390<br>9.9  | 10.562<br>268.3     | 10.535<br>267.6 | 0.094<br>2.4            | 0.365<br>9.3                |              |
|                     | 12                                     | 12.750<br>323.9                 | 12.813<br>325.5 | 12.719<br>323.1 | 0.714<br>18.1 | 0.729<br>18.5 | 0.699<br>17.8    | 0.400<br>10.2 | 0.410<br>10.4 | 0.390<br>9.9        | 12.531<br>318.3 | 12.501<br>317.5         | 0.109<br>2.8                | 0.375<br>9.5 |

† Coatings applied to the interior surfaces, including bolt pad mating surfaces, must not exceed 0.010inch/0.3mm. In addition, the coating thickness applied to the gasket-sealing surface and within the groove on the pipe exterior must not exceed 0.010inch/0.3mm.



# GROOVE SPECIFICATIONS

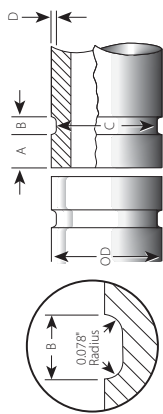


Standard Radius Cut Grooving Specifications for Schedule 80 or Schedule 40 PVC Plastic Pipe (ASTM D-1785-70) †

| Size                |                                        | Dimensions – inches/millimeters |                |                 |               |                  |               |              |                     |                |                         |
|---------------------|----------------------------------------|---------------------------------|----------------|-----------------|---------------|------------------|---------------|--------------|---------------------|----------------|-------------------------|
|                     |                                        | Pipe Outside Diameter           |                | Gasket Seat "A" |               | Groove Width "B" |               |              | Groove Diameter "C" |                | Groove Depth "D" (ref.) |
| Nominal Size inches | Actual Pipe Outside Diameter inches/mm | Max.                            | Min.           | Max.            | Min.          | Basic            | Max.          | Min.         | Max.                | Min.           |                         |
| 3/4                 | 1.050<br>26.9                          | 1.062<br>27.0                   | 1.038<br>26.4  | 0.656<br>16.7   | 0.594<br>15.1 | 0.312<br>7.9     | 0.343<br>8.7  | 0.281<br>7.1 | 0.938<br>23.8       | 0.923<br>23.4  | 0.056<br>1.4            |
| 1                   | 1.315<br>33.7                          | 1.327<br>33.7                   | 1.303<br>33.1  | 0.656<br>16.7   | 0.594<br>15.1 | 0.312<br>7.9     | 0.343<br>8.7  | 0.281<br>7.1 | 1.190<br>30.2       | 1.175<br>29.8  | 0.062<br>1.6            |
| 1 1/4               | 1.660<br>42.4                          | 1.672<br>42.5                   | 1.648<br>41.9  | 0.656<br>16.7   | 0.594<br>15.1 | 0.312<br>7.9     | 0.343<br>8.7  | 0.281<br>7.1 | 1.535<br>39.0       | 1.520<br>38.6  | 0.062<br>1.6            |
| 1 1/2               | 1.900<br>48.3                          | 1.912<br>48.6                   | 1.888<br>48.0  | 0.656<br>16.7   | 0.594<br>15.1 | 0.312<br>7.9     | 0.343<br>8.7  | 0.281<br>7.1 | 1.775<br>45.1       | 1.760<br>44.7  | 0.062<br>1.6            |
| 2                   | 2.375<br>60.3                          | 2.387<br>60.6                   | 2.363<br>60.0  | 0.656<br>16.7   | 0.594<br>15.1 | 0.312<br>7.9     | 0.343<br>8.7  | 0.281<br>7.1 | 2.250<br>57.2       | 2.235<br>56.8  | 0.062<br>1.6            |
| 2 1/2               | 2.875<br>73.0                          | 2.887<br>73.3                   | 2.863<br>72.7  | 0.656<br>16.7   | 0.594<br>15.1 | 0.312<br>7.9     | 0.343<br>8.7  | 0.281<br>7.1 | 2.720<br>69.1       | 2.702<br>68.6  | 0.078<br>2.0            |
| 3                   | 3.500<br>88.9                          | 3.515<br>89.3                   | 3.485<br>88.5  | 0.656<br>16.7   | 0.594<br>15.1 | 0.312<br>7.9     | 0.343<br>8.7  | 0.281<br>7.1 | 3.344<br>84.9       | 3.326<br>84.5  | 0.078<br>2.0            |
| 4                   | 4.500<br>114.3                         | 4.520<br>114.8                  | 4.480<br>113.8 | 0.656<br>16.7   | 0.594<br>15.1 | 0.375<br>9.5     | 0.406<br>10.3 | 0.344<br>8.7 | 4.334<br>110.1      | 4.314<br>109.6 | 0.083<br>2.1            |

† See note on page 34  
Rigid, angle-bolt-pad couplings are not recommended for use with PVC plastic pipe.

# GROOVE SPECIFICATIONS



Standard Radius Cut Grooving Specifications for Schedule 80 or Schedule 40 PVC Plastic Pipe (ASTM D-1785-70) †

| Size                   |                                                 | Dimensions – inches/millimeters |        |                    |       |                     |       |       |                        |        |       |                            |  |  |  |
|------------------------|-------------------------------------------------|---------------------------------|--------|--------------------|-------|---------------------|-------|-------|------------------------|--------|-------|----------------------------|--|--|--|
| Nominal Size<br>inches | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | Pipe Outside Diameter           |        | Gasket Seat<br>“A” |       | Groove Width<br>“B” |       |       | Groove Diameter<br>“C” |        |       | Groove Depth<br>“D” (ref.) |  |  |  |
|                        |                                                 | Max.                            | Min.   | Max.               | Min.  | Max.                | Min.  | Basic | Max.                   | Min.   |       |                            |  |  |  |
| 6                      | 6.625<br>168.3                                  | 6.660                           | 6.590  | 0.656              | 0.594 | 0.375               | 0.406 | 0.344 | 6.455                  | 6.433  | 0.085 |                            |  |  |  |
|                        |                                                 | 169.2                           | 167.4  | 16.7               | 15.1  | 9.5                 | 10.3  | 8.7   | 164.0                  | 163.4  | 2.2   |                            |  |  |  |
| 8                      | 8.625<br>219.1                                  | 8.687                           | 8.594  | 0.781              | 0.719 | 0.437               | 0.468 | 0.406 | 8.441                  | 8.416  | 0.092 |                            |  |  |  |
|                        |                                                 | 220.6                           | 218.3  | 19.8               | 18.3  | 11.1                | 11.9  | 10.3  | 214.4                  | 213.8  | 2.3   |                            |  |  |  |
| 10                     | 10.750<br>273.0                                 | 10.812                          | 10.719 | 0.781              | 0.719 | 0.500               | 0.531 | 0.469 | 10.562                 | 10.535 | 0.094 |                            |  |  |  |
|                        |                                                 | 274.6                           | 272.3  | 19.8               | 18.3  | 12.7                | 13.5  | 11.9  | 268.3                  | 267.6  | 2.4   |                            |  |  |  |
| 12                     | 12.750<br>323.9                                 | 12.812                          | 12.719 | 0.781              | 0.719 | 0.500               | 0.531 | 0.469 | 12.531                 | 12.501 | 0.109 |                            |  |  |  |
|                        |                                                 | 325.4                           | 323.1  | 19.8               | 18.3  | 12.7                | 13.5  | 11.9  | 318.3                  | 317.5  | 2.8   |                            |  |  |  |
| 14                     | 14.000<br>355.6                                 | 14.062                          | 13.969 | 0.969              | 0.907 | 0.500               | 0.531 | 0.469 | 13.781                 | 13.751 | 0.109 |                            |  |  |  |
|                        |                                                 | 357.2                           | 354.8  | 24.6               | 23.0  | 12.7                | 13.5  | 11.9  | 350.0                  | 349.3  | 2.8   |                            |  |  |  |
| 16                     | 16.000<br>406.4                                 | 16.062                          | 15.969 | 0.969              | 0.907 | 0.500               | 0.531 | 0.469 | 15.781                 | 15.751 | 0.109 |                            |  |  |  |
|                        |                                                 | 408.0                           | 405.6  | 24.6               | 23.0  | 12.7                | 13.5  | 11.9  | 400.8                  | 400.1  | 2.8   |                            |  |  |  |

† PVC plastic pipe is based upon modified PVC plastic pipe that conforms to ASTM D-1785-70; Type 1, Grade 1 - PVC 1120; or Grade 11 - PVC 1220 at operating temperatures of 75° F/24° C maximum. For other types of PVC pipe and other operating temperatures, contact Victaulic.

Rigid, angle-bolt-pad couplings are not recommended for use with PVC plastic pipe.

# EXPLANATION OF CRITICAL ADVANCED GROOVE SYSTEM (AGS) ROLL GROOVE DIMENSIONS

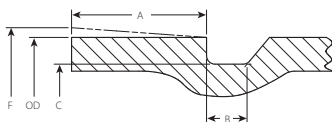
## ⚠ WARNING

- Pipe dimensions and groove dimensions must be within the tolerances specified in the tables on the following pages to ensure proper joint performance.

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

## NOTICE

- Grooving pipe to Advanced Groove System (AGS) specifications enlarges the pipe length by approximately  $\frac{1}{8}$  inch (0.125 inch/3.2 mm) for each groove. For a pipe length with an AGS groove at each end, the length will grow approximately  $\frac{1}{4}$  inch (0.250 inch/6.4 mm) total. Therefore, the cut length should be adjusted to accommodate this growth. **EXAMPLE:** If you need a 24-inch/610-mm length of pipe that will contain an AGS groove at each end, cut the pipe to a length of 23 $\frac{3}{4}$  inches/603 mm to allow for this growth.
- It is critical to measure the Groove Diameter “C” dimension, along with the Gasket Seat “A” dimension and the Flare Diameter “F” dimension. These measurements must be within the specifications listed in the following tables for proper joint performance.



*Illustration is exaggerated for clarity*

### Pipe Outside Diameter – Nominal NPS Pipe Size (ANSI B36.10) and Basic Metric Pipe Size (ISO 4200)

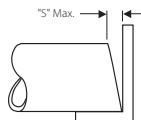
– The average pipe outside diameter must not vary from the specifications listed in the tables on the following pages (API 5L end tolerance). Maximum allowable pipe ovality must not vary by more than 1%. Greater variations between the major and minor diameters will result in difficult coupling assembly.

### The maximum allowable tolerance from square-cut pipe ends is

**$\frac{1}{8}$  inch/3.2 mm for all sizes.** This is measured from the true square

line. Any internal and external weld beads or seams must be ground flush to the pipe surface. The inside diameter of the pipe end must be cleaned to remove coarse scale, dirt, and other foreign material that might interfere with or damage grooving rolls. The front edge of

the pipe end shall be uniform with no concave/convex surface features that will cause improper grooving roll tracking and result in difficulties during coupling assembly.



**“A” Dimension** – The “A” dimension, or the distance from the pipe end to the groove, identifies the gasket seating area. This area must be free from indentations, projections (including weld seams), and roll marks from the pipe end to the groove to ensure a leak-tight seal. All foreign material, such as loose paint, scale, oil, grease, chips, rust, and dirt must be removed.

**“B” Dimension** – The “B” dimension, or groove width, controls expansion, contraction, and angular deflection of flexible couplings by the distance it is located from the pipe and its width in relation to the coupling housings’ “key” width. The bottom of the groove must be free of all foreign material, such as dirt, chips, rust, and scale that may interfere with proper coupling assembly. The corners at the bottom of the groove must be radiused R.094/R.2.39. The Groove Width “B” dimension will be achieved with properly maintained Victaulic tools that are equipped with Victaulic AGS (RW or RWQ) roll sets for carbon steel and standard-wall stainless steel pipe or Victaulic AGS (RWX or RWQX) specifically for light-wall stainless steel pipe.



# EXPLANATION OF CRITICAL ADVANCED GROOVE SYSTEM (AGS) ROLL GROOVE DIMENSIONS (CONTINUED)

**“C” Dimension** – The “C” dimension is the average diameter at the base of the groove. This dimension must be within the diameter’s tolerance and concentric with the OD for proper coupling fit. The groove must be of uniform depth for the entire pipe circumference. Victaulic RW roll sets must be used for carbon steel and standard-wall stainless steel pipe. Victaulic RWX roll sets must be used for light-wall stainless steel pipe.

**“D” Dimension** – The “D” dimension is the normal depth of the groove and is a reference for a “trial groove” only. Variations in pipe OD affect this dimension and it must be altered, if necessary, to keep the “C” dimension within tolerance. The groove diameter must conform to the “C” dimension described above.

**“F” Dimension (Roll Groove Only)** – Maximum allowable pipe-end flare diameter is measured at the extreme pipe-end diameter. **NOTE:** This applies to average (pi tape) and single-point readings.

**Minimum Nominal Wall Thickness** – The minimum nominal wall thickness is the lightest grade of pipe that is suitable for cut or roll grooving. Pipe that is less than the minimum nominal wall thickness for cut grooving may be suitable for roll grooving or adapted for Victaulic AGS couplings by using AGS Vic-Ring® Adapters. AGS Vic-Ring Adapters can be used in the following situations (contact Victaulic for details):

- When pipe is less than the minimum nominal wall thickness suitable for roll grooving
- When pipe outside diameter is too large to roll or cut groove
- When pipe is used in abrasive services

**For light-wall carbon steel pipe being grooved to AGS specifications (in accordance with EN 10217 or ASTM A-53):**

14-inch/355.6-mm minimum nominal wall thickness is 0.220inch/5.6mm

16 – 24-inch/406.4 – 610-mm minimum nominal wall thickness is 0.250inch/6.3mm

**For standard-wall carbon steel pipe being grooved to AGS specifications (in accordance with EN 10217 or ASTM A-53):**

14-inch/355.6-mm minimum nominal wall thickness is 0.315inch/8.0mm

16-inch/406.4-mm minimum nominal wall thickness is 0.346inch/8.8mm

18 – 36-inch/457 – 914-mm minimum nominal wall thickness is 0.375inch/9.5mm

**For extra-strong carbon steel pipe being grooved to AGS specifications (in accordance with ASTM A-53):**

38 – 72-inch/965 – 1829-mm minimum nominal wall thickness is 0.500inch/12.7mm

**NOTE:** For 14 – 72-inch/355.6 – 1829-mm carbon steel pipe being grooved to AGS specifications the maximum ratings are limited to pipe that does not exceed the yield strength of API-5L Grade “B”, ASTM Grade “B”, 150 Brinell Hardness Number (BHN) maximum.

**For light-wall stainless steel pipe being grooved to AGS specifications:**

14-inch/355.6-mm minimum nominal wall thickness is 0.156inch/4.0mm

16 – 18-inch/406.4 – 457-mm minimum nominal wall thickness is 0.165inch/4.2mm

20 – 22-inch/508 – 559-mm minimum nominal wall thickness is 0.188inch/4.8mm

24-inch/610-mm minimum nominal wall thickness is 0.218inch/5.5mm

## NOTICE

- Coatings that are applied to the interior surfaces of Victaulic grooved and plain-end pipe couplings must not exceed 0.010 inch/0.25 mm. This includes the bolt pad mating surfaces.
- In addition, the coating thickness applied to the gasket-sealing surface and within the groove on the pipe exterior must not exceed 0.010 inch/0.25 mm.



# Advanced Groove System (AGS) Roll Grooving Specifications for Carbon Steel and Stainless Steel Pipe

| Nominal<br>NPS/<br>BSP/<br>Metric<br>Pipe Size | Actual Pipe Outside Diameter<br>inches/mm              |        |                                           |        | Minimum Nominal Wall Thickness<br>inches/mm |                     |                               |                                                      | Dimensions<br>inches/mm |       |       |       |                   |       |       |                     |        |                                                  |
|------------------------------------------------|--------------------------------------------------------|--------|-------------------------------------------|--------|---------------------------------------------|---------------------|-------------------------------|------------------------------------------------------|-------------------------|-------|-------|-------|-------------------|-------|-------|---------------------|--------|--------------------------------------------------|
|                                                | Carbon Steel and<br>Standard Weight<br>Stainless Steel |        | Stainless Steel<br>Schedules<br>5S/10S/10 |        | Extra-<br>Strong<br>Carbon<br>Steel         | Std.-<br>Wall Steel | Light-Wall<br>Carbon<br>Steel | Light-Wall<br>Stainless<br>Steel<br>(Schedule<br>5S) | Gasket Seat "A"         |       |       |       | Groove Width "B"† |       |       | Groove Diameter "C" |        | Maximum<br>Allowable<br>Flare<br>Diameter<br>"F" |
|                                                | Max.                                                   | Min.   | Max.                                      | Min.   |                                             |                     |                               |                                                      | Basic                   | Max.  | Min.  | Basic | Max.              | Min.  | Max.  | Min.                |        |                                                  |
| 14<br>355.6                                    | 14.094                                                 | 13.969 | 14.094                                    | 13.969 | —                                           | 0.315               | 0.220                         | 0.156                                                | 0.156                   | 1.500 | 1.531 | 1.437 | 0.455             | 0.460 | 0.450 | 13.500              | 13.455 | 14.23                                            |
|                                                | 358.0                                                  | 354.8  | 358.0                                     | 354.8  |                                             | 8.0                 | 5.6                           | 4.0                                                  | 4.0                     | 38.1  | 38.9  | 36.5  | 11.6              | 11.7  | 11.4  | 342.9               | 341.8  | 361.4                                            |
| 16<br>406.4                                    | 16.094                                                 | 15.969 | 16.094                                    | 15.969 | —                                           | 0.346               | 0.250                         | 0.165                                                | 0.165                   | 1.500 | 1.531 | 1.437 | 0.455             | 0.460 | 0.450 | 15.500              | 15.455 | 16.23                                            |
|                                                | 408.8                                                  | 405.6  | 408.8                                     | 405.6  |                                             | 8.8                 | 6.4                           | 4.2                                                  | 4.2                     | 38.1  | 38.9  | 36.5  | 11.6              | 11.7  | 11.4  | 393.7               | 392.6  | 412.2                                            |
| 18<br>457                                      | 18.094                                                 | 17.969 | 18.094                                    | 17.969 | —                                           | 0.375               | 0.250                         | 0.165                                                | 0.165                   | 1.500 | 1.531 | 1.437 | 0.455             | 0.460 | 0.450 | 17.500              | 17.455 | 18.23                                            |
|                                                | 459.6                                                  | 456.4  | 459.6                                     | 456.4  |                                             | 9.5                 | 6.4                           | 4.2                                                  | 4.2                     | 38.1  | 38.9  | 36.5  | 11.6              | 11.7  | 11.4  | 444.5               | 443.4  | 463.0                                            |
| 20<br>508.0                                    | 20.094                                                 | 19.969 | 20.125                                    | 19.969 | —                                           | 0.375               | 0.250                         | 0.188                                                | 0.188                   | 1.500 | 1.531 | 1.437 | 0.455             | 0.460 | 0.450 | 19.500              | 19.455 | 20.23                                            |
|                                                | 510.4                                                  | 507.2  | 511.2                                     | 507.2  |                                             | 9.5                 | 6.4                           | 4.8                                                  | 4.8                     | 38.1  | 38.9  | 36.5  | 11.6              | 11.7  | 11.4  | 495.3               | 494.2  | 513.8                                            |
| 22<br>559                                      | 22.094                                                 | 21.969 | 22.125                                    | 21.969 | —                                           | 0.375               | 0.250                         | 0.188                                                | 0.188                   | 1.500 | 1.531 | 1.437 | 0.455             | 0.460 | 0.450 | 21.500              | 21.455 | 22.23                                            |
|                                                | 561.2                                                  | 558.0  | 562.0                                     | 558.0  |                                             | 9.5                 | 6.4                           | 4.8                                                  | 4.8                     | 38.1  | 38.9  | 36.5  | 11.6              | 11.7  | 11.4  | 546.1               | 545.0  | 564.6                                            |
| 24<br>610                                      | 24.094                                                 | 23.969 | 24.125                                    | 23.969 | —                                           | 0.375               | 0.250                         | 0.218                                                | 0.218                   | 1.500 | 1.531 | 1.437 | 0.455             | 0.460 | 0.450 | 23.500              | 23.455 | 24.23                                            |
|                                                | 612.0                                                  | 608.8  | 612.8                                     | 608.8  |                                             | 9.5                 | 6.4                           | 5.5                                                  | 5.5                     | 38.1  | 38.9  | 36.5  | 11.6              | 11.7  | 11.4  | 596.9               | 595.8  | 615.4                                            |
| 26<br>660                                      | 26.094                                                 | 25.969 | —                                         | —      | —                                           | 0.375               | —                             | —                                                    | —                       | 1.750 | 1.781 | 1.687 | 0.535             | 0.540 | 0.530 | 25.430              | 25.370 | 26.30                                            |
|                                                | 662.8                                                  | 659.6  |                                           |        |                                             | 9.5                 |                               |                                                      |                         | 44.5  | 45.2  | 42.8  | 13.6              | 13.7  | 13.5  | 645.9               | 644.4  | 668.0                                            |
| 28<br>711                                      | 28.094                                                 | 27.969 | —                                         | —      | —                                           | 0.375               | —                             | —                                                    | —                       | 1.750 | 1.781 | 1.687 | 0.535             | 0.540 | 0.530 | 27.430              | 27.370 | 28.30                                            |
|                                                | 713.6                                                  | 710.4  |                                           |        |                                             | 9.5                 |                               |                                                      |                         | 44.5  | 45.2  | 42.8  | 13.6              | 13.7  | 13.5  | 696.7               | 695.2  | 718.8                                            |
| 30<br>762                                      | 30.094                                                 | 29.969 | —                                         | —      | —                                           | 0.375               | —                             | —                                                    | —                       | 1.750 | 1.781 | 1.687 | 0.535             | 0.540 | 0.530 | 29.430              | 29.370 | 30.30                                            |
|                                                | 764.4                                                  | 761.2  |                                           |        |                                             | 9.5                 |                               |                                                      |                         | 44.5  | 45.2  | 42.8  | 13.6              | 13.7  | 13.5  | 747.5               | 746.0  | 769.6                                            |
| 32<br>813                                      | 32.094                                                 | 31.969 | —                                         | —      | —                                           | 0.375               | —                             | —                                                    | —                       | 1.750 | 1.781 | 1.687 | 0.535             | 0.540 | 0.530 | 31.430              | 31.370 | 32.30                                            |
|                                                | 815.2                                                  | 812.0  |                                           |        |                                             | 9.5                 |                               |                                                      |                         | 44.5  | 45.2  | 42.8  | 13.6              | 13.7  | 13.5  | 798.3               | 796.8  | 820.4                                            |
| 34<br>834                                      | 34.094                                                 | 33.969 | —                                         | —      | —                                           | 0.375               | —                             | —                                                    | —                       | 1.750 | 1.781 | 1.687 | 0.535             | 0.540 | 0.530 | 33.430              | 33.370 | 34.30                                            |
|                                                | 866.0                                                  | 862.8  |                                           |        |                                             | 9.5                 |                               |                                                      |                         | 44.5  | 45.2  | 42.8  | 13.6              | 13.7  | 13.5  | 849.1               | 847.6  | 871.2                                            |

AGS GROOVE SPECIFICATIONS

Advanced Groove System (AGS) Roll Grooving Specifications for Carbon Steel and Stainless Steel Pipe

| Nominal<br>NPS/<br>Basic<br>Metric<br>Pipe Size | Actual Pipe Outside Diameter<br>inches/mm              |                  |                                           |        | Minimum Nominal Wall Thickness<br>inches/mm |                     |                               |                                                      | Dimensions<br>inches/mm |               |               |               |                               |               |                  |                  |                                                  |
|-------------------------------------------------|--------------------------------------------------------|------------------|-------------------------------------------|--------|---------------------------------------------|---------------------|-------------------------------|------------------------------------------------------|-------------------------|---------------|---------------|---------------|-------------------------------|---------------|------------------|------------------|--------------------------------------------------|
|                                                 | Carbon Steel and<br>Standard Weight<br>Stainless Steel |                  | Stainless Steel<br>Schedules<br>5S/10S/10 |        | Extra-<br>Strong<br>Carbon<br>Steel         | Std.-<br>Wall Steel | Light-Wall<br>Carbon<br>Steel | Light-Wall<br>Stainless<br>Steel<br>(Schedule<br>5S) | Gasket Seat "A"         |               |               |               | Groove Width "B" <sub>±</sub> |               |                  |                  | Maximum<br>Allowable<br>Flare<br>Diameter<br>"F" |
|                                                 |                                                        |                  | Max.                                      | Min.   |                                             |                     |                               |                                                      | Max.                    | Min.          | Basic         | Max.          | Min.                          | Max.          | Min.             |                  |                                                  |
|                                                 |                                                        |                  |                                           |        |                                             |                     |                               |                                                      |                         |               |               |               |                               |               |                  |                  |                                                  |
| 36<br>914                                       | 36.094<br>916.8                                        | 35.969<br>913.6  | —<br>—                                    | —<br>— | —<br>—                                      | 0.375<br>9.5        | —<br>—                        | —<br>—                                               | 1.750<br>44.5           | 1.781<br>45.2 | 1.687<br>42.8 | 0.535<br>13.6 | 0.540<br>13.7                 | 0.530<br>13.5 | 35.430<br>899.9  | 35.370<br>898.4  | 36.30<br>922.0                                   |
| 38<br>965                                       | 38.094<br>967.6                                        | 37.969<br>964.4  | —<br>—                                    | —<br>— | 0.500<br>12.7                               | —<br>—              | —<br>—                        | —<br>—                                               | 1.750<br>44.5           | 1.781<br>45.2 | 1.687<br>42.8 | 0.535<br>13.6 | 0.540<br>13.7                 | 0.530<br>13.5 | 37.430<br>950.7  | 37.370<br>949.2  | 38.30<br>972.8                                   |
| 40<br>1016                                      | 40.094<br>1018.4                                       | 39.969<br>1015.2 | —<br>—                                    | —<br>— | 0.500<br>12.7                               | —<br>—              | —<br>—                        | —<br>—                                               | 2.000<br>50.8           | 2.031<br>51.6 | 1.937<br>49.2 | 0.562<br>14.3 | 0.567<br>14.4                 | 0.557<br>14.1 | 39.375<br>1000.1 | 39.315<br>998.6  | 40.30<br>1023.6                                  |
| 42<br>1067                                      | 42.094<br>1069.2                                       | 41.969<br>1066.0 | —<br>—                                    | —<br>— | 0.500<br>12.7                               | —<br>—              | —<br>—                        | —<br>—                                               | 2.000<br>50.8           | 2.031<br>51.6 | 1.937<br>49.2 | 0.562<br>14.3 | 0.567<br>14.4                 | 0.557<br>14.1 | 41.375<br>1050.9 | 41.315<br>1049.4 | 42.30<br>1074.4                                  |
| 44<br>1118                                      | 44.094<br>1120.0                                       | 43.969<br>1116.8 | —<br>—                                    | —<br>— | 0.500<br>12.7                               | —<br>—              | —<br>—                        | —<br>—                                               | 2.000<br>50.8           | 2.031<br>51.6 | 1.937<br>49.2 | 0.562<br>14.3 | 0.567<br>14.4                 | 0.557<br>14.1 | 43.375<br>1101.7 | 43.315<br>1100.2 | 44.30<br>1125.2                                  |
| 46<br>1168                                      | 46.094<br>1170.8                                       | 45.969<br>1167.6 | —<br>—                                    | —<br>— | 0.500<br>12.7                               | —<br>—              | —<br>—                        | —<br>—                                               | 2.000<br>50.8           | 2.031<br>51.6 | 1.937<br>49.2 | 0.562<br>14.3 | 0.567<br>14.4                 | 0.557<br>14.1 | 45.375<br>1152.5 | 45.315<br>1151.0 | 46.30<br>1176.0                                  |
| 48<br>1219                                      | 48.094<br>1221.6                                       | 47.969<br>1218.4 | —<br>—                                    | —<br>— | 0.500<br>12.7                               | —<br>—              | —<br>—                        | —<br>—                                               | 2.000<br>50.8           | 2.031<br>51.6 | 1.937<br>49.2 | 0.562<br>14.3 | 0.567<br>14.4                 | 0.557<br>14.1 | 47.375<br>1203.3 | 47.315<br>1201.8 | 48.30<br>1226.8                                  |
| 54<br>1372                                      | 54.094<br>1374.0                                       | 53.969<br>1370.8 | —<br>—                                    | —<br>— | 0.500<br>12.7                               | —<br>—              | —<br>—                        | —<br>—                                               | 2.500<br>63.5           | 2.531<br>64.3 | 2.437<br>61.9 | 0.562<br>14.3 | 0.567<br>14.4                 | 0.557<br>14.1 | 53.375<br>1355.7 | 53.315<br>1354.2 | 54.30<br>1379.2                                  |
| 56<br>1422                                      | 56.094<br>1424.8                                       | 55.969<br>1421.6 | —<br>—                                    | —<br>— | 0.500<br>12.7                               | —<br>—              | —<br>—                        | —<br>—                                               | 2.500<br>63.5           | 2.531<br>64.3 | 2.437<br>61.9 | 0.562<br>14.3 | 0.567<br>14.4                 | 0.557<br>14.1 | 55.375<br>1406.5 | 55.315<br>1405.0 | 56.30<br>1430.0                                  |
| 60<br>1524                                      | 60.094<br>1526.4                                       | 59.969<br>1523.2 | —<br>—                                    | —<br>— | 0.500<br>12.7                               | —<br>—              | —<br>—                        | —<br>—                                               | 2.500<br>63.5           | 2.531<br>64.3 | 2.437<br>61.9 | 0.562<br>14.3 | 0.567<br>14.4                 | 0.557<br>14.1 | 59.375<br>1508.1 | 59.315<br>1506.6 | 60.30<br>1531.6                                  |
| 72<br>1829                                      | 72.094<br>1831.2                                       | 71.969<br>1828.0 | —<br>—                                    | —<br>— | 0.500<br>12.7                               | —<br>—              | —<br>—                        | —<br>—                                               | 2.500<br>63.5           | 2.531<br>64.3 | 2.437<br>61.9 | 0.562<br>14.3 | 0.567<br>14.4                 | 0.557<br>14.1 | 71.375<br>1812.9 | 71.315<br>1811.4 | 72.30<br>1836.4                                  |



# GASKET SELECTION



## CAUTION

- To ensure maximum gasket performance, always specify the proper gasket grade for the intended service.

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

Many factors must be considered for optimum gasket performance. Do not subject gaskets to temperatures beyond the recommended limits, since excessive temperatures will degrade gasket life and performance.

The services listed below are general service recommendations, and they apply only to Victaulic gaskets. Recommendations for a particular service do not necessarily imply compatibility of the coupling housings, related fittings, or other components for the same service. Always refer to the latest Victaulic Gasket Selection Guide (05.01) for gasket service recommendations.

**NOTE:** These recommendations do not apply to rubber-lined valves or other rubber-lined products. Refer to the applicable product literature, or contact Victaulic for recommendations.

## Standard NPS Gaskets

| Grade                            | Temp. Range                        | Compound | Color Code            | General Service Recommendation                                                                                                                                                                                                                                                                                   |
|----------------------------------|------------------------------------|----------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>E</b>                         | -30°F to +230°F<br>-34°C to +110°C | EPDM     | Green Stripe          | Recommended for hot water service within the specified temperature range, plus a variety of dilute acids, oil-free air, and many chemical services. UL classified in accordance with ANSI/NSF 61 for cold +73°F/+23°C and hot +180°F/+82°C potable water service. <b>NOT RECOMMENDED FOR PETROLEUM SERVICES.</b> |
| <b>EHP<sup>@</sup></b>           | -30°F to +250°F<br>-34°C to +120°C | EPDM     | Green and Red Stripes | Recommended for hot water service within the specified temperature range. UL classified in accordance with ANSI/NSF 61 for cold +73°F/+23°C and hot +180°F/+82°C potable water service. <b>NOT RECOMMENDED FOR PETROLEUM SERVICES.</b>                                                                           |
| <b>T</b>                         | -20°F to +180°F<br>-29°C to +82°C  | Nitrile  | Orange Stripe         | Recommended for petroleum products, hydrocarbons, air with oil vapors, vegetable oil, and mineral oil, within the specified temperature range. <b>NOT RECOMMENDED FOR HOT WATER SERVICES OVER +150°F/+66°C OR FOR HOT, DRY AIR OVER +140°F/+60°C.</b>                                                            |
| <b>E<sup>†</sup></b><br>(Type A) | Ambient                            | EPDM     | Violet Stripe         | Applicable for wet and dry (oil-free air) sprinkler services only. For dry services, Victaulic recommends the use of FlushSeal <sup>®</sup> gaskets. <b>NOT RECOMMENDED FOR HOT WATER SERVICES.</b>                                                                                                              |

<sup>@</sup> The Grade EHP gasket is available only for Style 107, 177, and 607 Couplings.

<sup>†</sup> Vic-Plus gasket. Refer to the "Lubrication" and "Dry Pipe Fire Protection System Notes" sections in this manual for additional information.

\* The information reflected in the table above defines general ranges for all compatible fluids. For specific chemical and temperature compatibility, refer to the "Gasket Selection and Chemical Services" sections in Submittal 05.01 (Gasket Selection Guide).



## Special NPS Gaskets

| Grade                 | Temp. Range                        | Compound        | Color Code                 | General Service Recommendation                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------|------------------------------------|-----------------|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>M-2</b>            | -40°F to +160°F<br>-40°C to +71°C  | Epichlorohydrin | White Stripe               | Specially compounded to provide superior service for common aromatic fuels at low temperatures. Also suitable for certain ambient temperature water services.                                                                                                                                                                                                                                                                                                                            |
| <b>V</b>              | -30°F to +180°F<br>-34°C to +82°C  | Neoprene        | Yellow Stripe              | Recommended for hot lubricating oils and certain chemicals. Good oxidation resistance. Will not support combustion.                                                                                                                                                                                                                                                                                                                                                                      |
| <b>O</b>              | +20°F to +300°F<br>-7°C to +149°C  | Fluoroelastomer | Blue Stripe                | Recommended for many oxidizing acids, petroleum oils, halogenated hydrocarbons, lubricants, hydraulic fluids, organic liquids, and air with hydrocarbons.<br><b>NOT RECOMMENDED FOR HOT WATER SERVICES.</b>                                                                                                                                                                                                                                                                              |
| <b>L</b>              | -30°F to +350°F<br>-34°C to +177°C | Silicone        | Red Gasket                 | Recommended for dry heat, air without hydrocarbons to +350°F/+177°C, and certain chemical services.                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>A</b>              | +20°F to +180°F<br>-7°C to +82°C   | White Nitrile   | White Gasket               | No carbon black content. May be used for food services. Meets FDA requirements. Conforms to CFR Title 21 Part 177.2600. Not recommended for hot water services over +150°F/+66°C or for hot, dry air over +140°F/+60°C.<br><b>NOT RECOMMENDED FOR HOT WATER SERVICES.</b>                                                                                                                                                                                                                |
| <b>T</b><br>(EndSeal) | -20°F to +150°F<br>-29°C to +66°C  | Nitrile         | No External Identification | Specially compounded with excellent oil resistance and a high modulus for resistance to extrusion. Temperature Range -20°F/-29°C to +150°F/+66°C. Recommended for petroleum products, air with oil vapors, vegetable oil, and mineral oil within the specified temperature range. <b>Not recommended for hot water services over +150°F/+66°C or for hot, dry air over +140°F/+60°C.</b> For maximum gasket life under pressure extremes, temperature should be limited to +120°F/+49°C. |

## Special NPS Gaskets

| Grade                               | Temp. Range                         | Compound             | Color Code                                                                                                          | General Service Recommendation                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------|-------------------------------------|----------------------|---------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>EF</b>                           | -30°F to +230°F<br>-34°C to +110°C  | EPDM                 | Green<br>"X"                                                                                                        | Recommended for hot and cold water service within the specified temperature range, plus a variety of dilute acids, oil-free air, and many chemical services. Meets hot and cold potable water requirements. DVGW, KTW, ÖVGW, SVGW, and French ACS (Crecep) Approved for W534, EN681-1 Type WA cold potable water service and Type WB hot potable water service.<br><b>NOT RECOMMENDED FOR PETROLEUM SERVICES</b>                                                                               |
| <b>EW</b>                           | -30°F to +230°F<br>-34°C to +110°C  | EPDM                 | Green<br>"W"                                                                                                        | Recommended for hot water service within the specified temperature range, plus a variety of dilute acids, oil-free air, and many chemical services. WRAS- approved material to BS 6920 for cold and hot potable water service up to +149°F/+65°C.<br><b>NOT RECOMMENDED FOR PETROLEUM SERVICES.</b>                                                                                                                                                                                            |
| <b>ST</b>                           | -20°F to +210°F<br>-29°C to +99°C   | HNBR                 | Two<br>Orange<br>Stripes                                                                                            | Recommended for varying concentrations of hot petroleum/water mixtures; hydrocarbons; air with oil vapors; vegetable and mineral oils; and automotive fluids, such as engine oil and transmission oil, within the specified temperature range.                                                                                                                                                                                                                                                 |
| <b>HMT</b><br>(Standard or EndSeal) | -20°F to +180°F<br>(-29°C to +82°C) | High-Modulus Nitrile | <br>No Color Code Identification | Specially compounded with excellent oil resistance and a high modulus for resistance to extrusion. Temperature range is -20°F to +180°F/-29°C to +82°C. Recommended for petroleum products, air with oil vapors, vegetable and mineral oils within the specified temperature range. <b>Not recommended for hot water services over +150°F/+66°C or for hot, dry air over +140°F/+60°C.</b> For maximum gasket life under pressure extremes, the temperature should be limited to +120°F/+49°C. |

# LUBRICATION

Lubrication of the gasket with a thin coating of Victaulic Lubricant or another compatible material on the exterior/gasket sealing lips or the coupling housings' interiors/pipe ends is essential to prevent gasket pinching. In addition, lubrication eases installation of the gasket onto the pipe end. Refer to the photos below for examples of properly and improperly lubricated gaskets. **NOTE:** Victaulic Lubricant is not recommended for use with High-Density Polyethylene (HDPE) pipe. Refer to Victaulic publication 05.02 for the Victaulic Lubricant MSDS sheet.



**Properly Lubricated Gasket with Thin Coating of Victaulic Lubricant**



**Improperly Lubricated Gasket with Too Much Victaulic Lubricant**

**Canadian Customers – Canadian Workplace Hazardous Materials Information System (WHMIS) Requirements:** Canadian customers should contact Victaulic Company of Canada for a Victaulic Lubricant MSDS sheet that meets Canadian WHMIS requirements.

## NOTICE

### For Victaulic FireLock Products Only:

- Victaulic FireLock Couplings are designed for use **ONLY** on wet and dry fire-protection systems. Certain Victaulic FireLock products may be provided with the Vic-Plus™ gasket system. If the product is provided with the Vic-Plus™ gasket system. Additional lubrication is not required for the initial installation of wet pipe systems that are installed at or continuously operating above 0°F/-18° C. Refer to Victaulic publication 05.03 for the Vic-Plus MSDS sheet.

Supplemental lubrication is required for Vic-Plus gaskets only if any of the following conditions exist. If any of the following conditions exist, apply a thin coat of Victaulic lubricant or silicone lubricant to the gasket lips and exterior.

- If the gasket has been exposed to fluids prior to installation
- If the surface of the gasket does not have a hazy appearance
- If the gasket is installed at or continuously operating below 0°F/-18°C.
- If the gasket is being installed into any dry pipe system. Refer to the “Dry Pipe Fire Protection System Notes” section.
- If the system will be subjected to air tests prior to being filled with water
- If the gasket was involved in a previous installation
- If the gasket sealing surface of the pipe contains raised or undercut weld seams, or cracks or voids at the weld seams. However, lubricated gaskets may not enhance sealing capabilities on all adverse pipe conditions. Pipe condition and pipe preparation must conform to the requirements listed in the product installation instructions.

# VICTAULIC LUBRICANT USAGE GUIDE

The following table provides approximations for the number of gaskets that can be lubricated with a 4.5-ounce/127.5-gram tube or a 1-quart/32-ounce/907-gram container of Victaulic Lubricant. These values have been calculated using a thin coating of Victaulic Lubricant, as described in the “Lubrication” section on the previous page, and do not take into account any overuse, spillage, etc.

| Coupling Size       |                                        | Number of Gaskets |           |
|---------------------|----------------------------------------|-------------------|-----------|
| Nominal Size inches | Actual Pipe Outside Diameter inches/mm | Per Tube          | Per Quart |
| 2                   | 2.375<br>60.3                          | 140               | 1120      |
| 3                   | 3.500<br>88.9                          | 97                | 773       |
| 4                   | 4.500<br>114.3                         | 71                | 558       |
| 6                   | 6.625<br>168.3                         | 49                | 383       |
| 8                   | 8.625<br>219.1                         | 31                | 252       |
| 10                  | 10.750<br>273.0                        | 25                | 202       |
| 12                  | 12.750<br>323.9                        | 21                | 171       |
| 14 OD               | 14.000<br>355.6                        | 12                | 98        |
| 16 OD               | 16.000<br>406.4                        | 11                | 86        |
| 18 OD               | 18.000<br>457                          | 10                | 76        |
| 20 OD               | 20.000<br>508                          | 9                 | 69        |
| 22 OD               | 22.000<br>559                          | 8                 | 63        |
| 24 OD               | 24.000<br>610                          | 7                 | 57        |
| 26 OD               | 26.000<br>660                          | 6                 | 50        |
| 28 OD               | 28.000<br>711                          | 6                 | 46        |
| 30 OD               | 30.000<br>762                          | 5                 | 43        |
| 32 OD               | 32.000<br>813                          | 5                 | 36        |
| 36 OD               | 36.000<br>914                          | 4                 | 34        |
| 40 OD               | 40.000<br>1016                         | 4                 | 32        |
| 42 OD               | 42.000<br>1067                         | 4                 | 31        |
| 46 OD               | 46.000<br>1168                         | 4                 | 28        |
| 48 OD               | 48.000<br>1219                         | 3                 | 27        |
| 54 OD               | 54.000<br>1372                         | 3                 | 24        |
| 56 OD               | 56.000<br>1422                         | 3                 | 23        |
| 60 OD               | 60.000<br>1524                         | 3                 | 22        |
| 72 OD               | 72.000<br>1829                         | 2                 | 18        |

**NOTE:** Victaulic Lubricant has full WRAS approval (Approval No. 0507514) and ANSI/NSF 61 approval.



# DRY PIPE FIRE PROTECTION SYSTEM NOTES

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Victaulic Grade “E”, (Type A) FireLock gaskets are Factory Mutual (FM) Approved and Underwriters Laboratories, Inc. (UL) Listed for dry pipe fire protection systems. In freezers or systems subject to freezing temperatures, pipe end surface preparation becomes critical. EPDM will harden as freezing temperatures approach the lower temperature limitation of the gasket material (–40°F/–40°C). Therefore, all indentations, projections, loose paint, scale, dirt, chips, grease, and rust must be removed from the end of the pipe to the groove to provide a leak-tight seal for the gasket.

Victaulic recommends Grade “E” (Type A) FireLock FlushSeal® gaskets (or Style 009/009V gaskets) in systems subject to both freezing temperatures and hydrostatic pressure tests. The center leg in the gasket cavity reduces the potential for ice formation from residual water that can become trapped in the gasket cavity during hydrostatic pressure testing.

As a practical alternative to strict adherence to Victaulic’s surface preparation requirements, or where pipe joint flexibility may be required, Grade “L” (silicone) gaskets are recommended. At low temperatures, Grade “L” gaskets remain soft and pliable, which helps the gasket seal on pipe surfaces that are less than ideal. In addition, Grade “L” gaskets adapt more readily to temperature swings that generate both linear and radial expansion/contraction and increases reliability on joints subject to movement, such as rack piping, etc.

It is the system designer’s, material specifier’s, and/or the installing contractor’s responsibility to select the gasket grade that is suitable for the intended service.

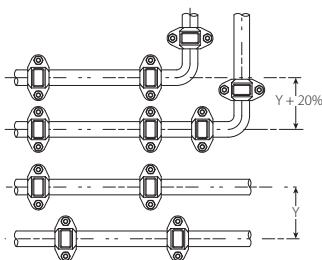
Dry pipe fire protection systems are subject to the supplemental lubrication issues mentioned above.

# SPACING REQUIREMENTS FOR GROOVED PIPING SYSTEMS

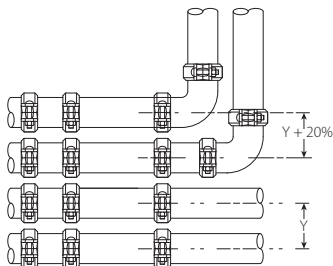
Since the grooved piping method incorporates externally mounted housings, consideration must be given to external dimensions beyond the pipe OD.

**NOTE:** Allowance for insulation, when necessary, is not included in the following examples.

## Recommended Minimum Pipe Spacing



**Example with Bolt Pads  
Facing Each Other**

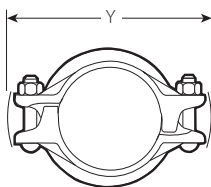


**Example with Bolt Pads  
Facing Out**

*Illustrations are exaggerated for clarity*

To allow for easy installation, insulation, and maintenance, consideration must be given to proper spacing between pipelines. Since Victaulic grooved pipe couplings are externally mounted housings that contain bolt pads, allow enough access space to tighten the bolts. In addition, provide enough space to prevent interference between piping and adjacent couplings.

The pipe centerline must be spaced with the width of the coupling housings (“Y” dimension) for systems where couplings are staggered. Add an additional 20% to the width (Y) when couplings are inline, as shown above.



**NOTE:** The “Y” dimension is the maximum dimension across the coupling. Bolt pads can be positioned in any orientation to provide adequate clearance if the orientation shown causes interference with other system components.

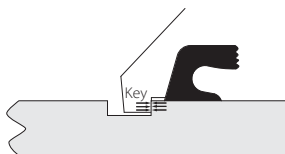
## External Clearance Allowance

When installing grooved piping systems in confined areas, such as a pipe shaft, a tunnel, a narrow trench, or when joining riser pipe and dropping it through riser holes, consideration must be given to the external clearance of the housings. This clearance must be slightly greater than the “Y” dimension of the widest point. The necessary clearance will vary depending upon installation procedures, the proximity of other pipes, and other factors. **NOTE:** When installing Style 791 Vic-Boltless Couplings, sufficient room must be provided to allow clearance for the Style 792 Assembly Tool (refer to the Style 792 installation instructions in this manual for more information).

# INSTALLATION TO ACHIEVE MAXIMUM LINEAR MOVEMENT CAPABILITIES OF FLEXIBLE SYSTEMS

To achieve maximum expansion/contraction allowance, pipe joints must be installed with proper spacing between the pipe ends. The following is a brief overview of methods to accommodate expansion/contraction. Refer to Section 26, Design Data, of the G-100 General Catalog for complete details.

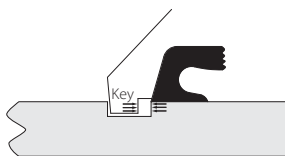
**For maximum expansion, pipe ends must be at their maximum gap within the coupling.**



PROPER INSTALLATION FOR EXPANSION  
*Exaggerated for Clarity*

1. Vertical systems can be installed as the pipe is lowered by assembling the couplings and using the weight of the pipe to pull the pipe ends open.
2. Anchor the system at one end, and install the couplings and proper guides. Cap the system, pressurize it to fully open the pipe ends, then anchor the other end with the pipe ends fully gapped.
3. Install the couplings. Use a “come-along” to pull the pipe for full end separation, then secure the pipe to maintain the opening.

**For maximum contraction, pipe ends must be butted within the coupling.**



PROPER INSTALLATION FOR CONTRACTION  
*Exaggerated for Clarity*

1. In vertical systems, stack the pipe by using the weight to butt the pipe ends, then anchor the pipe to maintain the position.
2. In horizontal systems, install the joints with the pipe ends butted by using a “come-along” to draw the pipe ends together, if necessary, then secure the pipe in position.

## For Expansion and Contraction

1. Alternate the above procedures in proportion to the need for expansion and contraction.

## Groove/Coupling Gapping

For expansion, visible gaps on either side of the coupling housings' key section (between the coupling housings' key section and the rear edge of the groove) can be used to ensure proper installation of most couplings for maximum movement. These gaps are approximately equal to half the linear movement capability. Piping must be secured to maintain the desired position.

For pipe contraction, virtually no gap should be visible between the coupling housings' key section and the rear edge of the groove. Piping must be secured to maintain the desired position.



# PIPING SUPPORT FOR RIGID AND FLEXIBLE SYSTEMS

Piping that is joined with grooved pipe couplings, like all other piping systems, requires support to carry the weight of pipes, equipment, and fluid. The support or hanging method must minimize stress on joints, piping, and other components. In addition, the method of support must allow pipeline movement, where required, along with other design requirements, such as drainage or venting. The designer must also consider the special requirements of flexible couplings while designing a support system. **NOTE:** Valves with unbalanced loads, particularly ones installed in horizontal pipelines within areas of high vibration, require support to resist external rotation.

The following tables list the suggested maximum span between pipe supports for horizontal, straight runs of standard-weight steel pipe that carries water or similarly dense liquids.

| NOTICE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• These values are not intended to be used as specifications for all installations, and they <b>DO NOT</b> apply where critical calculations are made or where there are concentrated loads between supports.</li><li>• <b>DO NOT</b> attach supports directly to couplings. Attach supports only to adjoining pipe and equipment.</li><li>• Victaulic Company is not responsible for system design, nor does the Company assume any responsibility for systems that are designed improperly.</li></ul> |

# RIGID SYSTEMS – HANGER SPACING

For Victaulic rigid couplings, refer to the chart below for maximum hanger spacing.

| Size                   |                                           | Suggested Maximum Span Between Supports<br>feet/meters |           |           |                    |            |           |
|------------------------|-------------------------------------------|--------------------------------------------------------|-----------|-----------|--------------------|------------|-----------|
| Nominal Size<br>inches | Actual Pipe Outside<br>Diameter inches/mm | Water Service                                          |           |           | Gas or Air Service |            |           |
|                        |                                           | *                                                      | †         | ‡         | *                  | †          | ‡         |
| 1                      | 1.315<br>33.7                             | 7<br>2.1                                               | 9<br>2.7  | 12<br>3.7 | 9<br>2.7           | 9<br>2.7   | 12<br>3.7 |
| 1 ¼                    | 1.660<br>42.4                             | 7<br>2.1                                               | 11<br>3.4 | 12<br>3.7 | 9<br>2.7           | 11<br>3.4  | 12<br>3.7 |
| 1 ½                    | 1.900<br>48.3                             | 7<br>2.1                                               | 12<br>3.7 | 15<br>4.6 | 9<br>2.7           | 13<br>4.0  | 15<br>4.6 |
| 2                      | 2.375<br>60.3                             | 10<br>3.1                                              | 13<br>4.0 | 15<br>4.6 | 13<br>4.0          | 15<br>4.6  | 15<br>4.6 |
| 3                      | 3.500<br>88.9                             | 12<br>3.7                                              | 16<br>4.9 | 15<br>4.6 | 15<br>4.6          | 17<br>5.2  | 15<br>4.6 |
| 4                      | 4.500<br>114.3                            | 14<br>4.3                                              | 17<br>5.2 | 15<br>4.6 | 17<br>5.2          | 21<br>6.4  | 15<br>4.6 |
| 6                      | 6.625<br>168.3                            | 17<br>5.2                                              | 20<br>6.1 | 15<br>4.6 | 21<br>6.4          | 25<br>7.6  | 15<br>4.6 |
| 8                      | 8.625<br>219.1                            | 19<br>5.8                                              | 22<br>6.7 | 15<br>4.6 | 24<br>7.3          | 28<br>8.5  | 15<br>4.6 |
| 10                     | 10.750<br>273.0                           | 19<br>5.8                                              | 23<br>7.0 | 15<br>4.6 | 24<br>7.3          | 31<br>9.5  | 15<br>4.6 |
| 12                     | 12.750<br>323.9                           | 23<br>7.0                                              | 24<br>7.3 | 15<br>4.6 | 30<br>9.1          | 33<br>10.1 | 15<br>4.6 |
| 14                     | 14.000<br>355.6                           | 23<br>7.0                                              | 25<br>7.6 | 15<br>4.6 | 30<br>9.1          | 33<br>10.1 | 15<br>4.6 |
| 16                     | 16.000<br>406.4                           | 27<br>8.2                                              | 25<br>7.6 | 15<br>4.6 | 35<br>10.7         | 33<br>10.1 | 15<br>4.6 |
| 18                     | 18.000<br>457                             | 27<br>8.2                                              | 25<br>7.6 | 15<br>4.6 | 35<br>10.7         | 33<br>10.1 | 15<br>4.6 |
| 20                     | 20.000<br>508                             | 30<br>9.1                                              | 25<br>7.6 | 15<br>4.6 | 39<br>11.9         | 33<br>10.1 | 15<br>4.6 |
| 24                     | 24.000<br>610                             | 32<br>9.8                                              | 25<br>7.6 | 15<br>4.6 | 42<br>12.8         | 33<br>10.1 | 15<br>4.6 |
| 26                     | 26.000<br>660                             | 30<br>9.1                                              | –<br>–    | –<br>–    | –<br>–             | –<br>–     | –<br>–    |
| 28                     | 28.000<br>711                             | 30<br>9.1                                              | –<br>–    | –<br>–    | –<br>–             | –<br>–     | –<br>–    |
| 30                     | 30.000<br>762                             | 30<br>9.1                                              | –<br>–    | –<br>–    | –<br>–             | –<br>–     | –<br>–    |
| 32                     | 32.000<br>813                             | 31<br>9.4                                              | –<br>–    | –<br>–    | –<br>–             | –<br>–     | –<br>–    |
| 36                     | 36.000<br>914                             | 31<br>9.4                                              | –<br>–    | –<br>–    | –<br>–             | –<br>–     | –<br>–    |
| 40                     | 40.000<br>1016                            | 35<br>10.7                                             | –<br>–    | –<br>–    | –<br>–             | –<br>–     | –<br>–    |
| 42                     | 42.000<br>1067                            | 35<br>10.7                                             | –<br>–    | –<br>–    | –<br>–             | –<br>–     | –<br>–    |
| 46                     | 46.000<br>1168                            | 35<br>10.7                                             | –<br>–    | –<br>–    | –<br>–             | –<br>–     | –<br>–    |
| 48                     | 48.000<br>1219                            | 36<br>11.0                                             | –<br>–    | –<br>–    | –<br>–             | –<br>–     | –<br>–    |

Table continued on following page  
Refer to notes on following page



# RIGID SYSTEMS – HANGER SPACING (CONTINUED)

| Size                   |                                           | Suggested Maximum Span Between Supports<br>feet/meters |   |   |                    |   |   |
|------------------------|-------------------------------------------|--------------------------------------------------------|---|---|--------------------|---|---|
| Nominal Size<br>inches | Actual Pipe Outside<br>Diameter inches/mm | Water Service                                          |   |   | Gas or Air Service |   |   |
|                        |                                           | *                                                      | † | ‡ | *                  | † | ‡ |
| 54                     | 54.000                                    | 37                                                     | – | – | –                  | – | – |
|                        | 1372                                      | 11.3                                                   | – | – | –                  | – | – |
| 56                     | 56.000                                    | 37                                                     | – | – | –                  | – | – |
|                        | 1422                                      | 11.3                                                   | – | – | –                  | – | – |
| 60                     | 60.000                                    | 37                                                     | – | – | –                  | – | – |
|                        | 1524                                      | 11.3                                                   | – | – | –                  | – | – |

\*Spacing corresponds to ASME B31.1 Power Piping Code

†Spacing corresponds to ASME B31.9 Building Services Piping Code

‡Spacing corresponds to NFPA 13 Fire Sprinkler Systems



# FLEXIBLE SYSTEMS – HANGER SPACING

## Minimum Number of Pipe Hangers Per Pipe Length for Straight Runs Without Concentrated Loads and Where Full Linear Movement IS REQUIRED

| Size                |                                        | Pipe Length in feet/meters                       |           |           |           |           |           |           |           |            |            |
|---------------------|----------------------------------------|--------------------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|
| Nominal Size inches | Actual Pipe Outside Diameter inches/mm | 7<br>2.1                                         | 10<br>3.0 | 12<br>3.7 | 15<br>4.6 | 20<br>6.1 | 22<br>6.7 | 25<br>7.6 | 30<br>9.1 | 35<br>10.7 | 40<br>12.2 |
|                     |                                        | *Average Hangers Per Pipe Length – Evenly Spaced |           |           |           |           |           |           |           |            |            |
| ¾ – 1               | 1.050 – 1.315<br>26.9 – 33.7           | 1                                                | 2         | 2         | 2         | 3         | 3         | 4         | 4         | 5          | 6          |
| 1 ¼ – 2             | 1.660 – 2.375<br>42.4 – 60.3           | 1                                                | 2         | 2         | 2         | 3         | 3         | 4         | 4         | 5          | 5          |
| 2 ½ – 4             | 2.875 – 4.500<br>73.0 – 114.3          | 1                                                | 1         | 2         | 2         | 2         | 2         | 2         | 3         | 4          | 4          |
| 5 – 8               | 5.563 – 8.625<br>139.7 – 219.1         | 1                                                | 1         | 1         | 2         | 2         | 2         | 2         | 3         | 3          | 3          |
| 10 – 12             | 10.750 – 12.750<br>273.0 – 323.9       | 1                                                | 1         | 1         | 2         | 2         | 2         | 2         | 3         | 3          | 3          |
| 14 – 16             | 14.000 – 16.000<br>355.6 – 406.4       | 1                                                | 1         | 1         | 2         | 2         | 2         | 2         | 3         | 3          | 3          |
| 18 – 24             | 18.000 – 24.000<br>457 – 610           | 1                                                | 1         | 1         | 2         | 2         | 2         | 2         | 3         | 3          | 3          |
| 26 – 60             | 26.000 – 60.000<br>660 – 1524          | 1                                                | 1         | 1         | 1         | 2         | 2         | 2         | 3         | 3          | 3          |

\*No pipe length should be left unsupported between any two couplings

## Maximum Hanger Spacing for Straight Runs Without Concentrated Loads and Where Full Linear Movement IS NOT REQUIRED

| Size                |                                        | Suggested Maximum Span Between Supports |
|---------------------|----------------------------------------|-----------------------------------------|
| Nominal Size inches | Actual Pipe Outside Diameter inches/mm | feet/meters                             |
| ¾ – 1               | 1.050 – 1.315<br>26.9 – 33.7           | 8<br>2.4                                |
| 1 ¼ – 2             | 1.660 – 2.375<br>42.4 – 60.3           | 10<br>3.0                               |
| 2 ½ – 4             | 2.875 – 4.500<br>73.0 – 114.3          | 12<br>3.7                               |
| 5 – 8               | 5.563 – 8.625<br>139.7 – 219.1         | 14<br>4.3                               |
| 10 – 12             | 10.750 – 12.750<br>273.0 – 323.9       | 16<br>4.9                               |
| 14 – 16             | 14.000 – 16.000<br>355.6 – 406.4       | 18<br>5.5                               |
| 18 – 24             | 18.000 – 24.000<br>457 – 610           | 20<br>6.1                               |
| 26 – 60             | 26.000 – 60.000<br>660 – 1524          | 21<br>6.4                               |



# LIGHT-WALL, STAINLESS STEEL RIGID SYSTEM – HANGER SPACING

Light-wall, stainless steel piping requires hangers to meet the following spacing requirements. For flexible systems, refer to the preceding tables under the “Flexible System” section. For rigid systems, refer to the table below for maximum hanger spacing.

| Size                         |                                              | Wall Thickness |          | Suggested Maximum Span Between Supports |
|------------------------------|----------------------------------------------|----------------|----------|-----------------------------------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside Diameter<br>inches/mm | inches/mm      | Schedule | feet/meters                             |
| 2                            | 2.375<br>60.3                                | 0.065<br>1.65  | 5S       | 9<br>2.7                                |
|                              |                                              | 0.079<br>2.00  | —        | 10<br>3.1                               |
|                              |                                              | 0.109<br>2.77  | 10S      | 10<br>3.1                               |
| 76.1 mm                      | 3.000<br>76.1                                | 0.079<br>2.00  | —        | 10<br>3.1                               |
| 3                            | 3.500<br>88.9                                | 0.079<br>2.00  | —        | 10<br>3.1                               |
|                              |                                              | 0.083<br>2.11  | 5S       | 10<br>3.1                               |
|                              |                                              | 0.120<br>3.05  | 10S      | 12<br>3.7                               |
| 4                            | 4.500<br>114.3                               | 0.079<br>2.00  | —        | 11<br>3.4                               |
|                              |                                              | 0.083<br>2.11  | 5S       | 11<br>3.4                               |
|                              |                                              | 0.120<br>3.05  | 10S      | 12<br>3.7                               |
| 139.7 mm                     | 5.500<br>139.7                               | 0.079<br>2.00  | —        | 13<br>4.0                               |
|                              |                                              | 0.102<br>2.60  | —        | 13<br>4.0                               |
|                              |                                              | 0.118<br>3.00  | —        | 15<br>4.6                               |
| 6                            | 6.625<br>168.3                               | 0.079<br>2.00  | —        | 13<br>4.0                               |
|                              |                                              | 0.102<br>2.60  | —        | 13<br>4.0                               |
|                              |                                              | 0.109<br>2.77  | 5S       | 13<br>4.0                               |
|                              |                                              | 0.118<br>3.00  | —        | 15<br>4.6                               |
|                              |                                              | 0.134<br>3.40  | 10S      | 14<br>4.3                               |
| 8                            | 8.625<br>219.1                               | 0.102<br>2.60  | —        | 13<br>4.0                               |
|                              |                                              | 0.109<br>2.77  | 5S       | 13<br>4.0                               |
|                              |                                              | 0.118<br>3.00  | —        | 15<br>4.6                               |
|                              |                                              | 0.148<br>3.76  | 10S      | 15<br>4.6                               |

Table continued on the following page



# LIGHT-WALL, STAINLESS STEEL RIGID SYSTEM – HANGER SPACING (CONTINUED)

| Size                         |                                              | Wall Thickness |          | Suggested<br>Maximum Span<br>Between Supports |
|------------------------------|----------------------------------------------|----------------|----------|-----------------------------------------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside Diameter<br>inches/mm | inches/mm      | Schedule | feet/meters                                   |
| 10                           | 10.750<br>273.0                              | 0.118<br>3.00  | —        | 15<br>4.6                                     |
|                              |                                              | 0.134<br>3.40  | 5S       | 15<br>4.6                                     |
|                              |                                              | 0.165<br>4.19  | 10S      | 16<br>4.9                                     |
| 12                           | 12.750<br>323.9                              | 0.118<br>3.00  | —        | 15<br>4.6                                     |
|                              |                                              | 0.156<br>3.96  | 5S       | 16<br>4.9                                     |
|                              |                                              | 0.180<br>4.57  | 10S      | 17<br>5.2                                     |
| 14*                          | 14.000<br>355.6                              | 0.188<br>4.78  | 10S      | 21<br>6.4                                     |
| 16*                          | 16.000<br>406.4                              | 0.188<br>4.78  | 10S      | 22<br>6.7                                     |
| 18*                          | 18.00<br>457                                 | 0.188<br>4.78  | 10S      | 22<br>6.7                                     |
| 20*                          | 20.000<br>508                                | 0.218<br>5.54  | 10S      | 24<br>7.3                                     |
| 24*                          | 24.000<br>610                                | 0.250<br>6.35  | 10S      | 25<br>7.6                                     |

\* Hanger spacing for these sizes applies to AGS Rigid Couplings.

# ALLOWABLE PIPE-END SEPARATION FOR RIGID, INSTALLATION-READY COUPLINGS

The maximum allowable pipe-end separation dimensions shown in the table below are for system layout purposes only. Style 009H and Style 107H Couplings are considered rigid joints that allow no angular deflection or linear movement. The design/allowable pipe separation MUST be considered during assembly.

| Size                         |                                           | Maximum Allowable Pipe-End Separation<br>inches/mm |             |
|------------------------------|-------------------------------------------|----------------------------------------------------|-------------|
| Nominal Size<br>inches or mm | Actual Pipe Outside<br>Diameter inches/mm | Style 009H                                         | Style 107H  |
| 1 ¼                          | 1.660<br>42.4                             | 0.10<br>2.5                                        | —<br>—      |
| 1 ½                          | 1.900<br>48.3                             | 0.10<br>2.5                                        | —<br>—      |
| 2                            | 2.375<br>60.3                             | 0.12<br>3.1                                        | 0.15<br>3.8 |
| 2 ½                          | 2.875<br>73.0                             | 0.12<br>3.1                                        | 0.15<br>3.8 |
| 76.1 mm                      | 3.000<br>76.1                             | 0.12<br>3.1                                        | 0.15<br>3.8 |
| 3                            | 3.500<br>88.9                             | 0.12<br>3.1                                        | 0.15<br>3.8 |
| 4                            | 4.500<br>114.3                            | 0.17<br>4.3                                        | 0.15<br>3.8 |
| 139.7 mm                     | 5.500<br>139.7                            | —<br>—                                             | 0.15<br>3.8 |
| 5                            | 5.563<br>141.3                            | —<br>—                                             | 0.15<br>3.8 |
| 165.1 mm                     | 6.500<br>165.1                            | —<br>—                                             | 0.15<br>3.8 |
| 6                            | 6.625<br>168.3                            | —<br>—                                             | 0.15<br>3.8 |
| 8                            | 8.625<br>219.1                            | —<br>—                                             | 0.22<br>5.6 |

# ALLOWABLE PIPE-END SEPARATION FOR AGS RIGID, FLAT-BOLT-PAD COUPLINGS ON DIRECT-GROOVED PIPE

Victaulic AGS rigid couplings contain flat bolt pads. The housings' wedge-shaped key profile increases the allowable pipe-end separation and eases initial assembly alignment (refer to the table below).

Rigid couplings provide a rigid joint that allows no angular deflection or linear movement. The design/allowable pipe separation **MUST** be considered during assembly.

| Size                |                                        | Maximum Allowable Pipe-End Separation |
|---------------------|----------------------------------------|---------------------------------------|
| Nominal Size inches | Actual Pipe Outside Diameter inches/mm | inches/mm                             |
| 14 *                | 14.000<br>355.6                        | 0.25<br>6.4                           |
| 16 *                | 16.000<br>406.4                        | 0.25<br>6.4                           |
| 18 *                | 18.000<br>457                          | 0.25<br>6.4                           |
| 20 *                | 20.000<br>508                          | 0.25<br>6.4                           |
| 24 *                | 24.000<br>610                          | 0.25<br>6.4                           |
| 26 *                | 26.000<br>660                          | 0.38<br>9.6                           |
| 28 *                | 28.000<br>711                          | 0.38<br>9.6                           |
| 30 *                | 30.000<br>762                          | 0.38<br>9.6                           |
| 32 *                | 32.000<br>813                          | 0.38<br>9.6                           |
| 36 *                | 36.000<br>914                          | 0.38<br>9.6                           |
| 40 *                | 40.000<br>1016                         | 0.44<br>11.1                          |
| 42 *                | 42.000<br>1067                         | 0.44<br>11.1                          |
| 46 *                | 46.000<br>1168                         | 0.44<br>11.1                          |
| 48 *                | 48.000<br>1219                         | 0.44<br>11.1                          |
| 54 *                | 54.000<br>1372                         | 0.50<br>12.7                          |
| 56 *                | 56.000<br>1422                         | 0.50<br>12.7                          |
| 60 *                | 60.000<br>1524                         | 0.50<br>12.7                          |

\* Applies only to **pipe roll grooved to AGS specifications** for Style W07 AGS Rigid Couplings. For pipe roll or cut grooved to standard specifications, refer to the separate table on page 56.



# ALLOWABLE PIPE-END SEPARATION FOR AGS RIGID, FLAT-BOLT-PAD COUPLINGS ON PIPE PREPARED WITH AGS VIC-RINGS®

Victaulic AGS rigid couplings contain flat bolt pads. The housings' wedge-shaped key profile increases the allowable pipe-end separation and eases initial assembly alignment (refer to the table below).

Rigid couplings provide a rigid joint that allows no angular deflection or linear movement. The design/allowable pipe separation MUST be considered during assembly.

| Size                        |                                              | Maximum Allowable Pipe-End Separation |
|-----------------------------|----------------------------------------------|---------------------------------------|
| Nominal Pipe Size<br>inches | Coupling/<br>AGS Vic-Ring® Size<br>inches/mm | inches/mm                             |
| 12 *                        | 14.000<br>355.6                              | 0.25<br>6.4                           |
| 14 *                        | 16.000<br>406.4                              | 0.25<br>6.4                           |
| 16 *                        | 18.000<br>457                                | 0.25<br>6.4                           |
| 18 *                        | 20.000<br>508                                | 0.25<br>6.4                           |
| 20 *                        | 22.000<br>559                                | 0.25<br>6.4                           |
| 22 *                        | 24.000<br>610                                | 0.25<br>6.4                           |
| 24 *                        | 26.000<br>660                                | 0.38<br>9.6                           |
| 26 *                        | 28.000<br>711                                | 0.38<br>9.6                           |
| 28 *                        | 30.000<br>762                                | 0.38<br>9.6                           |
| 30 *                        | 32.000<br>813                                | 0.38<br>9.6                           |
| 32 *                        | 34.000<br>865                                | 0.38<br>9.6                           |
| 34 *                        | 36.000<br>914                                | 0.38<br>9.6                           |
| 36 *                        | 38.000<br>965                                | 0.38<br>9.6                           |
| 38 *                        | 40.000<br>1016                               | 0.44<br>11.1                          |
| 40 *                        | 42.000<br>1067                               | 0.44<br>11.1                          |
| 42 *                        | 44.000<br>1118                               | 0.44<br>11.1                          |
| 44 *                        | 46.000<br>1168                               | 0.44<br>11.1                          |
| 46 *                        | 48.000<br>1219                               | 0.44<br>11.1                          |

\* Applies only to pipe prepared with AGS Vic-Rings® for Style W07 AGS Rigid Couplings.



# ALLOWABLE PIPE-END SEPARATION FOR STANDARD RIGID, ANGLE-BOLT-PAD COUPLINGS

Victaulic standard rigid couplings have an angle-bolt-pad design that constricts the coupling housings' keys into the groove around the entire pipe circumference. The housings slide on the angle bolt pads, rather than mating squarely.

In addition, the sliding of the housings forces the key sections into opposed contact on the inside and outside groove edges, which results in pipe-end separation during assembly (refer to the table below).

Rigid couplings provide a rigid joint that allows no angular deflection or linear movement. The design/allowable pipe separation **MUST** be considered during assembly.

| Size                         |                                           | Maximum Allowable<br>Pipe-End Separation † |
|------------------------------|-------------------------------------------|--------------------------------------------|
| Nominal Size<br>inches or mm | Actual Pipe Outside Diameter<br>inches/mm | inches/mm                                  |
| 1                            | 1.315                                     | 0.05                                       |
|                              | 33.7                                      | 1.2                                        |
| 1 ¼                          | 1.660                                     | 0.05                                       |
|                              | 42.4                                      | 1.2                                        |
| 1 ½                          | 1.900                                     | 0.05                                       |
|                              | 48.3                                      | 1.2                                        |
| 2                            | 2.375                                     | 0.07                                       |
|                              | 60.3                                      | 1.7                                        |
| 2 ½                          | 2.875                                     | 0.07                                       |
|                              | 73.0                                      | 1.7                                        |
| 76.1 mm                      | 3.000                                     | 0.07                                       |
|                              | 76.1                                      | 1.7                                        |
| 3                            | 3.500                                     | 0.07                                       |
|                              | 88.9                                      | 1.7                                        |
| 4                            | 4.500                                     | 0.16                                       |
|                              | 114.3                                     | 4.1                                        |
| 108.0 mm                     | 4.250                                     | 0.16                                       |
|                              | 108.0                                     | 4.1                                        |
| 5                            | 5.563                                     | 0.16                                       |
|                              | 141.3                                     | 4.1                                        |
| 133.0 mm                     | 5.250                                     | 0.16                                       |
|                              | 133.0                                     | 4.1                                        |
| 139.7 mm                     | 5.500                                     | 0.16                                       |
|                              | 139.7                                     | 4.1                                        |
| 6                            | 6.625                                     | 0.16                                       |
|                              | 168.3                                     | 4.1                                        |
| 159.0 mm                     | 6.250                                     | 0.16                                       |
|                              | 159.0                                     | 4.1                                        |
| 165.1 mm                     | 6.500                                     | 0.16                                       |
|                              | 165.1                                     | 4.1                                        |
| 8                            | 8.625                                     | 0.19                                       |
|                              | 219.1                                     | 4.8                                        |
| 10                           | 10.750                                    | 0.13                                       |
|                              | 273.0                                     | 3.3                                        |
| 12                           | 12.750                                    | 0.13                                       |
|                              | 323.9                                     | 3.3                                        |

† Allowable pipe-end separation is different for Style 307 Transition Couplings. Refer to the I-300 Field Installation Handbook for details.



# ALLOWABLE PIPE-END SEPARATION AND PIPELINE DEFLECTION FOR FLEXIBLE, INSTALLATION-READY COUPLINGS

Allowable pipe-end separation and deflection values are the maximum nominal range of movement available at each joint for standard roll-grooved or cut-grooved pipe. These values are maximums. For design and installation purposes, these values should be reduced by 50% for  $\frac{3}{4}$  – 3½-inch/26.9 – 101.6-mm sizes and 25% for 4-inch/114.3-mm and larger sizes.

| Size                         |                                              | Pipe-End Separation – inches/mm |                |                |
|------------------------------|----------------------------------------------|---------------------------------|----------------|----------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside Diameter<br>inches/mm | (1)<br>Minimum                  | (2)<br>Maximum | (3)<br>Maximum |
| 2                            | 2.375<br>60.3                                | 0.13<br>3.2                     | 0.19<br>4.8    | 0.25<br>6.4    |
| 2½                           | 2.875<br>73.0                                | 0.13<br>3.2                     | 0.19<br>4.8    | 0.25<br>6.4    |
| 76.1 mm                      | 3.000<br>76.1                                | 0.13<br>3.2                     | 0.19<br>4.8    | 0.25<br>6.4    |
| 3                            | 3.500<br>88.9                                | 0.13<br>3.2                     | 0.19<br>4.8    | 0.25<br>6.4    |
| 4                            | 4.500<br>114.3                               | 0.13<br>3.2                     | 0.25<br>6.4    | 0.38<br>9.5    |
| 139.7 mm                     | 5.500<br>139.7                               | 0.13<br>3.2                     | 0.25<br>6.4    | 0.38<br>9.5    |
| 5                            | 5.563<br>141.3                               | 0.13<br>3.2                     | 0.25<br>6.4    | 0.38<br>9.5    |
| 6                            | 6.625<br>168.3                               | 0.13<br>3.2                     | 0.25<br>6.4    | 0.38<br>9.5    |
| 8                            | 8.625<br>219.1                               | 0.19<br>4.8                     | 0.31<br>7.9    | 0.44<br>11.2   |

(1) Minimum pipe-end separation, as required by the gasket center leg, for roll- or cut-grooved pipe. Refer to illustration (1) below.

(2 and 3) Maximum pipe-end separation to be used in determining overall piping system movement for roll-grooved (2) or cut-grooved (3) pipe. For design and installation purposes, the minimum and maximum pipe-end separations should be reduced to the values shown in the table on the following page. These design and installation considerations include thermal growth, settlement, installation misalignment, and offsets. Refer to illustrations (2 and 3) below.



**(1) Minimum Pipe-End Separation  
Roll and Cut Grooved**



**(2) Maximum Pipe-End Separation  
Roll Grooved**



**(3) Maximum Pipe-End Separation  
Cut Grooved**

Information continued on the following page

# ALLOWABLE PIPE-END SEPARATION AND PIPELINE DEFLECTION FOR FLEXIBLE, INSTALLATION-READY COUPLINGS (CONTINUED)

| Size                            |                                                 | Roll-Grooved Pipe               |                               |                                                                      | Cut-Grooved Pipe                |                               |                                                                      |
|---------------------------------|-------------------------------------------------|---------------------------------|-------------------------------|----------------------------------------------------------------------|---------------------------------|-------------------------------|----------------------------------------------------------------------|
| Nominal Size<br>inches or<br>mm | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | Linear<br>Movement<br>inches/mm | Deflection from<br>Centerline |                                                                      | Linear<br>Movement<br>inches/mm | Deflection from<br>Centerline |                                                                      |
|                                 |                                                 |                                 | Degrees<br>Per<br>Coupling †  | inches Per<br>One foot of<br>Pipe/<br>mm Per<br>One meter<br>of Pipe |                                 | Degrees<br>Per<br>Coupling †  | inches Per<br>One foot of<br>Pipe/<br>mm Per<br>One meter<br>of Pipe |
| 2                               | 2.375<br>60.3                                   | 0.06<br>1.5                     | 1.52°                         | 0.32<br>26                                                           | 0.13<br>3.3                     | 3.04°                         | 0.64<br>52                                                           |
| 2½                              | 2.875<br>73.0                                   | 0.06<br>1.5                     | 1.25°                         | 0.26<br>22                                                           | 0.13<br>3.3                     | 2.50°                         | 0.52<br>44                                                           |
| 76.1 mm                         | 3.000<br>76.1                                   | 0.06<br>1.5                     | 1.20°                         | 0.26<br>22                                                           | 0.13<br>3.3                     | 2.40°                         | 0.52<br>44                                                           |
| 3                               | 3.500<br>88.9                                   | 0.06<br>1.5                     | 1.03°                         | 0.22<br>18                                                           | 0.13<br>3.3                     | 2.06°                         | 0.44<br>36                                                           |
| 4                               | 4.500<br>114.3                                  | 0.13<br>3.3                     | 1.60°                         | 0.34<br>28                                                           | 0.25<br>6.4                     | 3.20°                         | 0.68<br>56                                                           |
| 139.7 mm                        | 5.500<br>139.7                                  | 0.13<br>3.3                     | 1.30°                         | 0.28<br>24                                                           | 0.25<br>6.4                     | 2.60°                         | 0.54<br>45                                                           |
| 5                               | 5.563<br>141.3                                  | 0.13<br>3.3                     | 1.30°                         | 0.27<br>22                                                           | 0.25<br>6.4                     | 2.60°                         | 0.54<br>45                                                           |
| 6                               | 6.625<br>168.3                                  | 0.13<br>3.3                     | 1.08°                         | 0.23<br>18                                                           | 0.25<br>6.4                     | 2.16°                         | 0.46<br>36                                                           |
| 8                               | 8.625<br>219.1                                  | 0.13<br>3.3                     | 0.83°                         | 0.18<br>15                                                           | 0.25<br>6.4                     | 1.66°                         | 0.35<br>29                                                           |

# ALLOWABLE PIPE-END SEPARATION AND PIPELINE DEFLECTION FOR AGS FLEXIBLE COUPLINGS ON DIRECT-GROOVED PIPE

Allowable pipe-end separation and deflection values are the maximum nominal range of movement available at each joint for pipe that is roll grooved to AGS specifications. These values are maximums. For design and installation purposes, these values should be reduced by 25%.

| Size                   |                                              | PIPE ROLL GROOVED TO AGS SPECIFICATIONS                  |                            |                                                                |
|------------------------|----------------------------------------------|----------------------------------------------------------|----------------------------|----------------------------------------------------------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside Diameter<br>inches/mm | Maximum<br>Allowable Pipe-End<br>Separation<br>inches/mm | Deflection from Centerline |                                                                |
|                        |                                              |                                                          | Degrees Per<br>Coupling    | inches Per One<br>foot of Pipe/<br>mm Per One<br>meter of Pipe |
| 14 *                   | 14.000<br>355.6                              | 0.13 – 0.31<br>3.3 – 7.9                                 | 0.73°                      | 0.15<br>13                                                     |
| 16 *                   | 16.000<br>406.4                              | 0.13 – 0.31<br>3.3 – 7.9                                 | 0.63°                      | 0.13<br>11                                                     |
| 18 *                   | 18.000<br>457                                | 0.13 – 0.31<br>3.3 – 7.9                                 | 0.57°                      | 0.12<br>10                                                     |
| 20 *                   | 20.000<br>508                                | 0.13 – 0.31<br>3.3 – 7.9                                 | 0.50°                      | 0.10<br>9                                                      |
| 24 *                   | 24.000<br>610                                | 0.13 – 0.31<br>3.3 – 7.9                                 | 0.42°                      | 0.09<br>8                                                      |
| 26 *                   | 26.000<br>660                                | 0.15 – 0.53<br>3.8 – 13.5                                | 0.83°                      | 0.18<br>15                                                     |
| 28 *                   | 28.000<br>711                                | 0.15 – 0.53<br>3.8 – 13.5                                | 0.78°                      | 0.16<br>14                                                     |
| 30 *                   | 30.000<br>762                                | 0.15 – 0.53<br>3.8 – 13.5                                | 0.73°                      | 0.16<br>14                                                     |
| 32 *                   | 32.000<br>813                                | 0.15 – 0.53<br>3.8 – 13.5                                | 0.68°                      | 0.14<br>11                                                     |
| 36 *                   | 36.000<br>914                                | 0.15 – 0.53<br>3.8 – 13.5                                | 0.60°                      | 0.13<br>11                                                     |
| 40 *                   | 40.000<br>1016                               | 0.21 – 0.59<br>5.3 – 15.0                                | 0.55°                      | 0.12<br>10                                                     |
| 42 *                   | 42.000<br>1067                               | 0.21 – 0.59<br>5.3 – 15.0                                | 0.52°                      | 0.11<br>9                                                      |
| 46 *                   | 46.000<br>1168                               | 0.21 – 0.59<br>5.3 – 15.0                                | 0.47°                      | 0.10<br>8                                                      |
| 48 *                   | 48.000<br>1219                               | 0.21 – 0.59<br>5.3 – 15.0                                | 0.45°                      | 0.10<br>8                                                      |
| 54 *                   | 54.000<br>1372                               | 0.28 – 0.66<br>7.1 – 16.8                                | 0.40°                      | 0.08<br>7                                                      |
| 56 *                   | 56.000<br>1422                               | 0.28 – 0.66<br>7.1 – 16.8                                | 0.38°                      | 0.08<br>7                                                      |
| 60 *                   | 60.000<br>1524                               | 0.28 – 0.66<br>7.1 – 16.8                                | 0.36°                      | 0.08<br>7                                                      |

\* Applies only to pipe roll grooved to AGS specifications for Style W77 (AGS) Flexible Couplings. For pipe roll grooved to standard specifications, refer to the separate table on page 61.



# ALLOWABLE PIPE-END SEPARATION AND PIPELINE DEFLECTION FOR AGS FLEXIBLE COUPLINGS ON PIPE PREPARED WITH AGS VIC-RINGS®

Allowable pipe-end separation and deflection values are the maximum nominal range of movement available at each joint. These values are maximums. For design and installation purposes, these values should be reduced by 25%.

| Size                        |                                              | PIPE PREPARED WITH AGS VIC-RINGS®                        |                            |                                                                |
|-----------------------------|----------------------------------------------|----------------------------------------------------------|----------------------------|----------------------------------------------------------------|
| Nominal Pipe Size<br>inches | Coupling/<br>AGS Vic-Ring® Size<br>inches/mm | Maximum<br>Allowable Pipe-End<br>Separation<br>inches/mm | Deflection from Centerline |                                                                |
|                             |                                              |                                                          | Degrees Per<br>Coupling    | inches Per One<br>foot of Pipe/<br>mm Per One<br>meter of Pipe |
| 12 *                        | 14.000<br>355.6                              | 0.13 – 0.31<br>3.3 – 7.9                                 | 0.73°                      | 0.15<br>13                                                     |
| 14 *                        | 16.000<br>406.4                              | 0.13 – 0.31<br>3.3 – 7.9                                 | 0.63°                      | 0.13<br>11                                                     |
| 16 *                        | 18.000<br>457                                | 0.13 – 0.31<br>3.3 – 7.9                                 | 0.57°                      | 0.12<br>10                                                     |
| 18 *                        | 20.000<br>508                                | 0.13 – 0.31<br>3.3 – 7.9                                 | 0.50°                      | 0.10<br>9                                                      |
| 20 *                        | 22.000<br>559                                | 0.13 – 0.31<br>3.3 – 7.9                                 | 0.50°                      | 0.10<br>9                                                      |
| 22 *                        | 24.000<br>610                                | 0.13 – 0.31<br>3.3 – 7.9                                 | 0.42°                      | 0.09<br>8                                                      |
| 24 *                        | 26.000<br>660                                | 0.15 – 0.53<br>3.8 – 13.5                                | 0.83°                      | 0.18<br>15                                                     |
| 26 *                        | 28.000<br>711                                | 0.15 – 0.53<br>3.8 – 13.5                                | 0.78°                      | 0.16<br>14                                                     |
| 28 *                        | 30.000<br>762                                | 0.15 – 0.53<br>3.8 – 13.5                                | 0.73°                      | 0.16<br>14                                                     |
| 30 *                        | 32.000<br>813                                | 0.15 – 0.53<br>3.8 – 13.5                                | 0.68°                      | 0.14<br>11                                                     |
| 32 *                        | 34.000<br>865                                | 0.15 – 0.53<br>3.8 – 13.5                                | 0.69°                      | 0.13<br>11                                                     |
| 34 *                        | 36.000<br>914                                | 0.15 – 0.53<br>3.8 – 13.5                                | 0.60°                      | 0.13<br>11                                                     |
| 36 *                        | 38.000<br>965                                | 0.15 – 0.53<br>3.8 – 13.5                                | 0.60°                      | 0.13<br>11                                                     |
| 38 *                        | 40.000<br>1016                               | 0.21 – 0.59<br>5.3 – 15.0                                | 0.55°                      | 0.12<br>10                                                     |
| 40 *                        | 42.000<br>1067                               | 0.21 – 0.59<br>5.3 – 15.0                                | 0.52°                      | 0.11<br>9                                                      |
| 42 *                        | 44.000<br>1118                               | 0.21 – 0.59<br>5.3 – 15.0                                | 0.50°                      | 0.10<br>8                                                      |
| 44 *                        | 46.000<br>1168                               | 0.21 – 0.59<br>5.3 – 15.0                                | 0.47°                      | 0.10<br>8                                                      |
| 46 *                        | 48.000<br>1219                               | 0.21 – 0.59<br>5.3 – 15.0                                | 0.45°                      | 0.10<br>8                                                      |
| 52 *                        | 54.000<br>1372                               | 0.28 – 0.66<br>7.1 – 16.8                                | 0.40°                      | 0.08<br>7                                                      |
| 54 *                        | 56.000<br>1422                               | 0.28 – 0.66<br>7.1 – 16.8                                | 0.38°                      | 0.08<br>7                                                      |
| 58 *                        | 60.000<br>1524                               | 0.28 – 0.66<br>7.1 – 16.8                                | 0.36°                      | 0.08<br>7                                                      |

\* Applies only to pipe prepared with AGS Vic-Rings® for Style W77 AGS Flexible Couplings.



# ALLOWABLE PIPE-END SEPARATION AND PIPELINE DEFLECTION FOR STANDARD FLEXIBLE COUPLINGS

Allowable pipe-end separation and deflection values are the maximum nominal range of movement available at each joint for standard roll-grooved pipe. **Values for cut-grooved pipe may be doubled.** These values are maximums. For design and installation purposes, these values should be reduced by 50% for ¾ – 3½-inch/26.9 – 101.6-mm sizes and 25% for 4-inch/114.3-mm and larger sizes.

| Size                         |                                              | STANDARD ROLL-GROOVED PIPE                               |                            |                                                                |
|------------------------------|----------------------------------------------|----------------------------------------------------------|----------------------------|----------------------------------------------------------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside Diameter<br>inches/mm | Maximum<br>Allowable Pipe-End<br>Separation<br>inches/mm | Deflection from Centerline |                                                                |
|                              |                                              |                                                          | Degrees Per<br>Coupling    | inches Per One<br>foot of Pipe/<br>mm Per One<br>meter of Pipe |
| ¾                            | 1.050<br>26.9                                | 0 – 0.06<br>0 – 1.6                                      | 3.40°                      | 0.72<br>60                                                     |
| 1                            | 1.315<br>33.7                                | 0 – 0.06<br>0 – 1.6                                      | 2.72°                      | 0.57<br>48                                                     |
| 1 ¼                          | 1.660<br>42.4                                | 0 – 0.06<br>0 – 1.6                                      | 2.17°                      | 0.45<br>38                                                     |
| 1 ½                          | 1.900<br>48.3                                | 0 – 0.06<br>0 – 1.6                                      | 1.93°                      | 0.40<br>33                                                     |
| 2                            | 2.375<br>60.3                                | 0 – 0.06<br>0 – 1.6                                      | 1.52°                      | 0.32<br>26                                                     |
| 2 ½                          | 2.875<br>73.0                                | 0 – 0.06<br>0 – 1.6                                      | 1.25°                      | 0.26<br>22                                                     |
| 76.1 mm                      | 3.000<br>76.1                                | 0 – 0.06<br>0 – 1.6                                      | 1.20°                      | 0.26<br>22                                                     |
| 3                            | 3.500<br>88.9                                | 0 – 0.06<br>0 – 1.6                                      | 1.03°                      | 0.22<br>18                                                     |
| 3 ½                          | 4.000<br>101.6                               | 0 – 0.06<br>0 – 1.6                                      | 0.90°                      | 0.19<br>16                                                     |
| 4                            | 4.500<br>114.3                               | 0 – 0.13<br>0 – 3.2                                      | 1.60°                      | 0.34<br>28                                                     |
| 108.0 mm                     | 4.250<br>108.0                               | 0 – 0.13<br>0 – 3.2                                      | 1.68°                      | 0.35<br>29                                                     |
| 5                            | 5.563<br>141.3                               | 0 – 0.13<br>0 – 3.2                                      | 1.30°                      | 0.27<br>23                                                     |
| 133.0 mm                     | 5.250<br>133.0                               | 0 – 0.13<br>0 – 3.2                                      | 1.35°                      | 0.28<br>24                                                     |
| 139.7 mm                     | 5.500<br>139.7                               | 0 – 0.13<br>0 – 3.2                                      | 1.30°                      | 0.28<br>24                                                     |
| 6                            | 6.625<br>168.3                               | 0 – 0.13<br>0 – 3.2                                      | 1.08°                      | 0.23<br>18                                                     |
| 159.0 mm                     | 6.250<br>159.0                               | 0 – 0.13<br>0 – 3.2                                      | 1.15°                      | 0.24<br>20                                                     |
| 165.1 mm                     | 6.500<br>165.1                               | 0 – 0.13<br>0 – 3.2                                      | 1.10°                      | 0.23<br>19                                                     |
| 8                            | 8.625<br>219.1                               | 0 – 0.13<br>0 – 3.2                                      | 0.83°                      | 0.18<br>14                                                     |
| 10                           | 10.750<br>273.0                              | 0 – 0.13<br>0 – 3.2                                      | 0.67°                      | 0.14<br>12                                                     |
| 12                           | 12.750<br>323.9                              | 0 – 0.13<br>0 – 3.2                                      | 0.57°                      | 0.12<br>9                                                      |

† Refer to note on the following page.



# ALLOWABLE PIPE-END SEPARATION AND PIPELINE DEFLECTION FOR STANDARD FLEXIBLE COUPLINGS (CONTINUED)

| Size                         |                                              | STANDARD ROLL-GROOVED PIPE                               |                            |                                                                |
|------------------------------|----------------------------------------------|----------------------------------------------------------|----------------------------|----------------------------------------------------------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside Diameter<br>inches/mm | Maximum<br>Allowable Pipe-End<br>Separation<br>inches/mm | Deflection from Centerline |                                                                |
|                              |                                              |                                                          | Degrees Per<br>Coupling    | inches Per One<br>foot of Pipe/<br>mm Per One<br>meter of Pipe |
| 14 *                         | 14.000<br>355.6                              | 0 – 0.13<br>0 – 3.2                                      | 0.52°                      | 0.11<br>9                                                      |
| 15 *                         | 15.000<br>381.0                              | 0 – 0.13<br>0 – 3.2                                      | 0.48°                      | 0.10<br>9                                                      |
| 16 *                         | 16.000<br>406.4                              | 0 – 0.13<br>0 – 3.2                                      | 0.45°                      | 0.10<br>9                                                      |
| 18 *                         | 18.000<br>457                                | 0 – 0.13<br>0 – 3.2                                      | 0.40°                      | 0.08<br>7                                                      |
| 20 *                         | 20.000<br>508                                | 0 – 0.13<br>0 – 3.2                                      | 0.37°                      | 0.08<br>7                                                      |
| 22 *                         | 22.000<br>559                                | 0 – 0.13<br>0 – 3.2                                      | 0.32°                      | 0.07<br>6                                                      |
| 24 *                         | 24.000<br>610                                | 0 – 0.13<br>0 – 3.2                                      | 0.30°                      | 0.07<br>6                                                      |
| 26 §                         | 26.000<br>660                                | 0 – 0.38<br>0 – 9.7                                      | 0.83°                      | 0.17<br>14                                                     |
| 28 §                         | 28.000<br>711                                | 0 – 0.38<br>0 – 9.7                                      | 0.77°                      | 0.16<br>13                                                     |
| 30 §                         | 30.000<br>762                                | 0 – 0.38<br>0 – 9.7                                      | 0.72°                      | 0.15<br>13                                                     |
| 32 §                         | 32.000<br>813                                | 0 – 0.38<br>0 – 9.7                                      | 0.67°                      | 0.14<br>12                                                     |
| 36 §                         | 36.000<br>914                                | 0 – 0.38<br>0 – 9.7                                      | 0.60°                      | 0.12<br>10                                                     |
| 42 §                         | 42.000<br>1067                               | 0.31 – 0.69<br>7.9 – 17.5                                | 0.52°                      | 0.20<br>17                                                     |

\* Applies only to pipe **roll** grooved to standard specifications for Style 77 (non-AGS) Flexible Couplings. For pipe roll grooved to AGS specifications, refer to the separate table on the previous pages.

§ Applies only to pipe **roll** grooved for Style 770 Large Diameter Couplings.

# PRODUCT INSTALLATION GUIDELINES

## WARNING



- **Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.**
- **DO NOT attach supports directly to couplings. Attach supports only to adjoining pipe and equipment.**

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

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

1. Always check the supplied gasket to ensure it is suitable for the intended service. Refer to the "Gasket Selection" section of this manual or Victaulic submittal 05.01.
2. Valve bodies, discs, and other wetted components must be compatible with the material flowing through the system. Refer to the most current Victaulic literature, or contact Victaulic for details.
3. Always read the operating and maintenance instruction manuals for the pipe preparation tools.
4. The outside diameter and grooving dimensions of pipe must be within the current specifications published by Victaulic.
5. For rigid, angle-bolt-pad couplings, the nuts must be tightened evenly by alternating sides until metal-to-metal contact at the bolt pads is achieved. Equal, positive offsets are necessary to ensure a rigid joint.
6. Rigid, angle-bolt-pad couplings are not recommended for use with PVC plastic pipe.
7. For flexible couplings with flat bolt pads, the nuts must be tightened evenly by alternating sides until metal-to-metal contact at the bolt pads is achieved.
8. Couplings that contain a tongue-and-recess feature must be mated properly, tongue-to-recess.
9. When a torque value is specified for coupling installation, this torque **MUST** be applied to the nuts in order to achieve proper installation. However, torque beyond specified values will not improve sealing. Exceeding the specified torque by more than 25% may cause damage to the product, resulting in joint failure.
10. For Advanced Groove System (AGS™), FireLock EZ™, and QuickVic™ couplings, deep well sockets are recommended for proper installation due to the longer bolt lengths associated with these products. Deep well sockets provide the full nut engagement that is necessary during tightening.
11. Placement of check valves too close to sources of unstable flow will shorten the life of the valve and may potentially damage the system. To extend valve life, valves should be installed a reasonable distance away from pumps, elbows, expanders, reducers, or other similar devices. Piping practices dictate a minimum distance of five times the pipe diameter for general use. Distances between three and five diameters are allowable, provided the flow velocity is less than 8 feet per second/2.4 meters per second. Distances of less than three diameters are not recommended.
12. Victaulic female threaded products are designed to accommodate standard ANSI male pipe threads only. **NOTE:** BSPT threads are available (specify upon ordering). Use of male threaded products with special features, such as probes, dry-pendent sprinkler heads, etc., must be checked for suitability with the Victaulic piping product being installed. Failure to verify suitability in advance may result in difficult installation or joint failure.
13. When joining pipe of the same size but different wall thicknesses/schedules, the joint rating will be based on the thinner wall pipe.



# IMPACT WRENCH USAGE GUIDELINES

---

## WARNING

- Nuts must be tightened evenly by alternating sides until metal-to-metal contact occurs at the bolt pads. For angle-bolt-pad couplings, even offsets must be present at the bolt pads to obtain pipe-joint rigidity.
- **DO NOT** continue to use an impact wrench after the visual installation guidelines for the coupling are achieved.

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

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

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

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

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

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

# INSTALLATION INSPECTION

## ⚠ WARNING

- Always inspect each joint to ensure proper product installation.
- Undersized or oversized pipes/fittings, shallow grooves, eccentric grooves, bolt pad gaps, etc. are unacceptable. Any of these conditions must be corrected before attempting to pressurize the system.

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

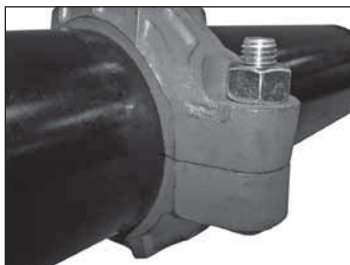
Proper pipe preparation and coupling installation is essential for maximum joint performance. **THE FOLLOWING CONDITIONS MUST BE PRESENT TO ENSURE PROPER JOINT ASSEMBLY.**

1. The pipe OD and groove dimensions must be within the tolerance published in current Victaulic grooving specifications.
2. Unless stated otherwise in specific product instructions, Victaulic grooved pipe couplings **MUST** be assembled properly with the bolt pads in firm, metal-to-metal contact.
3. The housings' keys must be engaged completely in both grooves.
4. The gasket must be slightly compressed, which adds to the strength of the seal.

### Examples of Properly Installed Couplings



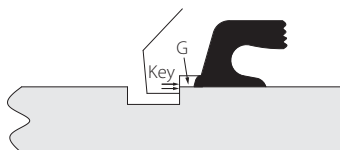
Typical Angle Bolt Pad  
(Style 005 Shown Above)



Typical Flat Bolt Pad  
(Style 77 Shown Above)

## Installations with Undersized Pipes/Fittings – NOT ACCEPTABLE

When the OD of the pipe or fitting is below tolerance, engagement of the housings' key sections is lowered considerably. **THIS RESULTS IN REDUCED WORKING PRESSURE FOR THE JOINT.**

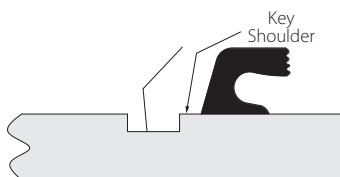


Undersized Pipe/Fitting

*Exaggerated for Clarity*

Additionally, there is little or no added compression of the gasket. The increased gap “G” between the pipe and the housing may also result in gasket extrusion. These factors can contribute to reduced gasket life and joint leakage.

## Installations with Oversized Pipes/Fittings – NOT ACCEPTABLE

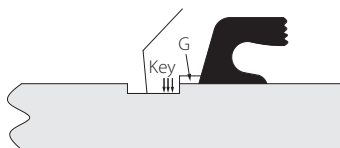


Oversized Pipe/Fitting

*Exaggerated for Clarity*

When the OD of the pipe or fitting exceeds the allowable tolerance, engagement of the housings' key sections is increased to the point that the shoulder can grip onto the pipe. This can result in reduced linear or angular movement. Under these conditions, the bolt pads may not join with metal-to-metal contact, the gasket can possibly extrude, the working pressure of the joint can be reduced, and the life of the gasket can be reduced.

## Installations on Pipe with Shallow Grooves – NOT ACCEPTABLE

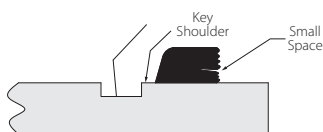


Shallow Groove

*Exaggerated for Clarity*

A groove that is not deep enough will have the same effect as the conditions described in the “Installations with Undersized Pipes/Fittings” section above. In addition, this condition may prevent couplings from being fully assembled, leaving gaps between the bolt pad connections.

## Installations on Pipe with Deep Grooves – NOT ACCEPTABLE



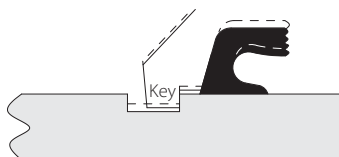
Pipe with Deep Grooves – Figure 1  
*Exaggerated for Clarity*



Pipe with Deep Grooves – Figure 2  
*Exaggerated for Clarity*

A groove that is too deep will allow the coupling to shift so that one housing will have full key engagement (Figure 1 above) and the other housing will have significantly reduced key engagement (Figure 2 above). This will have the same effect as the conditions described in the “Installations with Undersized Pipe/Fittings” section. Additionally, roll grooving pipe to an undersized dimension may overstress and weaken the pipe wall. Cut grooving pipe to an undersized dimension will result in insufficient wall thickness under the groove.

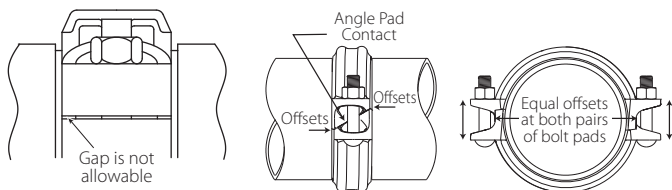
## Installations on Pipe with Eccentric Grooves – NOT ACCEPTABLE



Eccentric Groove  
*Exaggerated for Clarity*

Eccentric grooves generally occur because of out-of-round pipe that is grooved with a stationary tool bit (such as a lathe). Tools that rotate the pipe, rather than rotate around the pipe, may affect this condition. In addition, this can occur when roll grooving pipe with large wall thickness variations. An eccentric groove means that the groove is too shallow on one side and too deep on the other. This may lead to a combination of the conditions outlined in the “Installations with Oversized Pipes/Fittings” section and the “Installations on Pipes with Shallow Grooves” section.

## Bolt Pad Gaps – NOT ACCEPTABLE



*(Illustrations are exaggerated for clarity)*

Unless stated otherwise in specific product installation instructions, Victaulic grooved pipe couplings **MUST** be assembled with the bolt pads in firm metal-to-metal contact. The only exceptions are couplings that have torque values specified. Any specified torque values must be achieved; however, firm metal-to-metal contact may not occur at the coupling bolt pads when the torque requirement is reached. Always refer to the installation instructions for the specific product. Any questions regarding an installation can be directed to Victaulic by calling 1-800-PICK VIC.

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

1. Make sure coupling keys are engaged in the grooves. Coupling keys must not rest on the outside surface of the pipe.
2. Make sure the bolts have been tightened fully.
3. Make sure the gasket is not pinched. Pinched gaskets must be replaced immediately. **NOTE:** Gaskets must be lubricated to prevent gasket pinching. For complete lubrication requirements, refer to the installation instructions for the specific coupling.
4. Make sure oversized pipe or fittings were not used.
5. Make sure the groove conforms to Victaulic specifications. If the groove is 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.

Always re-inspect joints before and after the field test to identify points of possible failure. Look for gaps at the bolt pads and/or keys that ride up on the shoulders. If any of these conditions exist, depressurize the system, and replace any questionable joints.

## NOTICE

- **A SUCCESSFUL INITIAL SYSTEM PRESSURE TEST DOES NOT VALIDATE PROPER INSTALLATION AND IS NOT A GUARANTEE OF LONG-TERM PERFORMANCE.**
- **Victaulic will not assume any liability for pipe joint leakage or failure that may result from an installer's failure to follow Victaulic Company's installation instructions.**
- **As with any pipe joining method, success is determined by close attention to details. Careful adherence to the instructions found in this handbook is critical to ensure maximum system reliability.**

# Installation-Ready Couplings for Grooved-End Pipe

## Installation Instructions



**Style 009H FireLock EZ™ Rigid  
Coupling**



**Style 107H QuickVic™ Rigid Couplings  
for Steel Pipe**



**Style 177 QuickVic™ Flexible  
Coupling for Steel Pipe**

## ⚠ WARNING



- Read and understand all instructions before attempting to install any Victaulic piping products.
  - Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.
  - Wear safety glasses, hardhat, and foot protection.
- Failure to follow these instructions could result in serious personal injury, improper product installation, and/or property damage.

### Instructions for the Initial Installation of Style 009H Couplings

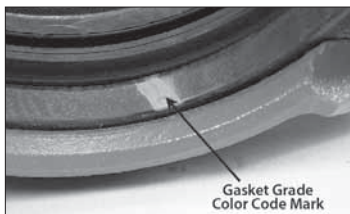


#### 1. DO NOT DISASSEMBLE THE COUPLING:

Style 009H Couplings are installation ready. These 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 install the grooved end of pipe/mating components into the coupling.

#### 2. CHECK PIPE/MATING COMPONENT ENDS:

The outside surface of the pipe/mating component, between the groove and the pipe/mating component end, must be smooth and free from indentations, projections (including weld seams), and roll marks to ensure a leak-tight seal. All oil, grease, loose paint, dirt, and cutting particles must be removed. Measurements taken across grooved pipe/mating component ends must not exceed the maximum allowable flare diameter. Refer to current Victaulic grooving specifications for the maximum allowable flare diameter.



- #### 3. CHECK GASKET:
- Check the gasket to make sure it is suitable for the intended service. The color code identifies the gasket grade. Refer to the “NOTICE” on the following page for details concerning operating temperatures and other requirements. Refer to the “Gasket Selection” section of this manual for the color code chart.

## ⚠ WARNING



- Never leave a Style 009H Coupling partially assembled. A partially assembled Style 009H Coupling poses a drop hazard.
- Keep hands away from the pipe/mating component ends and the openings of the coupling when attempting to insert the grooved end of pipe/mating components into the coupling.

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

## NOTICE

- Victaulic Style 009H Couplings are designed for use **ONLY** on wet and dry fire protection systems (temperatures greater than  $-40^{\circ}\text{F}/-40^{\circ}\text{C}$ ). For rigid pipe connections in systems operating below  $0^{\circ}\text{F}/-18^{\circ}\text{C}$ , Victaulic recommends Style 005 FireLock® Rigid Couplings with Grade “L” (silicone) gaskets.
- Victaulic Style 009H Couplings are provided with the Vic-Plus™ gasket system. Additional lubrication is not required for the initial installation of wet pipe systems that are installed at or continuously operating above  $0^{\circ}\text{F}/-18^{\circ}\text{C}$ . Refer to Victaulic publication 05.03 in the G-100 General Catalog for the Vic-Plus MSDS sheet.

Supplemental lubrication is required for Vic-Plus gaskets only if any of the following conditions exist. If any of these conditions exist, apply a thin coat of Victaulic lubricant or silicone lubricant to the sealing lips of the gasket interior only.

- If the gasket has been exposed to fluids prior to installation
- If the surface of the gasket does not have a hazy appearance
- If the gasket is being installed into a dry pipe system
- If the system will be subjected to air tests prior to being filled with water
- If the gasket was involved in a previous installation
- If the gasket sealing surface of the pipe contains raised or undercut weld seams, or cracks or voids at the weld seams. However, lubricated gaskets may not enhance sealing capabilities on all adverse pipe conditions. Pipe condition and pipe preparation must conform to the requirements listed in product installation instructions.



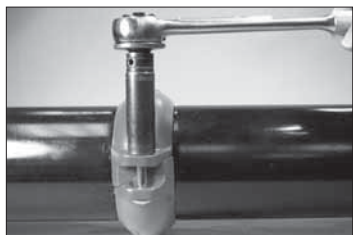
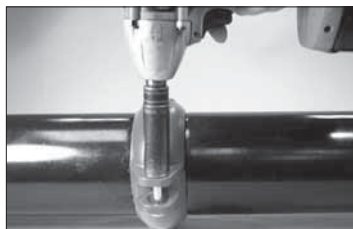
**4. ASSEMBLE JOINT:** Assemble the joint by inserting the grooved end of a pipe/mating component into each opening of the coupling. The ends of the grooved pipe/mating components must be inserted into the coupling until contact with the center leg of the gasket occurs. A visual check is required to ensure the coupling keys align with the grooves in the pipe/mating components. **NOTE:** The coupling may be rotated to ensure the gasket is seated properly.

**NOTE:** When assembling Style 009H Couplings onto end caps, take additional care to ensure the end cap is seated fully against the center leg of the gasket. **DO NOT** use Non-Victaulic fittings with Style 009H Couplings. Use only FireLock No. 006 End Caps containing the “EZ” marking on the inside face or No. 60 End Caps containing the “QV EZ” marking on the inside face.

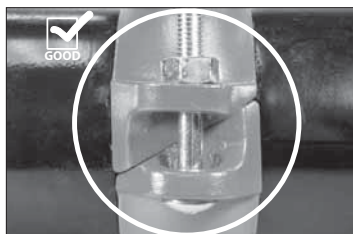
## WARNING

- For Victaulic rigid, angle-bolt-pad couplings, the nuts must be tightened evenly by alternating sides until metal-to-metal contact occurs at the bolt pads.
- For Victaulic rigid, angle-bolt-pad couplings, equal offsets must be present at the bolt pads.
- Keep hands away from coupling openings during tightening.

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



**5. TIGHTEN NUTS:** Tighten the nuts evenly by alternating sides until metal-to-metal contact occurs at the angle bolt pads. Make sure the housings' keys completely engage the grooves and the offsets are equal at the bolt pads. To ensure a rigid joint, equal and positive offsets are preferred. **NOTE:** It is important to tighten the nuts evenly to prevent gasket pinching. An impact wrench or standard socket wrench can be used to bring the bolt pads into metal-to-metal contact. Refer to the "Impact Wrench Usage Guidelines" section in this manual.

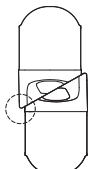


**6.** Visually inspect the bolt pads at each joint to ensure metal-to-metal contact is achieved.

## NOTICE

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

### ✓ GOOD

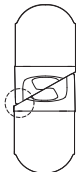


**PROPERLY  
ASSEMBLED JOINT**  
**POSITIVE OFFSET  
WITH BOLT PAD  
CONTACT**



**PROPERLY  
ASSEMBLED JOINT**  
**NEUTRAL OFFSET  
WITH BOLT PAD  
CONTACT**

### ✗ BAD



**IMPROPERLY  
ASSEMBLED JOINT**  
**NEGATIVE  
OFFSET**



**IMPROPERLY  
ASSEMBLED JOINT**  
**BOLT PAD  
GAP**

- "Negative" bolt pad offsets can occur when the nuts are not tightened evenly, which produces over-tightening of one side and under-tightening of the other side. In addition, "negative" offsets can occur if both nuts are under-tightened.

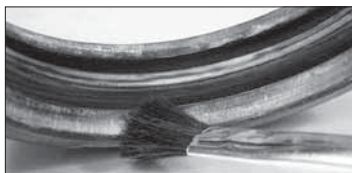
## Style 009H Helpful Information

| Size                         |                                           | Nut Size          | Socket Size   |
|------------------------------|-------------------------------------------|-------------------|---------------|
| Nominal Size<br>inches or mm | Actual Pipe Outside Diameter<br>inches/mm | inches/<br>Metric | inches/<br>mm |
| 1 1/4 – 4                    | 1.660 – 4.500<br>42.4 – 114.3             | 3/8<br>M10        | 11/16<br>17   |
| 76.1 – 108.0<br>mm           | 3.000 – 4.250<br>76.1 – 108.0             | 3/8<br>M10        | 11/16<br>17   |
| 133.0 – 139.7<br>mm          | 5.250 – 5.500<br>133.0 – 139.7            | 1/2<br>M12        | 3/4<br>18     |
| 5                            | 5.563<br>141.3                            | 1/2<br>M12        | 3/4<br>18     |
| 159.0 – 165.1<br>mm          | 6.250 – 6.500<br>159.0 – 165.1            | 5/8<br>M16        | 1 1/16<br>24  |
| 6 – 8                        | 6.625 – 8.625<br>168.3 – 219.1            | 5/8<br>M16        | 1 1/16<br>24  |

## Instructions for Re-Installation of Style 009H Couplings

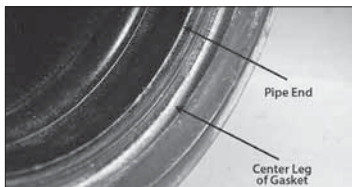
Since the coupling housings conform to the outside diameter of the pipe/mating component during an initial installation, direct installation of the pipe/mating components into the coupling may not be possible upon re-installation. If this is the case, refer to the following steps for re-installing the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

1. Make sure the system is depressurized and drained completely before attempting to disassemble any couplings.
2. Follow steps 2 – 3 on page 70.

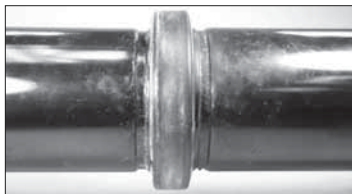


### 3. FOR RE-INSTALLATION OF STYLE 009H COUPLINGS, LUBRICATE GASKET:

Apply a thin coat of Victaulic lubricant or silicone lubricant to the gasket sealing lips and exterior. It is normal for the gasket surface to have a hazy white appearance after it has been in service.



4. **INSTALL GASKET:** Insert the grooved end of a pipe/mating component into the gasket until it contacts the center leg of the gasket.



### 5. JOIN PIPE/MATING COMPONENTS:

Align the two grooved ends of the pipe/mating components. Insert the other pipe/mating component end into the gasket until it contacts the center leg of the gasket. **NOTE:** Make sure no portion of the

gasket extends into the groove of either pipe/mating component.



6. **TO FACILITATE RE-ASSEMBLY:** One bolt can be inserted into the housings with the nut threaded loosely onto the bolt to allow for the “swing-over” feature, as shown above. **NOTE:** The nut should be backed off no further than flush with the end of the bolt.



7. **INSTALL HOUSINGS:** Install the housings over the gasket. Make sure the housings' keys engage the grooves properly on both pipes/mating components.



8. **INSTALL REMAINING BOLT/NUT:** Install the remaining bolt, and thread the nut finger-tight onto the bolt. **NOTE:** Make sure the oval neck of each bolt seats properly in the bolt hole.

9. **TIGHTEN NUTS:** Follow steps 5 and 6 on the previous page to complete the assembly.

**! WARNING**



- Read and understand all instructions before attempting to install any Victaulic piping products.
  - Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.
  - Wear safety glasses, hardhat, and foot protection.
- Failure to follow these instructions could result in serious personal injury, improper product installation, and/or property damage.

### Instructions for the Initial Installation of Style 107H Couplings



**1. DO NOT DISASSEMBLE THE COUPLING:** Style 107H Couplings are installation ready. The coupling is designed so that the installer does not need to remove the bolts and nuts for installation. This design facilitates installation by allowing the installer to directly install the grooved end of pipe/mating components into the coupling.

**2. CHECK PIPE/MATING COMPONENT ENDS:** The outside surface of the pipe/mating component, between the groove and the pipe/mating component end, must be smooth and free from indentations, projections (including weld seams), and roll marks to ensure a leak-tight seal. All oil, grease, loose paint, dirt, and cutting particles must be removed. Measurements taken across grooved pipe/mating component ends must not exceed the maximum allowable flare diameter. Refer to current Victaulic grooving specifications for the maximum allowable flare diameter.



**3. CHECK GASKET:** Check the gasket to make sure it is suitable for the intended service. The color code identifies the gasket grade. Refer to the “Gasket Selection” section of this manual for the color code chart.

**! WARNING**

- Always use a compatible lubricant to prevent the gasket from pinching or tearing during installation.
- Failure to follow this instruction could result in joint leakage.



**4. LUBRICATE GASKET:** Apply a thin coat of Victaulic Lubricant or silicone lubricant only to the sealing lips of the gasket interior. **NOTE:** The gasket exterior is supplied with a factory-applied lubricant, so there is no need to remove the gasket from the housings to apply additional lubricant to the exterior surface.



**5. ASSEMBLE JOINT:** Assemble the joint by inserting the grooved end of a pipe/mating component into each opening of the coupling. The ends of the grooved pipe/mating components must 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 grooves in the pipe/mating components. **NOTE:** The coupling may be rotated to ensure the gasket is seated properly.

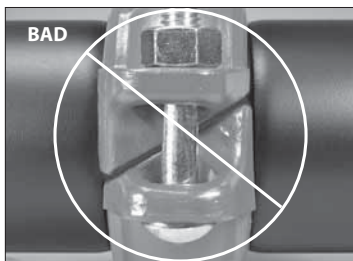
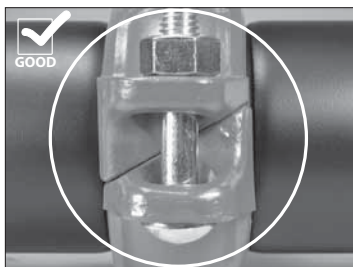
**NOTE:** When assembling Style 107H Couplings onto end caps, take additional care to ensure the end cap is seated fully against the center leg of the gasket. DO NOT use non-Victaulic fittings with Style 107H Couplings. Use only Victaulic No. 60 end caps containing the “QV” or “QV/EZ” markings on the inside face. Victaulic No. 460-SS stainless steel end caps shall not be used with Style 107H Couplings. No. 460-SS end caps must be used only with Style 89 Rigid Couplings for stainless steel pipe.

|  <b>WARNING</b>                                                                                                                                                                                                                                                                                                                                                                         |                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                         |  |
| <ul style="list-style-type: none"> <li>• Never leave a Style 107H Coupling partially assembled. A partially assembled Style 107H Coupling poses a drop hazard.</li> <li>• Keep hands away from the pipe/mating component ends and the openings of the coupling when attempting to insert the grooved end of pipe/mating components into the coupling.</li> </ul> <p>Failure to follow these instructions could cause serious personal injury and/or property damage.</p> |                                                                                   |

|  <b>WARNING</b>                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• For Victaulic rigid, angle-bolt-pad couplings, the nuts must be tightened evenly by alternating sides until metal-to-metal contact occurs at the bolt pads.</li> <li>• For Victaulic rigid, angle-bolt-pad couplings, equal offsets must be present at the bolt pads.</li> <li>• Keep hands away from coupling openings during tightening.</li> </ul> <p>Failure to follow these instructions could cause joint failure, serious personal injury, and property damage.</p> |



**6. TIGHTEN NUTS:** Tighten the nuts evenly by alternating sides until metal-to-metal contact occurs at the angle bolt pads. Make sure the housings' keys completely engage the grooves and the offsets are equal at the bolt pads. To ensure a rigid joint, equal and positive offsets are preferred. **NOTE:** It is important to tighten the nuts evenly to prevent gasket pinching. An impact wrench or standard socket wrench can be used to bring the bolt pads into metal-to-metal contact. Refer to the "Impact Wrench Usage Guidelines" section.

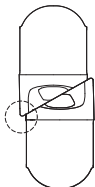


**7.** Visually inspect the bolt pads at each joint to ensure metal-to-metal contact is achieved.

## NOTICE

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

### ✓ GOOD

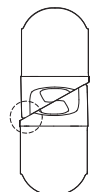


**PROPERLY  
ASSEMBLED JOINT  
POSITIVE OFFSET  
WITH BOLT PAD  
CONTACT**



**PROPERLY  
ASSEMBLED JOINT  
NEUTRAL OFFSET  
WITH BOLT PAD  
CONTACT**

### ✗ BAD



**IMPROPERLY  
ASSEMBLED JOINT  
NEGATIVE  
OFFSET**



**IMPROPERLY  
ASSEMBLED JOINT  
BOLT PAD  
GAP**

- "Negative" bolt pad offsets can occur when the nuts are not tightened evenly, which produces over-tightening of one side and under-tightening of the other side. In addition, "negative" offsets can occur if both nuts are under-tightened.

## Style 107H Helpful Information

| Size                         |                                              | Nut Size          | Socket Size   |
|------------------------------|----------------------------------------------|-------------------|---------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside Diameter<br>inches/mm | inches/<br>Metric | inches/<br>mm |
| 2 - 2½                       | 2.375 - 2.875<br>60.3 - 73.0                 | ¾<br>M10          | 1¼<br>17      |
| 76.1 mm                      | 3.000<br>76.1                                | ¾<br>M10          | 1¼<br>17      |
| 3 - 5                        | 3.500 - 5.563<br>88.9 - 141.3                | ½<br>M12          | ¾<br>22       |
| 139.7 mm                     | 5.500<br>139.7                               | ½<br>M12          | ¾<br>22       |
| 165.1 mm                     | 6.500<br>165.1                               | ¾<br>M16          | 1 ¼<br>27     |
| 6 - 8                        | 6.625 - 8.625<br>168.3 - 219.1               | ¾<br>M16          | 1 ¼<br>27     |

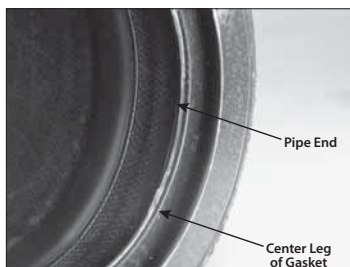
### Instructions for Re-Installation of Style 107H Couplings

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

1. Make sure the system is depressurized and drained completely before attempting to disassemble any couplings.
2. Follow steps 2 – 3 on page 74.



3. **LUBRICATE GASKET:** Apply a thin coat of Victaulic Lubricant or silicone lubricant to the gasket sealing lips and exterior. It is normal for the gasket surface to have a hazy white appearance after it has been in service. **NOTE: HOUSINGS AND GASKETS FOR 107H COUPLINGS ARE NOT INTERCHANGEABLE WITH HOUSINGS AND GASKETS FOR 107 COUPLINGS.**



4. **INSTALL GASKET:** Insert the grooved end of a pipe/mating component into the gasket until it contacts the center leg of the gasket.



5. **JOIN PIPE/MATING COMPONENTS:** Align the two grooved ends of the pipe/mating components. Insert the other pipe/mating component end into the gasket until it contacts the center leg of the gasket. **NOTE:** Make sure no portion of the gasket extends into the groove of either pipe/mating component.



**6. TO FACILITATE RE-ASSEMBLY:** One bolt can be inserted into the housings with the nut threaded loosely onto the bolt to allow for the “swing-over” feature, as shown above. **NOTE:** The nut should be backed off no further than flush with the end of the bolt.

**8. INSTALL REMAINING BOLT/NUT:** Install the remaining bolt, and thread the nut finger-tight onto the bolt. **NOTE:** Make sure the oval neck of each bolt seats properly in the bolt hole.

**9. TIGHTEN NUTS:** Follow steps 6 and 7 on page 76 to complete the assembly.



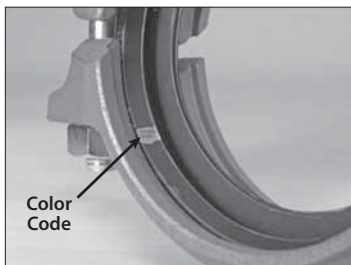
**7. INSTALL HOUSINGS:** Install the housings over the gasket. Make sure the housings' keys engage the grooves properly on both pipes/mating components.

**! WARNING**



- Read and understand all instructions before attempting to install any Victaulic piping products.
  - Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.
  - Wear safety glasses, hardhat, and foot protection.
- Failure to follow these instructions could result in serious personal injury, improper product installation, and/or property damage.

### Instructions for the Initial Installation of Style 177 Couplings



**1. DO NOT DISASSEMBLE THE COUPLING:** Style 177 Couplings are installation ready. The coupling is designed so that the installer does not need to remove the bolts and nuts for installation. This design facilitates installation by allowing the installer to directly install the grooved end of pipe/mating components into the coupling.

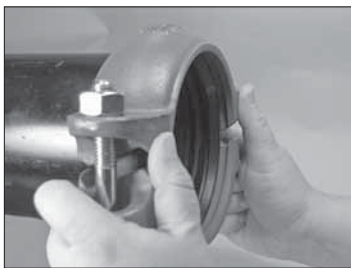
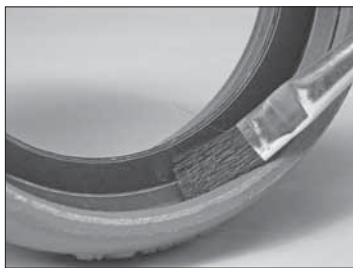
**2. CHECK PIPE/MATING COMPONENT ENDS:** The outside surface of the pipe/mating component, between the groove and the pipe/mating component end, must be smooth and free from indentations, projections (including weld seams), and roll marks to ensure a leak-tight seal. All oil, grease, loose paint, dirt, and cutting particles must be removed. Measurements taken across grooved pipe/mating component ends must not exceed the maximum allowable flare diameter. Refer to current Victaulic grooving specifications for the maximum allowable flare diameter.

**3. CHECK GASKET:** Check the gasket to make sure it is suitable for the intended service. The color code identifies the gasket grade. Refer to the “Gasket Selection” section of this manual for the color code chart.

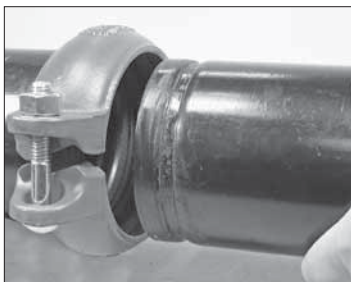
**! WARNING**

- Always use a compatible lubricant to prevent the gasket from pinching or tearing during installation.

Failure to follow this instruction could result in joint leakage.



**4. LUBRICATE GASKET:** Apply a thin coat of Victaulic Lubricant or silicone lubricant only to the sealing lips of the gasket interior. **NOTE:** The gasket exterior is supplied with a factory-applied lubricant, so there is no need to remove the gasket from the housings to apply additional lubricant to the exterior surface.



### ! WARNING



- **Never leave a Style 177 Coupling partially assembled. A partially assembled Style 177 Coupling poses a drop hazard.**
- **Keep hands away from the pipe/mating component ends and the openings of the coupling when attempting to insert the grooved end of pipe/mating components into the coupling.**

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

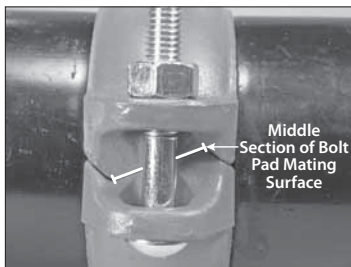
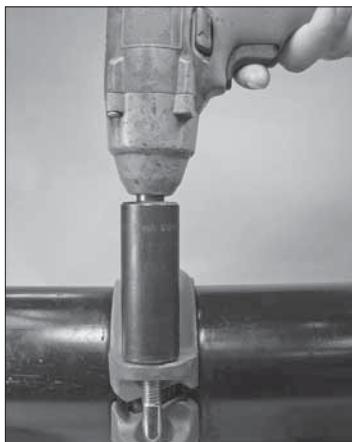
**5. ASSEMBLE JOINT:** Assemble the joint by inserting the grooved end of a pipe/mating component into each opening of the coupling. The ends of the grooved pipe/mating components must be inserted into the coupling until contact with the center leg of the gasket occurs. A visual check is required to ensure the coupling keys align with the grooves in the pipe/mating components. **NOTE:** The coupling may be rotated to ensure the gasket is seated properly.

**NOTE:** When assembling Style 177 Couplings onto end caps, take additional care to ensure the end cap is seated fully against the center leg of the gasket. **DO NOT** use non-Victaulic fittings with Style 177 Couplings.

### ! WARNING

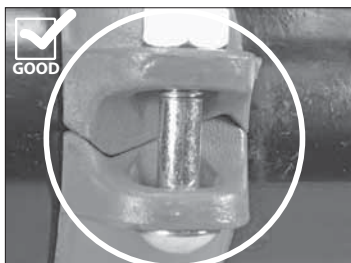
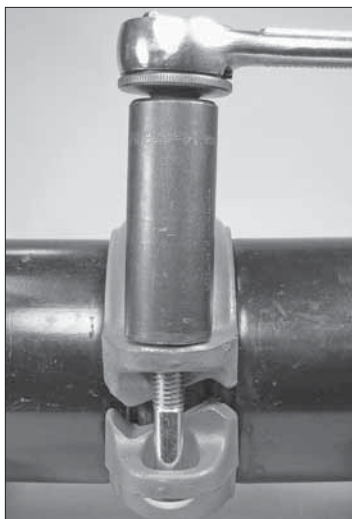
- **Victaulic QuickVic Flexible Couplings contain a centering feature at the bolt pads. It is important to tighten the nuts evenly by alternating sides until metal-to-metal contact occurs at the bolt pads. The middle section of the bolt pad mating surface must be in full metal-to-metal contact to ensure a flexible joint.**
- **Keep hands away from coupling openings during tightening.**

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

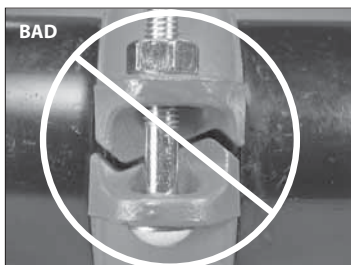


**NOTE:** It is possible to bring the outside sections of the bolt pads into metal-to-metal contact without having metal-to-metal contact at the middle section of the bolt pad mating surfaces. Even tightening of the nuts is required to bring the entire bolt pad sections into metal-to-metal contact. Refer to the graphics on the following page for details.

In addition, it is important to tighten the nuts evenly by alternating sides to prevent gasket pinching. An impact wrench or standard socket wrench can be used to bring the bolt pads into metal-to-metal contact. Refer to the “Impact Wrench Usage Guidelines” section.



**6. TIGHTEN NUTS:** Tighten the nuts evenly by alternating sides until metal-to-metal contact occurs at the bolt pads. The middle section of the bolt pad mating surfaces must be in full metal-to-metal contact to ensure a properly assembled joint. Make sure the housings’ keys engage the grooves completely during tightening.

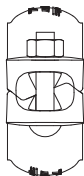


**7.** Visually inspect the bolt pads at each joint to ensure metal-to-metal contact is achieved across the entire bolt pad section.

## NOTICE

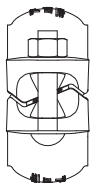
Visual inspection of each joint is critical. Improperly assembled joints must be corrected before the system is placed in service.

### ✓ GOOD

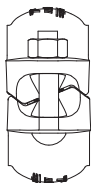


PROPERLY  
ASSEMBLED JOINT  
FULL BOLT PAD CONTACT

### ✗ BAD



IMPROPERLY  
ASSEMBLED JOINT  
FULL BOLT PAD  
GAP



IMPROPERLY  
ASSEMBLED JOINT  
BOLT PAD  
GAP IN MIDDLE  
SECTION

## Style 177 Helpful Information

| Size                      |                                              | Nut Size          | Socket Size   |
|---------------------------|----------------------------------------------|-------------------|---------------|
| Nominal Size<br>inches/mm | Actual Pipe<br>Outside Diameter<br>inches/mm | inches/<br>Metric | inches/<br>mm |
| 2 – 2½                    | 2.375 – 2.875<br>60.3 – 73.0                 | ¾<br>M10          | 1¼<br>17      |
| 76.1 mm                   | 3.000<br>76.1                                | ¾<br>M10          | 1¼<br>17      |
| 3 – 5                     | 3.500 – 5.563<br>88.9 – 141.3                | ½<br>M12          | ¾<br>22       |
| 139.7 mm                  | 5.500<br>139.7                               | ½<br>M12          | ¾<br>22       |
| 6 – 8                     | 6.625 – 8.625<br>168.3 – 219.1               | ¾<br>M16          | 1½<br>27      |

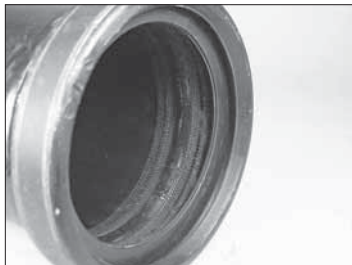
## Instructions for Re-Installation of Style 177 Couplings

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

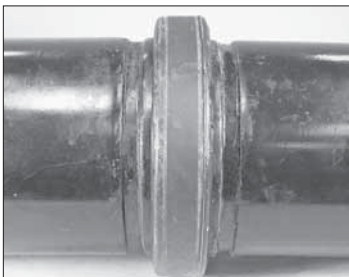
1. Make sure the system is depressurized and drained completely before attempting to disassemble any couplings.
2. Follow steps 2 – 3 on page 79.



3. **LUBRICATE GASKET:** Apply a thin coat of Victaulic Lubricant or silicone lubricant to the gasket sealing lips and exterior. It is normal for the gasket surface to have a hazy white appearance after it has been in service.



4. **INSTALL GASKET:** Insert the grooved end of a pipe/mating component into the gasket until it contacts the center leg of the gasket.



### 5. JOIN PIPE/MATING COMPONENTS:

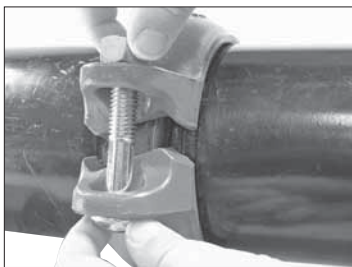
Align the two grooved ends of the pipe/mating components. Insert the other pipe/mating component end into the gasket until it contacts the center leg of the gasket. **NOTE:** Make sure no portion of the gasket extends into the groove of either pipe/mating component.



6. **TO FACILITATE RE-ASSEMBLY:** One bolt can be inserted into the housings with the nut threaded loosely onto the bolt to allow for the "swing-over" feature, as shown above. **NOTE:** The nut should be backed off no further than flush with the end of the bolt.



7. **INSTALL HOUSINGS:** Install the housings over the gasket. Make sure the housings' keys engage the grooves properly on both pipes/mating components.



**8. INSTALL REMAINING BOLT/NUT:**

Install the remaining bolt, and thread the nut finger-tight onto the bolt. **NOTE:** Make sure the oval neck of each bolt seats properly in the bolt hole.

**9. TIGHTEN NUTS:** Follow steps 6 and 7 of the “Instructions for the Initial Installation of Style 177 Couplings” section to complete the assembly.

# Standard Couplings for Grooved-End Pipe

## Installation Instructions



Style 005 FireLock Rigid Coupling



Style 07 Zero-Flex Rigid Coupling



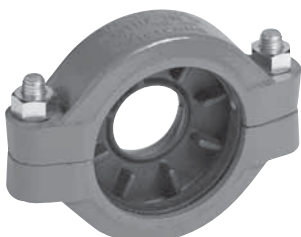
Style 75 Flexible Coupling



Style 77 Standard Flexible Coupling



Style 89 Rigid Coupling for  
Stainless Steel Pipe



Style 750 Reducing Coupling

**NOTE:** More coupling styles are featured in this section

# PREPARATORY STEPS FOR COUPLING INSTALLATION

## WARNING



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

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



**1. CHECK PIPE ENDS:** The outside surface of the pipe, between the groove and the pipe end, must be smooth and free from indentations, projections (including weld seams), and roll marks to ensure a leak-tight seal. All oil, grease, loose paint, dirt, and cutting particles must be removed.



**2. CHECK GASKET AND LUBRICATE:** Check the gasket to make sure it is suitable for the intended service. Apply a thin coat of Victaulic Lubricant or silicone lubricant to the gasket sealing lips and exterior.

## CAUTION

- Always use a compatible lubricant to prevent the gasket from pinching/tearing during installation. Failure to follow this instruction could result in joint leakage.

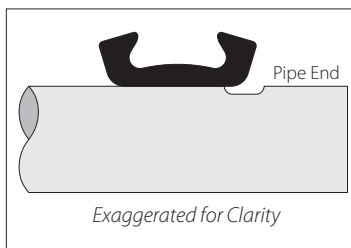
## NOTICE

### For FireLock Products Only:

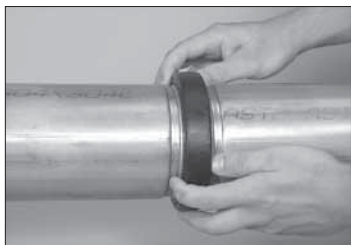
- Some Victaulic FireLock products may be provided with the Vic-Plus™ gasket system. If the coupling is provided with the Vic-Plus gasket system, additional lubrication is not required for the initial installation of wet pipe systems that are installed at or continuously operating above 0° F/-18° C.
- REFER TO THE “LUBRICATION” SECTION AND THE “DRY PIPE FIRE PROTECTION SYSTEMS NOTE” SECTION FOR ADDITIONAL INFORMATION.



**3. POSITION GASKET:** Position the gasket over the pipe end. Make sure the gasket does not overhang the pipe end.



**3a. For larger size (non-AGS) couplings (14-inch/355.6-mm and larger):** It may be easier to turn the gasket inside out, then slide it over the pipe end. Make sure the gasket does not overhang the pipe end.



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



**4a. If the gasket was turned inside out in step 3a for larger size (non-AGS) couplings:** Roll the gasket into position and center it between the groove in each pipe end. Make sure no portion of the gasket extends into the groove in either pipe end.

**Style 005** - FireLock® Rigid Coupling

**Style 07** - Zero-Flex® Rigid Coupling (12-inch/323.9-mm and Smaller Sizes)

**Style 489** - Rigid Stainless Steel Coupling for Stainless Steel Pipe (4-inch/114.3-mm and Smaller Sizes)

## ⚠ WARNING



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

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

## NOTICE

- The following installation steps feature photos of a Style 005 Coupling. However, the same installation steps apply to Style 489 Rigid Stainless Steel Couplings and Style 07 Zero-Flex Rigid Couplings in the size ranges listed above.

1. Follow steps 1 – 4 of the “Preparatory Steps for Coupling Installation” section.



2. **ASSEMBLE HOUSINGS:** Insert one bolt into the housings, and thread the nut loosely onto the bolt to allow for the “swing-over” feature, as shown above.

**NOTE:** The nut should be backed off no further than flush with the end of the bolt.



## CAUTION

- Make sure the gasket does not become rolled or pinched while installing the housings.

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



3. **INSTALL HOUSINGS:** Using the “swing-over” feature, install the housings over the gasket. Make sure the housings’ keys engage the grooves completely on both pipe ends.

## NOTICE

**For Style 489 Couplings Supplied with Stainless Steel Bolts and Nuts:**

- Apply an anti-seize compound to the bolt threads before tightening the nuts.

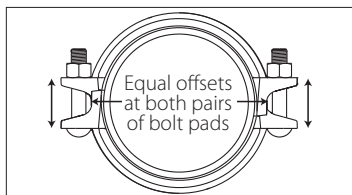
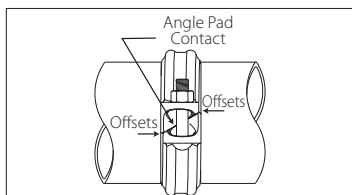




#### 4. INSTALL REMAINING BOLT/

**NUT:** Install the remaining bolt, and thread the nut finger-tight onto the bolt.

**NOTE:** Make sure the oval neck of each bolt seats properly in the bolt hole.



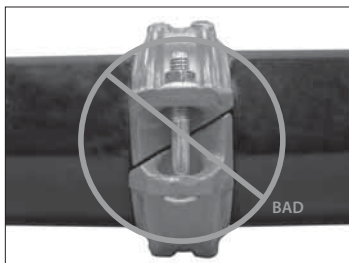
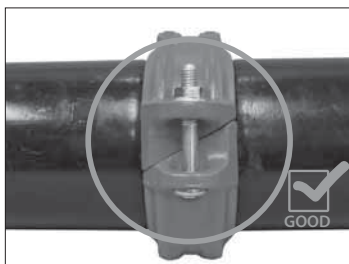
*Exaggerated for clarity*

**5. TIGHTEN NUTS:** Tighten all nuts evenly by alternating sides until metal-to-metal contact occurs at the angle bolt pads. Make sure the housings' keys engage the grooves completely on both pipe ends and that the offsets are equal at the bolt pads. Equal, positive offsets are necessary to ensure a rigid joint (refer to the example above). **NOTE:** It is important to tighten all nuts evenly to prevent gasket pinching.

## ⚠ WARNING

- For Victaulic rigid, angle-bolt-pad couplings, the nuts must be tightened evenly by alternating sides until metal-to-metal contact occurs at the bolt pads.
- For Victaulic rigid, angle-bolt-pad couplings, equal offsets must be present at the bolt pads.
- Keep hands away from coupling openings during tightening.

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



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

#### 6a. FOR STYLE 489 COUPLINGS

**ONLY:** The Style 489 coupling assembly has a torque requirement (refer to the table below).

#### Style 489 Torque Requirements

| Size                         |                                                 | Torque Requirements |
|------------------------------|-------------------------------------------------|---------------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | ft-lbs<br>N•m       |
| 1½ – 2½                      | 1,900 – 2,875<br>48.3 – 73.0                    | 18<br>25            |
| 76.1 mm                      | 3,000<br>76.1                                   | 18<br>25            |
| 3 – 4                        | 3,500 – 4,500<br>88.9 – 114.3                   | 45<br>61            |

Style 005, 07, and 489 Helpful Information

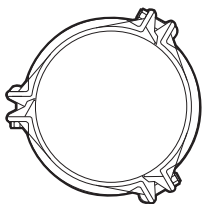
| Size                      |                                         | Style 005               |                        | Style 07                |                        | Style 489               |                        |
|---------------------------|-----------------------------------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|
| Nominal Size inches or mm | Actual Pipe Outside Diameter inches/ mm | Nut Size inches/ Metric | Socket Size inches/ mm | Nut Size inches/ Metric | Socket Size inches/ mm | Nut Size inches/ Metric | Socket Size inches/ mm |
| 1                         | 1.315<br>33.7                           | —                       | —                      | $\frac{3}{8}$<br>M10    | $1\frac{1}{16}$<br>17  | —                       | —                      |
| 1 ¼                       | 1.660<br>42.4                           | $\frac{3}{8}$<br>M10    | $\frac{9}{16}$<br>15   | $\frac{3}{8}$<br>M10    | $1\frac{1}{16}$<br>17  | —                       | —                      |
| 1 ½                       | 1.900<br>48.3                           | $\frac{3}{8}$<br>M10    | $\frac{9}{16}$<br>15   | $\frac{3}{8}$<br>M10    | $1\frac{1}{16}$<br>17  | $\frac{3}{8}$<br>M10    | $\frac{1}{16}$<br>17   |
| 2                         | 2.375<br>60.3                           | $\frac{3}{8}$<br>M10    | $\frac{9}{16}$<br>15   | $\frac{1}{2}$<br>M12    | $\frac{7}{8}$<br>22    | $\frac{3}{8}$<br>M10    | $\frac{1}{16}$<br>17   |
| 2 ½                       | 2.875<br>73.0                           | $\frac{3}{8}$<br>M10    | $\frac{9}{16}$<br>15   | $\frac{1}{2}$<br>M12    | $\frac{7}{8}$<br>22    | $\frac{3}{8}$<br>M10    | $\frac{1}{16}$<br>17   |
| 76.1 mm                   | 3.000<br>76.1                           | $\frac{3}{8}$<br>M10    | $\frac{9}{16}$<br>15   | $\frac{1}{2}$<br>M12    | $\frac{7}{8}$<br>22    | $\frac{3}{8}$<br>M10    | $\frac{1}{16}$<br>17   |
| 3                         | 3.500<br>88.9                           | $\frac{3}{8}$<br>M10    | $\frac{9}{16}$<br>15   | $\frac{1}{2}$<br>M12    | $\frac{7}{8}$<br>22    | $\frac{1}{2}$<br>M12    | $\frac{7}{8}$<br>22    |
| 3 ½                       | 4.000<br>101.6                          | —                       | —                      | $\frac{1}{2}$<br>M12    | $\frac{7}{8}$<br>22    | —                       | —                      |
| 4                         | 4.500<br>114.3                          | $\frac{3}{8}$<br>M10    | $\frac{9}{16}$<br>15   | $\frac{1}{2}$<br>M12    | $\frac{7}{8}$<br>22    | $\frac{1}{2}$<br>M12    | $\frac{7}{8}$<br>22    |
| 108.0 mm                  | 4.250<br>108.0                          | $\frac{3}{8}$<br>M10    | $\frac{9}{16}$<br>15   | $\frac{1}{2}$<br>M12    | $\frac{7}{8}$<br>22    | —                       | —                      |
| 5                         | 5.563<br>141.3                          | $\frac{1}{2}$<br>M12    | $\frac{3}{4}$<br>18    | $\frac{5}{8}$<br>M16    | $1\frac{1}{16}$<br>27  | —                       | —                      |
| 133.0 mm                  | 5.250<br>133.0                          | $\frac{1}{2}$<br>M12    | $\frac{3}{4}$<br>18    | $\frac{5}{8}$<br>M16    | $1\frac{1}{16}$<br>27  | —                       | —                      |
| 139.7 mm                  | 5.500<br>139.7                          | $\frac{1}{2}$<br>M12    | $\frac{3}{4}$<br>18    | $\frac{5}{8}$<br>M16    | $1\frac{1}{16}$<br>27  | —                       | —                      |
| 6                         | 6.625<br>168.3                          | $\frac{1}{2}$<br>M12    | $\frac{3}{4}$<br>18    | $\frac{5}{8}$<br>M16    | $1\frac{1}{16}$<br>27  | —                       | —                      |
| 159.0 mm                  | 6.250<br>159.0                          | $\frac{1}{2}$<br>M12    | $\frac{3}{4}$<br>18    | $\frac{5}{8}$<br>M16    | $1\frac{1}{16}$<br>27  | —                       | —                      |
| 165.1 mm                  | 6.500<br>165.1                          | $\frac{1}{2}$<br>M12    | $\frac{3}{4}$<br>18    | $\frac{5}{8}$<br>M16    | $1\frac{1}{16}$<br>27  | —                       | —                      |
| 8                         | 8.625<br>219.1                          | $\frac{3}{4}$<br>M20    | $1\frac{1}{4}$<br>32   | $\frac{3}{4}$<br>M20    | $1\frac{1}{4}$<br>32   | —                       | —                      |
| 8 (005H)                  | 8.625<br>219.1                          | $\frac{5}{8}$<br>M16    | $1\frac{5}{16}$<br>24  | —                       | —                      | —                       | —                      |
| 10                        | 10.750<br>273.0                         | —                       | —                      | $\frac{7}{8}$<br>M22    | $1\frac{7}{16}$<br>36  | —                       | —                      |
| 12                        | 12.750<br>323.9                         | —                       | —                      | $\frac{7}{8}$<br>M22    | $1\frac{7}{16}$<br>36  | —                       | —                      |
| 200A (JIS)                | —<br>216.3                              | $\frac{5}{8}$<br>M16    | $1\frac{5}{16}$<br>24  | $\frac{3}{4}$<br>M20    | $1\frac{1}{4}$<br>32   | —                       | —                      |
| 250A (JIS)                | —<br>267.4                              | —                       | —                      | $\frac{7}{8}$<br>M22    | $1\frac{7}{16}$<br>36  | —                       | —                      |
| 300A (JIS)                | —<br>318.5                              | —                       | —                      | $\frac{7}{8}$<br>M22    | $1\frac{7}{16}$<br>36  | —                       | —                      |



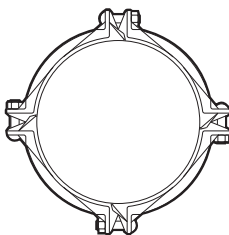
**Style 07 (Non-AGS) - Zero-Flex Rigid Coupling (14-inch/355.6-mm and Larger Sizes)**

|  <b>WARNING</b>                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |  |
| <ul style="list-style-type: none"><li>• Read and understand all instructions before attempting to install any Victaulic piping products.</li><li>• Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.</li><li>• Wear safety glasses, hardhat, and foot protection.</li></ul> <p>Failure to follow these instructions could result in serious personal injury, improper product installation, and/or property damage.</p> |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

Style 07 Couplings in 14-inch/355.6-mm and larger sizes are cast, as shown below, to ease handling.



Typical 14 – 18-inch/  
355.6 – 457-mm Sizes



Typical 20 – 24-inch/  
508 – 610-mm Sizes

1. Follow steps 1 – 4 of the “Preparatory Steps for Coupling Installation” section.



**2. ASSEMBLE SEGMENTS:**

Assemble the segments loosely (nuts should be flush with ends of bolts), leaving one bolt and nut off to allow for the “swing-over” feature, or assemble the segments loosely into two equal halves (whichever permits easier handling).



**3. INSTALL HOUSINGS:** Using the “swing-over” feature, install the housings over the gasket. Make sure the housings’ keys engage the grooves completely on both pipe ends.



## CAUTION

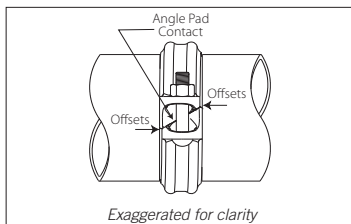
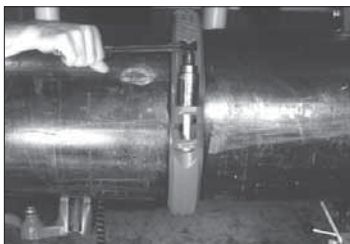
- **Make sure the gasket does not become rolled or pinched while installing the housings.**
- Failure to follow this instruction could cause damage to the gasket, resulting in joint leakage.**



### 4. INSTALL REMAINING BOLT/

**NUT:** While supporting the weight of the assembly, install the remaining bolt, and thread the nut finger-tight onto the bolt.

**NOTE:** Make sure the oval neck of each bolt seats properly in the bolt hole.



**5. TIGHTEN NUTS:** Tighten all nuts evenly by alternating bolt pads until metal-to-metal contact occurs at the angle bolt pads. Make sure the housings' keys engage the grooves completely on both pipe ends and that the offsets are equal at the bolt pads. Equal, positive offsets are necessary to ensure a rigid joint (refer to the example above). **NOTE:** It is important to tighten all nuts evenly to prevent gasket pinching.

**5a. APPLY TORQUE:** Apply torque to each nut with a torque wrench. Refer to the following table for the torque requirement. **NOTE:** If the required torque is achieved before metal-to-metal contact occurs at the angle bolt pads, check the assembly by referring to the requirements in the "Installation Inspection" section.

**6.** Inspect the bolt pads of each coupling to ensure proper assembly is achieved.

### Style 07 Torque Requirements

| Size                |                                        | Torque Requirements |
|---------------------|----------------------------------------|---------------------|
| Nominal Size inches | Actual Pipe Outside Diameter inches/mm | ft-lbs<br>N•m       |
| 14 – 18             | 14.000 – 18.000                        | 250                 |
|                     | 355.6 – 457                            | 339                 |
| 20 – 24             | 20.000 – 24.000                        | 300                 |
|                     | 508 – 610                              | 407                 |



## WARNING

- **For Victaulic Style 07 Couplings in 14-inch/355.6-mm and larger sizes, the nuts must be tightened evenly by alternating sides until metal-to-metal contact occurs at the bolt pads and the required torque value is achieved.**
- **For Victaulic rigid, angle-bolt-pad couplings, equal offsets must be present at the bolt pads.**
- **Keep hands away from coupling openings during tightening.**

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

### Style 07 Helpful Information

| Size                |                                        | Style 07               |                       |
|---------------------|----------------------------------------|------------------------|-----------------------|
| Nominal Size inches | Actual Pipe Outside Diameter inches/mm | Nut Size inches/Metric | Socket Size inches/mm |
| 14 – 18             | 14.000 – 18.000                        | 7/8                    | 1 1/16                |
|                     | 355.6 – 457                            | M22                    | 36                    |
| 20 – 24             | 20.000 – 24.000                        | 1                      | 1 5/8                 |
|                     | 508 – 610                              | M24                    | 41                    |

**Style HP-70** - Rigid Coupling (12-inch/323.9-mm and Smaller Sizes)

**Style 89** - Rigid Coupling for Stainless Steel Pipe

**Style 489** - Rigid Stainless Steel Coupling for Stainless Steel Pipe (139.7-mm and Larger Sizes)

**Style 489DX** - Rigid Stainless Steel Coupling for Duplex and Super Duplex Pipe



## WARNING



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

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

## NOTICE

- The following installation steps feature photos of a Style 89 Rigid Coupling for stainless steel pipe. However, the same installation steps apply to Styles HP-70, 489, and 489DX Couplings in the size ranges listed above.

**1. Follow steps 1 – 4 of the “Preparatory Steps for Coupling Installation” section.**

properly (tongue in recess). Make sure the housings’ keys engage the grooves completely on both pipe ends.

## NOTICE

**For Style HP-70 Couplings:**

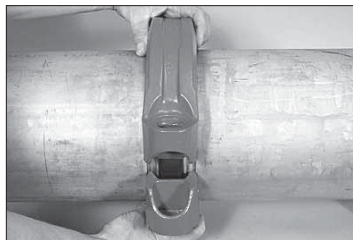
- Always verify the gasket style that is provided with the coupling. If the gasket is an EndSeal® design, the HP-70ES instructions on page 98 of this manual must be followed.



## CAUTION

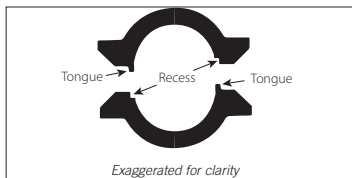
- Make sure the gasket does not become rolled or pinched while installing the housings.

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



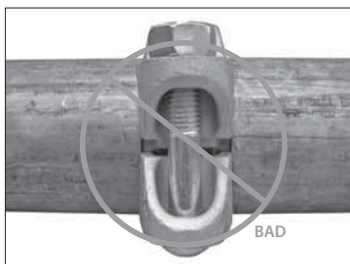
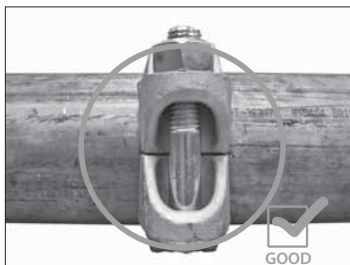
## NOTICE

**For Styles 489/489DX Couplings** supplied with stainless steel bolts and nuts, apply an anti-seize compound to the bolt threads before tightening the nuts.



**2. INSTALL HOUSINGS:** Install the housings over the gasket with the tongue and recess features mated

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



**4. TIGHTEN NUTS:** Tighten all nuts evenly by alternating sides. Make sure the housings' keys engage the grooves completely on both pipe ends. Apply torque to each nut with a torque wrench. Refer to the following table for the torque requirement. **NOTE:** It is important to tighten the nuts evenly to prevent gasket pinching.

### NOTICE

- For 6 – 12-inch/168.3 – 323.9-mm Style HP-70 Couplings, there is no torque requirement. However, the nuts must be tightened evenly by alternating sides until metal-to-metal contact occurs at the bolt pads.

**5.** Inspect the bolt pads at each joint to ensure proper assembly is achieved.

### ! WARNING

- The housings' tongue and recess features must be mated properly (tongue in recess).
  - For Victaulic Style HP-70, 89, 489, and 489DX Couplings, the nuts must be tightened to the required torque values, listed in these instructions, for proper assembly.
  - Keep hands away from coupling openings during tightening.
- Failure to follow these instructions could cause joint failure, serious personal injury, and property damage.

## Style HP-70, 89, 489, and 489DX Torque Requirements

| Size                         |                                           | Torque Requirements |                        |                        |                        |
|------------------------------|-------------------------------------------|---------------------|------------------------|------------------------|------------------------|
| Nominal Size<br>inches or mm | Actual Pipe Outside Diameter<br>inches/mm | Style HP-70         | Style 89               | Style 489              | Style 489DX            |
|                              |                                           | ft-lbs<br>N•m       | ft-lbs<br>N•m          | ft-lbs<br>N•m          | ft-lbs<br>N•m          |
| 2 – 3                        | 2.375 – 3.500<br>60.3 – 88.9              | 60 – 80<br>81 – 109 | 60 – 90<br>80 – 120    | —                      | 60 – 90<br>80 – 120    |
| 76.1 mm                      | 3.000<br>76.1                             | —                   | 60 – 90<br>80 – 120    | —                      | 60 – 90<br>80 – 120    |
| 4                            | 4.500<br>114.3                            | 60 – 80<br>81 – 109 | 85 – 125<br>115 – 170  | —                      | 85 – 125<br>115 – 170  |
| 139.7 mm                     | 5.500<br>139.7                            | —                   | 175 – 250<br>240 – 340 | 75 – 100<br>100 – 137  | 75 – 100<br>100 – 135  |
| 5                            | 5.563<br>141.3                            | —                   | 175 – 250<br>240 – 340 | 85 – 125<br>115 – 170  | —                      |
| 165.1 mm                     | 6.500<br>165.1                            | —                   | 175 – 250<br>240 – 340 | 125 – 200<br>170 – 275 | 125 – 200<br>170 – 275 |
| 6                            | 6.625<br>168.3                            | †                   | 175 – 250<br>240 – 340 | 125 – 200<br>170 – 275 | 125 – 200<br>170 – 275 |
| 216.3 mm                     | 8.515<br>216.3                            | —                   | 200 – 300<br>275 – 400 | 200 – 300<br>275 – 400 | —                      |
| 8                            | 8.625<br>219.1                            | †                   | 200 – 300<br>275 – 400 | 200 – 300<br>275 – 400 | 200 – 300<br>275 – 400 |
| 267.4 – 318.5 mm             | 10.528 – 12.539<br>267.4 – 318.5          | —                   | 250 – 350<br>340 – 475 | 200 – 300<br>275 – 400 | —                      |
| 10 – 12                      | 10.750 – 12.750<br>273.0 – 323.9          | †                   | 250 – 350<br>340 – 475 | 200 – 300<br>275 – 400 | 200 – 300<br>275 – 400 |

† For 6 – 12-inch/168.3 – 323.9-mm Style HP-70 Couplings, there is no torque requirement. However, the nuts must be tightened evenly by alternating sides until metal-to-metal contact occurs at the bolt pads. **NOTE:** It is important to tighten all nuts evenly to prevent gasket pinching.

## Style HP-70, 89, 489, and 489DX Helpful Information

| Size                         |                                           | Style HP-70                   |                              | Style 89                      |                              | Style 489                     |                              | Style 489DX                   |                              |
|------------------------------|-------------------------------------------|-------------------------------|------------------------------|-------------------------------|------------------------------|-------------------------------|------------------------------|-------------------------------|------------------------------|
| Nominal Size<br>inches or mm | Actual Pipe Outside Diameter<br>inches/mm | Nut Size<br>inches/<br>Metric | Socket Size<br>inches/<br>mm | Nut Size<br>inches/<br>Metric | Socket Size<br>inches/<br>mm | Nut Size<br>inches/<br>Metric | Socket Size<br>inches/<br>mm | Nut Size<br>inches/<br>Metric | Socket Size<br>inches/<br>mm |
| 2 – 3                        | 2.375 – 3.500<br>60.3 – 88.9              | 5/8<br>M16                    | 1 1/16<br>27                 | 5/8<br>M16                    | 1 1/16<br>27                 | —                             | —                            | 5/8<br>M16                    | 1 1/16<br>27                 |
| 76.1 mm                      | 3.000<br>76.1                             | —                             | —                            | 5/8<br>M16                    | 1 1/16<br>27                 | —                             | —                            | 5/8<br>M16                    | 1 1/16<br>27                 |
| 4                            | 4.500<br>114.3                            | 3/4<br>M20                    | 1 1/4<br>32                  | 3/4<br>M20                    | 1 1/4<br>32                  | —                             | —                            | 3/4<br>M20                    | 1 1/4<br>32                  |
| 139.7 mm                     | 5.500<br>139.7                            | —                             | —                            | 3/4<br>M20                    | 1 1/4<br>32                  | 3/4<br>M20                    | 1 1/4<br>32                  | 3/4<br>M20                    | 1 1/4<br>32                  |
| 5                            | 5.563<br>141.3                            | —                             | —                            | 3/4<br>M20                    | 1 1/4<br>32                  | 3/4<br>M20                    | 1 1/4<br>32                  | —                             | —                            |
| 165.1 mm                     | 6.500<br>165.1                            | —                             | —                            | 7/8<br>M22                    | 1 1/16<br>36                 | 7/8<br>M22                    | 1 1/16<br>36                 | 7/8<br>M22                    | 1 1/16<br>36                 |
| 6                            | 6.625<br>168.3                            | 7/8<br>M22                    | 1 1/16<br>36                 | 7/8<br>M22                    | 1 1/16<br>36                 | 7/8<br>M22                    | 1 1/16<br>36                 | 7/8<br>M22                    | 1 1/16<br>36                 |
| 216.3 mm                     | 8.515<br>216.3                            | —                             | —                            | 1<br>M24                      | 1 5/8<br>41                  | 1<br>M24                      | 1 5/8<br>41                  | —                             | —                            |
| 8                            | 8.625<br>219.1                            | 1<br>M24                      | 1 5/8<br>41                  | 1<br>M24                      | 1 5/8<br>41                  | 1<br>M24                      | 1 5/8<br>41                  | 1<br>M24                      | 1 5/8<br>41                  |
| 267.4 – 318.5 mm             | 10.528 – 12.539<br>267.4 – 318.5          | —                             | —                            | 1<br>M24                      | 1 5/8<br>41                  | 1<br>M24                      | 1 5/8<br>41                  | —                             | —                            |
| 10 – 12                      | 10.750 – 12.750<br>273.0 – 323.9          | 1<br>M24                      | 1 5/8<br>41                  | 1<br>M24                      | 1 5/8<br>41                  | 1<br>M24                      | 1 5/8<br>41                  | 1<br>M24                      | 1 5/8<br>41                  |

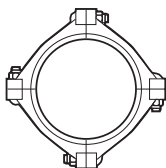
## Style HP-70 - Rigid Coupling (14-inch/355.6-mm and Larger Sizes)

### **WARNING**



- Read and understand all instructions before attempting to install any Victaulic piping products.
  - Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.
  - Wear safety glasses, hardhat, and foot protection.
- Failure to follow these instructions could result in serious personal injury, improper product installation, and/or property damage.

Style HP-70 Couplings in 14-inch/355.6-mm and larger sizes are cast, as shown below, to ease handling.



Typical 14 – 18-inch/  
355.6 – 457-mm Sizes

1. Follow steps 1 – 4 of the “Preparatory Steps for Coupling Installation” section.

### **NOTICE**

For Style HP-70 Couplings:

- Always verify the gasket style that is provided with the coupling. If the gasket is an EndSeal® design, the HP-70ES instructions on page 98 of this manual must be followed.

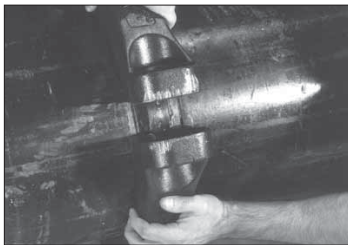


### **2. ASSEMBLE SEGMENTS:**

Assemble the segments loosely into two equal halves, as shown above. Allow clearance between the segments to ease assembly onto the pipe.

### **CAUTION**

- Make sure the gasket does not become rolled or pinched while installing the housings.
- Failure to follow this instruction could cause damage to the gasket, resulting in joint leakage.

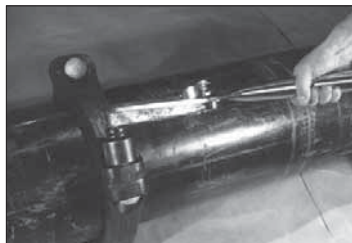


### **3. INSTALL FIRST SEGMENT**

**ASSEMBLY:** Install one of the pre-assembled halves over the gasket. Make sure the housings' keys engage the grooves completely on both pipe ends.

### 3a. INSTALL REMAINING

**SEGMENT ASSEMBLY:** Install the second assembly onto the pipe. Make sure the housings' keys engage the grooves completely on both pipe ends. While supporting the weight of the assembly, install the remaining bolts, and thread the nuts finger-tight onto the bolts. **NOTE:** Make sure the oval neck of each bolt seats properly in the bolt hole.



**4. TIGHTEN NUTS:** Tighten all nuts evenly by alternating sides until metal-to-metal contact occurs at the bolt pads. Make sure the housings' keys engage the grooves completely. **NOTE:** It is important to tighten all nuts evenly to prevent gasket pinching.

**4a. APPLY TORQUE:** Apply torque to each nut with a torque wrench. Refer to the following table for the torque requirement. Due to the high torque requirement, use of a geared torque multiplier is recommended.

**4b.** Inspect the bolt pads at each joint to ensure proper assembly is achieved.



## WARNING

- For proper assembly, the nuts must be tightened until metal-to-metal contact occurs at the bolt pads and the required torque values, listed in these instructions, are achieved.
- Keep hands away from coupling openings during tightening.

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

### Style HP-70 Torque Requirements

| Size                |                                        | Torque Requirements |
|---------------------|----------------------------------------|---------------------|
| Nominal Size inches | Actual Pipe Outside Diameter inches/mm | ft-lbs<br>N•m       |
| 14                  | 14.000<br>355.6                        | 600<br>814          |
| 16                  | 16.000<br>406.4                        | 700<br>949          |

### Style HP-70 Helpful Information

| Size                |                                        | Style HP-70                |                           |
|---------------------|----------------------------------------|----------------------------|---------------------------|
| Nominal Size inches | Actual Pipe Outside Diameter inches/mm | Nut Size inches/<br>Metric | Socket Size inches/<br>mm |
| 14 – 16             | 14.000 – 16.000<br>355.6 – 406.4       | 1 1/4<br>M30               | 2<br>50                   |

## ! WARNING

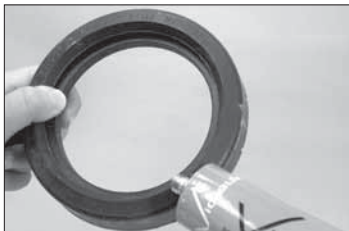


- Read and understand all instructions before attempting to install any Victaulic piping products.
  - Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.
  - Wear safety glasses, hardhat, and foot protection.
- Failure to follow these instructions could result in serious personal injury, improper product installation, and/or property damage.

## ! WARNING

- Style HP-70ES Couplings must be used **ONLY** with pipe and/or fittings that are grooved to Victaulic EndSeal® “ES” specifications.

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



## NOTICE

- Style HP-70ES Couplings must not be used with Victaulic Series 700 Butterfly Valves.



### 2. CHECK GASKET AND

**LUBRICATE:** Check the gasket to make sure it is suitable for the intended service. The Style HP-70ES gasket is molded with a center leg that fits between the pipe ends. Apply a thin coat of Victaulic Lubricant or silicone lubricant to the gasket sealing lips and exterior.

## ! CAUTION

- Always use a compatible lubricant to prevent the gasket from pinching/tearing during installation. Failure to follow this instruction could cause damage to the gasket, resulting in joint leakage.

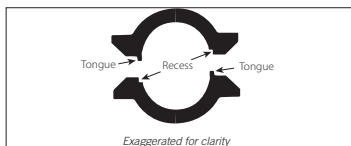


**1. CHECK PIPE ENDS:** The outside surface of the pipe, between the groove and the pipe end, must be smooth and free from indentations, projections (including weld seams), and roll marks to ensure a leak-tight seal. All oil, grease, loose paint, dirt, and cutting particles must be removed. **Pipe must be roll grooved or cut grooved in accordance with Victaulic EndSeal® grooving specifications listed in this manual.**

**3. INSTALL GASKET:** Insert the grooved pipe end into the gasket until it contacts the center leg of the gasket.



**4. JOIN PIPE ENDS:** Align and bring the two pipe ends together. Insert the other pipe end into the gasket until it contacts the center leg of the gasket. **NOTE:** Make sure no portion of the gasket extends into the groove of either pipe.



**5. INSTALL HOUSINGS:** Install the housings over the gasket with the tongue and recess features mated properly (tongue in recess). Make sure the housings' keys engage the grooves completely on both pipe ends.



## CAUTION

- Make sure the gasket does not become rolled or pinched while installing the housings.

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



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



**7. TIGHTEN NUTS:** Tighten the nuts evenly by alternating sides until metal-to-metal contact occurs at the bolt pads. Make sure the housings' keys engage the grooves completely. **NOTE:** It is important to tighten the nuts evenly to prevent gasket pinching.

**7a.** Visually inspect the bolt pads at each joint to ensure metal-to-metal contact is achieved.



## WARNING

- The housings' tongue and recess features must be mated properly (tongue in recess).
- For proper assembly, the nuts must be tightened until metal-to-metal contact occurs at the bolt pads.
- Keep hands away from coupling openings during tightening.

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

## Style HP-70ES Helpful Information

| Size                |                                        | Style HP-70ES          |                       |
|---------------------|----------------------------------------|------------------------|-----------------------|
| Nominal Size inches | Actual Pipe Outside Diameter inches/mm | Nut Size inches/Metric | Socket Size inches/mm |
| 2 - 3               | 2.375 - 3.500<br>60.3 - 88.9           | ¾<br>M16               | 1 ⅞<br>27             |
| 4                   | 4.500<br>114.3                         | ¾<br>M20               | 1 ¼<br>32             |
| 6                   | 6.625<br>168.3                         | ¾<br>M22               | 1 ⅞<br>36             |
| 8 - 12              | 8.625 - 12.750<br>219.1 - 323.9        | 1<br>M24               | 1 ⅞<br>41             |

### WARNING



- Read and understand all instructions before attempting to install any Victaulic piping products.
  - Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.
  - Wear safety glasses, hardhat, and foot protection.
- Failure to follow these instructions could result in serious personal injury, improper product installation, and/or property damage.

### NOTICE

- Style 72 Outlet Couplings are not recommended for vacuum services. In addition, Victaulic #60 End Caps must not be used with Style 72 Outlet Couplings in systems where vacuums may develop.
- The Style 72 gasket contains a plated “neck ring” to aid sealing. **DO NOT** remove this ring, since leakage may result.
- Style 72 Outlet Couplings are designed for use on straight runs of pipe. For installations onto fittings, contact Victaulic for information.

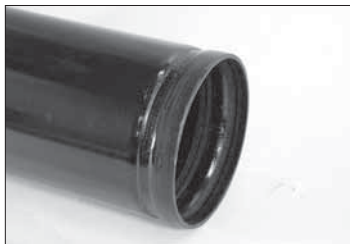


#### 2. CHECK GASKET AND LUBRICATE:

Check the gasket to make sure it is suitable for the intended service. Apply a thin coat of Victaulic Lubricant or silicone lubricant to the gasket sealing lips and exterior.

### CAUTION

- Always use a compatible lubricant to prevent the gasket from pinching/tearing during installation. Failure to follow this instruction could result in joint leakage.



**1. CHECK PIPE ENDS:** The outside surface of the pipe, between the groove and the pipe end, must be smooth and free from indentations, projections (including weld seams), and roll marks to ensure a leak-tight seal. All oil, grease, loose paint, dirt, and cutting particles must be removed.



**3. INSTALL GASKET:** Install the gasket onto the pipe end so that the lips on one side cover the area between the groove and the pipe end. **NOTE:** The pipe end should not contact the reinforcement ribs inside the gasket.



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



**5. INSTALL LOWER HOUSING:** Install the lower housing (without the outlet) around the lower portion of the gasket. Make sure the housings' keys engage the grooves completely on both pipe ends. **NOTE:** Tabs are located on the gasket, which are designed to rest in the recesses on both the upper and lower housings. These tabs ensure proper gasket positioning within the housings.



**6. INSTALL UPPER HOUSING:** Install the upper housing over the gasket. Make sure the housings' keys engage the grooves completely on both pipe ends. Inspect the outlet opening to make sure the outlet neck of the gasket is positioned properly in the housing.



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



**8. TIGHTEN NUTS:** Tighten the nuts evenly by alternating sides until metal-to-metal contact occurs at the bolt pads. Make sure the housings' keys engage the grooves completely. **NOTE:** It is important to tighten the nuts evenly to prevent gasket pinching.

**8a.** Visually inspect the bolt pads at each joint to ensure metal-to-metal contact is achieved.

### **WARNING**

- For proper assembly, the nuts must be tightened until metal-to-metal contact occurs at the bolt pads.
- Keep hands away from coupling openings during tightening.

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

Style 72 Helpful Information

| Nominal Outlet Size<br>Run x Red. Outlet<br>Nominal inches<br>Actual mm |                          | Gr/MPT      | Nut Size          | Socket Size   |
|-------------------------------------------------------------------------|--------------------------|-------------|-------------------|---------------|
| FPT                                                                     |                          |             | inches/<br>Metric | inches/<br>mm |
| 1 ½<br>48.3                                                             | x ½ – 1<br>21.3 – 33.7   | —           | ¾<br>M10          | 1¼<br>17      |
| 2<br>60.3                                                               | x ½ – 1<br>21.3 – 33.7   | 1<br>33.7   | ¾<br>M10          | 1¼<br>17      |
| 2½<br>73.0                                                              | x ½ – 1<br>21.3 – 33.7   | —           | ½<br>M12          | ¾<br>22       |
|                                                                         | 1 ¼<br>42.4              | 1 ½<br>48.3 | ⅝<br>M16          | 1 ⅛<br>27     |
| 3<br>88.9                                                               | x ¾<br>26.9              | 1<br>33.7   | ½<br>M12          | ¾<br>22       |
|                                                                         | 1<br>33.7                | 1 ½<br>48.3 | ⅝<br>M16          | 1 ⅛<br>27     |
| 4<br>114.3                                                              | x ¾<br>26.9              | 1<br>33.7   | ½<br>M12          | ¾<br>22       |
|                                                                         | 1 ½<br>48.3              | 2<br>60.3   | ⅝<br>M16          | 1 ⅛<br>27     |
| 6<br>168.3                                                              | x 1 – 1 ½<br>33.7 – 48.3 | 2<br>60.3   | ¾<br>M20          | 1 ¼<br>32     |



**Style 75** - Flexible Coupling

**Style 77** - Flexible Coupling - Two Segments for 24-inch/610-mm and Smaller Sizes

**Style 77A** - Flexible Aluminum Coupling

**Style 77S** - Flexible Stainless Steel Coupling

**Style 77DX** - Flexible Stainless Steel Coupling for Duplex and Super Duplex Pipe

**Style 475** - Flexible Stainless Steel Coupling

**Style 475DX** - Flexible Stainless Steel Coupling for Duplex and Super Duplex Pipe



## WARNING



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

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

## NOTICE

- The following installation steps feature photos of a Style 77 Coupling. However, the same installation steps apply to Styles 75, 77A, 77S, 77DX, 475, and 475DX Couplings in the size ranges listed above.



## CAUTION

- Make sure the gasket does not become rolled or pinched while installing the housings.
- Failure to follow this instruction could cause damage to the gasket, resulting in joint leakage.

1. Follow steps 1 – 4 of the “Preparatory Steps for Coupling Installation” section.

## NOTICE

### For Styles 475/475DX Couplings Only:

- Styles 475/475DX Couplings have a tongue-and-recess feature at the bolt pads. The housings' tongue and recess features must be mated properly (tongue in recess).



2. **INSTALL HOUSINGS:** Install the housings over the gasket. Make sure the housings' keys engage the grooves completely on both pipe ends. Refer to the notice above for Styles 475/475DX Couplings.

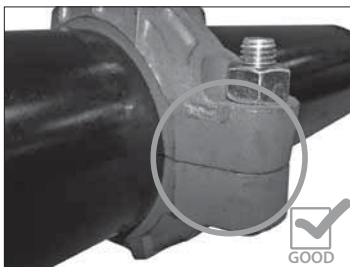


3. **INSTALL BOLTS/NUTS:** Install the bolts, and thread a nut finger-tight onto each bolt. For couplings supplied with stainless steel hardware, apply an anti-sieze compound to the bolt threads. **NOTE:** Make sure the oval neck of each bolt seats properly in the bolt hole.

## NOTICE

### For 3/4 - 6-inch/26.9 - 168.3-mm Styles 77S and 77DX Flexible Stainless Steel Couplings Only:

- A flat washer must be installed under each nut.

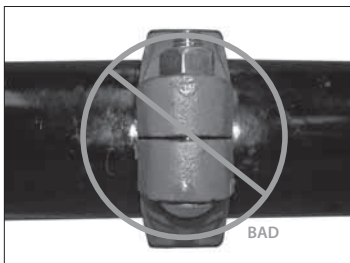


**4. TIGHTEN NUTS:** Tighten the nuts evenly by alternating sides until metal-to-metal contact occurs at the bolt pads. Make sure the housings' keys engage the grooves completely. **NOTE:** It is important to tighten the nuts evenly to prevent gasket pinching.

### **⚠ WARNING**

- For proper assembly, the nuts must be tightened until metal-to-metal contact occurs at the bolt pads.
- Keep hands away from coupling openings during tightening.

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



**5.** Visually inspect the bolt pads at each joint to ensure metal-to-metal contact is achieved.

## Style 75, 77, 77S, and 475/475DX Helpful Information

| Size                            |                                                    | Style 75                      |                                 | Style 77                      |                                 | Styles 77S/77DX               |                                 | Styles 475/475DX              |                                 |
|---------------------------------|----------------------------------------------------|-------------------------------|---------------------------------|-------------------------------|---------------------------------|-------------------------------|---------------------------------|-------------------------------|---------------------------------|
| Nominal Size<br>inches or<br>mm | Actual Pipe<br>Outside<br>Diameter<br>inches<br>mm | Nut Size<br>inches/<br>Metric | Socket<br>Size<br>inches/<br>mm | Nut Size<br>inches/<br>Metric | Socket<br>Size<br>inches/<br>mm | Nut Size<br>inches/<br>Metric | Socket<br>Size<br>inches/<br>mm | Nut Size<br>inches/<br>Metric | Socket<br>Size<br>inches/<br>mm |
| ¾                               | 1.050<br>26.9                                      | —                             | —                               | ¾<br>M10                      | 1 1/16<br>17                    | ¾<br>M10                      | 1 1/16<br>17                    | —                             | —                               |
| 1                               | 1.315<br>33.7                                      | ¾<br>M10                      | 1 1/16<br>17                    | ¾<br>M10                      | 1 1/16<br>17                    | ¾<br>M10                      | 1 1/16<br>17                    | ¾<br>M10                      | 1 1/16<br>17                    |
| 1 ¼                             | 1.660<br>42.4                                      | ¾<br>M10                      | 1 1/16<br>17                    | ½<br>M12                      | ¾<br>22                         | ¾<br>M10                      | 1 1/16<br>17                    | ¾<br>M10                      | 1 1/16<br>17                    |
| 1 ½                             | 1.900<br>48.3                                      | ¾<br>M10                      | 1 1/16<br>17                    | ½<br>M12                      | ¾<br>22                         | ¾<br>M10                      | 1 1/16<br>17                    | ¾<br>M10                      | 1 1/16<br>17                    |
| 2                               | 2.375<br>60.3                                      | ¾<br>M10                      | 1 1/16<br>17                    | ½<br>M12                      | ¾<br>22                         | ¾<br>M10                      | 1 1/16<br>17                    | ¾<br>M10                      | 1 1/16<br>17                    |
| 2 ½                             | 2.875<br>73.0                                      | ¾<br>M10                      | 1 1/16<br>17                    | ½<br>M12                      | ¾<br>22                         | ¾<br>M10                      | 1 1/16<br>17                    | ¾<br>M10                      | 1 1/16<br>17                    |
| 76.1 mm                         | 3.000<br>76.1                                      | ¾<br>M10                      | 1 1/16<br>17                    | ½<br>M12                      | ¾<br>22                         | —                             | —                               | ¾<br>M10                      | 1 1/16<br>17                    |
| 3                               | 3.500<br>88.9                                      | ½<br>M12                      | ¾<br>22                         | ½<br>M12                      | ¾<br>22                         | ½<br>M12                      | ¾<br>22                         | ½<br>M12                      | ¾<br>22                         |
| 3 ½                             | 4.000<br>101.6                                     | ½<br>M12                      | ¾<br>22                         | ⅝<br>M16                      | 1 1/16<br>27                    | —                             | —                               | —                             | —                               |
| 4                               | 4.500<br>114.3                                     | ½<br>M12                      | ¾<br>22                         | ⅝<br>M16                      | 1 1/16<br>27                    | ⅝<br>M16                      | 1 1/16<br>27                    | ½<br>M12                      | ¾<br>22                         |
| 108.0 mm                        | 4.250<br>108.0                                     | ½<br>M12                      | ¾<br>22                         | ⅝<br>M16                      | 1 1/16<br>27                    | —                             | —                               | —                             | —                               |



# Style 75, 77, 77S, and 475/475DX Helpful Information (Continued)

| Size                            |                                                    | Style 75                      |                                 | Style 77                      |                                 | Style 77S/77DX                |                                 | Styles 475/475DX              |                                 |
|---------------------------------|----------------------------------------------------|-------------------------------|---------------------------------|-------------------------------|---------------------------------|-------------------------------|---------------------------------|-------------------------------|---------------------------------|
| Nominal Size<br>inches or<br>mm | Actual Pipe<br>Outside<br>Diameter<br>inches<br>mm | Nut Size<br>inches/<br>Metric | Socket<br>Size<br>inches/<br>mm | Nut Size<br>inches/<br>Metric | Socket<br>Size<br>inches/<br>mm | Nut Size<br>inches/<br>Metric | Socket<br>Size<br>inches/<br>mm | Nut Size<br>inches/<br>Metric | Socket<br>Size<br>inches/<br>mm |
| 127.0mm                         | 5.000<br>127.0                                     | $\frac{5}{8}$<br>M16          | 1 $\frac{1}{16}$<br>27          | —                             | —                               | —                             | —                               | —                             | —                               |
| 5                               | 5.563<br>141.3                                     | $\frac{5}{8}$<br>M16          | 1 $\frac{1}{16}$<br>27          | $\frac{3}{4}$<br>M20          | 1 $\frac{1}{4}$<br>32           | —                             | —                               | —                             | —                               |
| 133.0mm                         | 5.250<br>133.0                                     | $\frac{5}{8}$<br>M16          | 1 $\frac{1}{16}$<br>27          | $\frac{3}{4}$<br>M20          | 1 $\frac{1}{4}$<br>32           | —                             | —                               | —                             | —                               |
| 139.7mm*                        | 5.500<br>139.7                                     | $\frac{5}{8}$<br>M16          | 1 $\frac{1}{16}$<br>27          | $\frac{3}{4}$<br>M20          | 1 $\frac{1}{4}$<br>32           | —                             | —                               | $\frac{1}{2}$<br>M12          | $\frac{7}{8}$<br>22             |
| 152.4mm                         | 6.000<br>152.4                                     | $\frac{5}{8}$<br>M16          | 1 $\frac{1}{16}$<br>27          | —                             | —                               | —                             | —                               | —                             | —                               |
| 6                               | 6.625<br>168.3                                     | $\frac{5}{8}$<br>M16          | 1 $\frac{1}{16}$<br>27          | $\frac{3}{4}$<br>M20          | 1 $\frac{1}{4}$<br>32           | $\frac{5}{8}$ #<br>M16        | 1 $\frac{1}{16}$ #<br>27        | —                             | —                               |
| 159.0mm                         | 6.250<br>159.0                                     | $\frac{5}{8}$<br>M16          | 1 $\frac{1}{16}$<br>27          | $\frac{3}{4}$<br>M20          | 1 $\frac{1}{4}$<br>32           | —                             | —                               | —                             | —                               |
| 165.1mm*                        | 6.500<br>165.1                                     | $\frac{5}{8}$<br>M16          | 1 $\frac{1}{16}$<br>27          | $\frac{3}{4}$<br>M20          | 1 $\frac{1}{4}$<br>32           | —                             | —                               | $\frac{5}{8}$<br>M16          | 1 $\frac{1}{16}$<br>27          |
| 203.2mm                         | 8.000<br>203.2                                     | $\frac{3}{4}$<br>M20          | 1 $\frac{1}{4}$<br>32           | —                             | —                               | —                             | —                               | —                             | —                               |
| 8§                              | 8.625<br>219.1                                     | $\frac{3}{4}$<br>M20          | 1 $\frac{1}{4}$<br>32           | $\frac{7}{8}$<br>M22          | 1 $\frac{7}{16}$<br>36          | $\frac{7}{8}$<br>M22          | 1 $\frac{7}{16}$<br>36          | —                             | —                               |
| 254.0mm                         | 10.000<br>254.0                                    | $\frac{7}{8}$<br>M22          | 1 $\frac{7}{16}$<br>36          | —                             | —                               | —                             | —                               | —                             | —                               |
| 10§                             | 10.750<br>273.0                                    | —                             | —                               | 1<br>M24                      | 1 $\frac{5}{8}$<br>41           | 1<br>M24                      | 1 $\frac{5}{8}$<br>41           | —                             | —                               |
| 304.8mm                         | 12.000<br>304.8                                    | $\frac{7}{8}$<br>M22          | 1 $\frac{7}{16}$<br>36          | —                             | —                               | —                             | —                               | —                             | —                               |
| 12§                             | 12.750<br>323.9                                    | —                             | —                               | 1<br>M24                      | 1 $\frac{5}{8}$<br>41           | 1<br>M24                      | 1 $\frac{5}{8}$<br>41           | —                             | —                               |
| 13½ OD                          | 13.000<br>342.9                                    | —                             | —                               | 1<br>M24                      | 1 $\frac{5}{8}$<br>41           | —                             | —                               | —                             | —                               |
| 200A (JIS)                      | —<br>216.3                                         | $\frac{3}{4}$<br>M20          | 1 $\frac{1}{4}$<br>32           | $\frac{7}{8}$<br>M22          | 1 $\frac{7}{16}$<br>36          | —                             | —                               | —                             | —                               |
| 250A (JIS)                      | —<br>267.4                                         | —                             | —                               | 1<br>M24                      | 1 $\frac{5}{8}$<br>41           | —                             | —                               | —                             | —                               |
| 300A (JIS)                      | —<br>318.5                                         | —                             | —                               | 1<br>M24                      | 1 $\frac{5}{8}$<br>41           | —                             | —                               | —                             | —                               |
| 14§                             | 14.000<br>355.6                                    | —                             | —                               | 1<br>M24                      | 1 $\frac{5}{8}$<br>41           | 1<br>M24                      | 1 $\frac{5}{8}$<br>41           | —                             | —                               |
| 16§                             | 16.000<br>406.4                                    | —                             | —                               | 1<br>M24                      | 1 $\frac{5}{8}$<br>41           | 1<br>M24                      | 1 $\frac{5}{8}$<br>41           | —                             | —                               |
| 18§                             | 18.000<br>457                                      | —                             | —                               | 1 $\frac{1}{8}$<br>M27        | 1 $\frac{13}{16}$<br>46         | 1<br>M24                      | 1 $\frac{5}{8}$<br>41           | —                             | —                               |
| 20                              | 20.000<br>508                                      | —                             | —                               | 1 $\frac{1}{8}$<br>M27        | 1 $\frac{13}{16}$<br>46         | —                             | —                               | —                             | —                               |
| 24                              | 24.000<br>610                                      | —                             | —                               | 1 $\frac{1}{8}$<br>M27        | 1 $\frac{13}{16}$<br>46         | —                             | —                               | —                             | —                               |

\* Style 475DX Flexible Stainless Steel Couplings are not available in these sizes

# The nut size for 6-inch/168.3-mm Style 77DX Couplings is  $\frac{3}{4}$  inch/M20. The socket size is 1  $\frac{1}{4}$  inch/32 mm.

§ Style 77DX Couplings are not available in these sizes

**Style 77 (Non-AGS) - Flexible Coupling - Four or Six Segments for 14-inch/355.6-mm and Larger Sizes**

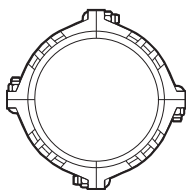
**! WARNING**



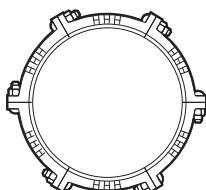
- Read and understand all instructions before attempting to install any Victaulic piping products.
- Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.
- Wear safety glasses, hardhat, and foot protection.

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

Style 77 Couplings in 14-inch/355.6-mm and larger sizes are cast, as shown below, to ease handling.

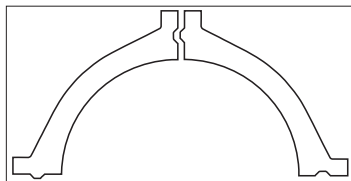
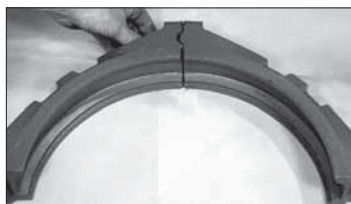


14 – 22-inch/355.6 – 559-mm Sizes



24-inch/610-mm Size

1. Follow steps 1 – 4 of the “Preparatory Steps for Coupling Installation” section.



**2. ASSEMBLE SEGMENTS:**

Assemble the segments loosely into two equal halves, as shown above. Allow clearance between the segments to ease assembly onto the pipe. **NOTE:** For bolt pads that contain a tongue-and-recess feature, make sure the housings are mated, as shown above.

**! CAUTION**

- Make sure the gasket does not become rolled or pinched while installing the housings.
- Failure to follow this instruction could cause damage to the gasket, resulting in joint leakage.



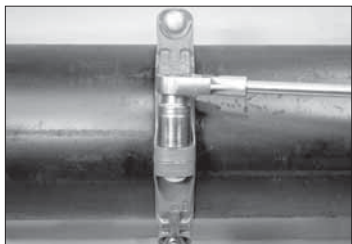
**3. INSTALL FIRST SEGMENT ASSEMBLY:**

Install one of the pre-assembled halves over the gasket. Make sure the housings' keys engage the grooves completely on both pipe ends.





**3a. INSTALL REMAINING SEGMENT ASSEMBLY:** Install the second assembly onto the pipe. Make sure the housings' keys engage the grooves completely on both pipe ends. While supporting the weight of the assembly, install the remaining bolts, and thread the nuts finger-tight onto the bolts. **NOTE:** Make sure the oval neck of each bolt seats properly in the bolt hole.



**4. TIGHTEN NUTS:** Tighten all nuts evenly by alternating sides until metal-to-metal contact occurs at the bolt pads. Make sure the housings' keys engage the grooves completely. **NOTE:** It is important to tighten all nuts evenly to prevent gasket pinching.

**4a.** Visually inspect the bolt pads at each joint to ensure metal-to-metal contact is achieved.



## CAUTION

- For proper assembly, the nuts must be tightened until metal-to-metal contact occurs at the bolt pads.
- Keep hands away from coupling openings during tightening.

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

## Style 77 Helpful Information

| Size                            |                                                 | Style 77                      |                                 |
|---------------------------------|-------------------------------------------------|-------------------------------|---------------------------------|
| Nominal Size<br>inches or<br>mm | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | Nut Size<br>inches/<br>Metric | Socket<br>Size<br>inches/<br>mm |
| 14 – 18                         | 14.000 – 18.000<br>355.6 – 457                  | 1<br>M24                      | 1 5/8<br>41                     |
| 20 – 24                         | 20.000 – 24.000<br>508 – 610                    | 1 1/8<br>M27                  | 1 13/16<br>46                   |
| 28 – 30                         | 28.000 – 30.000<br>711 – 762                    | 1<br>M24                      | 1 5/8<br>41                     |
| 377.0mm                         | 14.842<br>377.0                                 | 1<br>M24                      | 1 5/8<br>41                     |
| 426.0mm                         | 16.771<br>426.0                                 | 1<br>M24                      | 1 5/8<br>41                     |
| 480.0mm                         | 18.897<br>480.0                                 | 1 1/8<br>M27                  | 1 13/16<br>46                   |
| 530.0mm                         | 20.866<br>530.0                                 | 1 1/8<br>M27                  | 1 13/16<br>46                   |
| 630.0mm                         | 24.803<br>630.0                                 | 1 1/8<br>M27                  | 1 13/16<br>46                   |

## ⚠ WARNING



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

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

## NOTICE

- When Style 78 Snap-Joint Couplings are used in concrete pumping, the working pressure must include shock load. This coupling must be used within all design parameters.
- Style 78 Snap-Joint Couplings and pipe used in concrete pumping must be free from concrete and foreign material in the pipe grooves and the keys and gasket cavity of the couplings.
- Style 78 Snap-Joint Couplings are not designed for eccentric loading. These couplings are not recommended for use at the end of concrete pumping booms or on vertical risers above 30 feet/9.1 m. Sound anchoring and lashing practices must be observed.

### 1. Follow steps 1 – 4 of the “Preparatory Steps for Coupling Installation” section.



**2. INSTALL HOUSINGS:** Install one side of the hinged housing over the gasket, making sure the keys engage the grooves. Swing the other side of the housing into position. Squeeze the housing to further center the gasket and seat the housing.



### 3. POSITION LOCKING HANDLE:

Lift the locking handle to position the nose in the cradle tab of the opposite housing.



**3a.** Push the locking handle down firmly until the entire handle assembly contacts the coupling housing. The entire handle assembly must contact the coupling housing to ensure a properly locked joint.

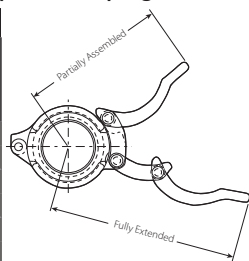
## ⚠ WARNING

- **DO NOT** use hammers/heavy instruments to close the locking handle. The use of hammers/heavy instruments to close the locking handle can crack, distort, or misalign components.

Failure to follow this instruction could cause product failure, resulting in serious personal injury and/or property damage.

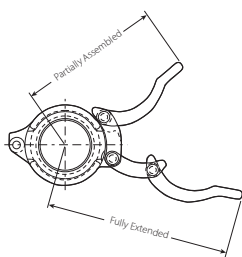
## Assembly Clearance Information for Style 78 Snap-Joint Coupling

| Size                |                                        | Dimensions inches/mm |                |
|---------------------|----------------------------------------|----------------------|----------------|
| Nominal Size inches | Actual Pipe Outside Diameter inches/mm | Partially Assembled  | Fully Extended |
| 1                   | 1.315<br>33.7                          | 3.38<br>85.9         | 4.50<br>114.3  |
| 1 ¼                 | 1.660<br>42.4                          | 3.80<br>96.5         | 4.88<br>124.0  |
| 1 ½                 | 1.900<br>48.3                          | 5.50<br>139.7        | 7.63<br>193.8  |
| 2                   | 2.375<br>60.3                          | 6.25<br>158.8        | 7.75<br>196.9  |
| 2 ½                 | 2.875<br>73.0                          | 7.16<br>181.9        | 10.72<br>272.3 |
| 3                   | 3.500<br>88.9                          | 7.88<br>200.2        | 10.25<br>260.4 |
| 4                   | 4.500<br>114.3                         | 10.63<br>270.0       | 12.88<br>327.2 |
| 5                   | 5.563<br>141.3                         | 13.66<br>347.0       | 16.88<br>428.8 |
| 6                   | 6.625<br>168.3                         | 14.88<br>378.0       | 18.38<br>466.9 |
| 8                   | 8.625<br>219.1                         | 15.38<br>390.7       | 18.91<br>480.3 |



## Assembly Clearance Information for Style 78A Snap-Joint Aluminum Coupling

| Size                |                                        | Dimensions inches/mm |                |
|---------------------|----------------------------------------|----------------------|----------------|
| Nominal Size inches | Actual Pipe Outside Diameter inches/mm | Partially Assembled  | Fully Extended |
| 2                   | 2.375<br>60.3                          | 3.22<br>81.8         | 4.06<br>103.1  |
| 10                  | 10.750<br>273.0                        | 21.00<br>533.4       | 23.00<br>584.2 |



## Disassembly and Re-Use Instructions for Style 78 Snap-Joint Couplings

|  <b>WARNING</b> |                                                                                                                                                                                                                                                                   |
|----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                 | <ul style="list-style-type: none"> <li>• <b>Depressurize and drain the piping system before attempting to remove any Victaulic piping products. Failure to follow this instruction could result in serious personal injury and/or property damage.</b></li> </ul> |

- After depressurizing and draining the piping system, slide a screwdriver or similar pry tool underneath the locking handle for leverage during disassembly.
- Check the gasket to make sure it is not damaged. If the gasket is damaged, it must be replaced with a new, Victaulic-supplied gasket of a grade that is suitable for the intended service.
- Check the housing hinge and locking handle to make sure they have not become loosened, distorted, bent, or damaged. If there is any doubt about the condition of the coupling, do not reuse.
- Follow all installation instructions, listed in this section, for re-assembly.  
**NOTE:** Check pipe and groove conditions, lubricate the gasket, etc.

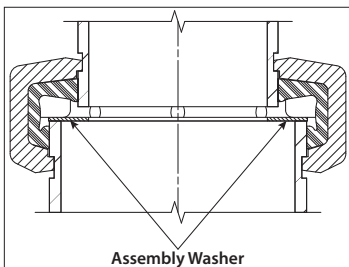
## ! WARNING



- Read and understand all instructions before attempting to install any Victaulic piping products.
  - Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.
  - Wear safety glasses, hardhat, and foot protection.
- Failure to follow these instructions could result in serious personal injury, improper product installation, and/or property damage.

## NOTICE

- Victaulic #60 End Caps must not be used on the smaller end of Style 750 Reducing Couplings in systems where vacuums may develop.

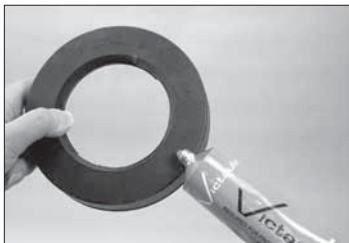


Assembly Washer

**FOR VERTICAL INSTALLATIONS:** An assembly washer is recommended to prevent smaller pipe from telescoping inside larger pipe in vertical installations (refer to graphic above). Contact Victaulic for details.



**1. CHECK PIPE ENDS:** The outside surface of the pipe, between the groove and the pipe end, must be smooth and free from indentations, projections (including weld seams), and roll marks to ensure a leak-tight seal. All oil, grease, loose paint, dirt, and cutting particles must be removed.



### 2. CHECK GASKET AND

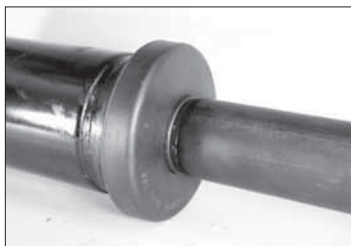
**LUBRICATE:** Check the gasket to make sure it is suitable for the intended service. Apply a thin coat of Victaulic Lubricant or silicone lubricant to the gasket sealing lips and exterior.

## ! CAUTION

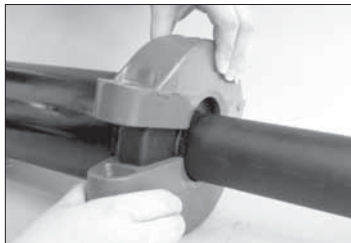
- Always use a compatible lubricant to prevent the gasket from pinching/tearing during installation. Failure to follow this instruction could result in joint leakage.



**3. INSTALL GASKET:** Install the larger opening of the gasket over the larger pipe end. Make sure no portion of the gasket extends into the pipe groove.



**4. JOIN PIPE ENDS:** Align the centerlines of the pipes and insert the smaller pipe end into the gasket. Make sure no portion of the gasket extends into the pipe groove.



**5. INSTALL HOUSINGS:** Install the housings over the gasket. Make sure the larger openings of the housings face the larger pipe and that the housings' keys engage the grooves completely on both pipe ends.



## CAUTION

- Make sure the gasket does not become rolled or pinched while installing the housings.

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



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



**7. TIGHTEN NUTS:** Tighten the nuts evenly by alternating sides until metal-to-metal contact occurs at the bolt pads. Make sure the housings' keys engage the grooves completely. **NOTE:** It is important to tighten the nuts evenly to prevent gasket pinching.

**7a.** Visually inspect the bolt pads at each joint to ensure metal-to-metal contact is achieved.



## WARNING

- For proper assembly, the nuts must be tightened until metal-to-metal contact occurs at the bolt pads.
- Keep hands away from coupling openings during tightening.

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

## Style 750 Helpful Information

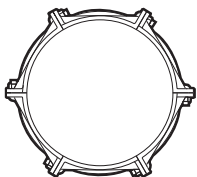
| Size                                | Nut Size          | Socket Size   |
|-------------------------------------|-------------------|---------------|
| Nominal Size inches/<br>Actual mm   | inches/<br>Metric | inches/<br>mm |
| 2 x 1 – 1 1/2<br>60.3 x 33.7 – 48.3 | 3/8<br>M10        | 1 1/16<br>17  |
| 2 1/2 x 2<br>73.0 x 60.3            | 3/8<br>M10        | 1 1/16<br>17  |
| 76.1 mm x 2<br>60.3                 | 1/2<br>M12        | 7/8<br>22     |
| 3 x 2 – 2 1/2<br>88.9 x 60.3 – 73.0 | 1/2<br>M12        | 7/8<br>22     |
| 76.1 mm                             | 1/2<br>M12        | 7/8<br>22     |
| 4 x 2 – 3<br>114.3 x 60.3 – 88.9    | 5/8<br>M16        | 1 1/16<br>27  |
| 114.3 mm x 76.1 mm                  | 5/8<br>M16        | 1 1/16<br>27  |
| 5 x 4<br>141.3 x 114.3              | 3/4<br>M20        | 1 1/4<br>32   |
| 6 x 4 – 5<br>168.3 x 114.3 – 141.3  | 3/4<br>M20        | 1 1/4<br>32   |
| 165.1 mm x 114.3 mm                 | 3/4<br>M20        | 1 1/4<br>32   |
| 8 x 6<br>219.1 x 168.3              | 7/8<br>M22        | 1 7/16<br>36  |
| 10 x 8<br>273.0 x 219.1             | 1<br>M24          | 1 5/8<br>41   |

## ! WARNING

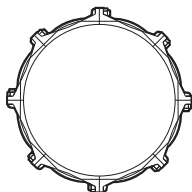


- Read and understand all instructions before attempting to install any Victaulic piping products.
  - Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.
  - Wear safety glasses, hardhat, and foot protection.
- Failure to follow these instructions could result in serious personal injury, improper product installation, and/or property damage.

Style 770 Couplings in 26-inch/660.4-mm and larger sizes are cast, as shown below, to ease handling.



26 – 36-inch/660.4 – 914-mm Sizes



42-inch/1067-mm Sizes

## NOTICE

- For 42-inch/1067-mm couplings, a space of approximately ½ inch/13 mm must be maintained between the pipe ends or 5 ¾ inches/146 mm from the far side of one groove to the far side of the other groove.

1. Follow steps 1 – 4 of the “Preparatory Steps for Coupling Installation” section.

### 2. ASSEMBLE SEGMENTS:

Assemble the segments loosely into two equal halves, as shown above. Allow clearance between the segments to ease assembly onto the pipe.



### 3. INSTALL FIRST SEGMENT

**ASSEMBLY:** Install one of the pre-assembled halves over the gasket. Make sure the housings' keys engage the grooves completely on both pipe ends.

#### 3a. INSTALL REMAINING

**SEGMENT ASSEMBLY:** Install the second assembly onto the pipe. Make sure the housings' keys engage the grooves completely on both pipe ends. While supporting the weight of the assembly, install the remaining bolts, and thread the nuts finger-tight onto the bolts. **NOTE:** Make sure the oval neck of each bolt seats properly in the bolt hole.



## CAUTION

- Make sure the gasket does not become rolled or pinched while installing the housings.
- Failure to follow this instruction could cause damage to the gasket, resulting in joint leakage.





**4. TIGHTEN NUTS:** Tighten all nuts evenly by alternating sides until metal-to-metal contact occurs at the bolt pads. Make sure the housings' keys engage the grooves completely. **NOTE:** It is important to tighten all nuts evenly to prevent gasket pinching.



**5. APPLY TORQUE:** Apply 600 ft-lbs/ 814 N•m of torque to each nut with a torque wrench. Due to the high torque requirement, use of a geared torque multiplier is recommended.

**5a.** Visually inspect the bolt pads at each joint to ensure proper assembly is achieved.



## CAUTION

- For proper assembly, the nuts must be tightened until metal-to-metal contact occurs at the bolt pads and the required torque of 600 ft-lbs/815 N•m are achieved.
- Keep hands away from coupling openings during tightening.

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

## Style 770 Helpful Information

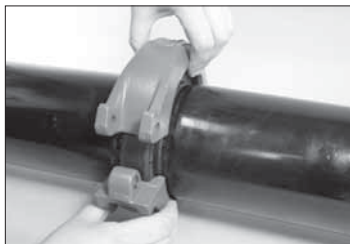
| Size                |                                        | Style 770              |                       |
|---------------------|----------------------------------------|------------------------|-----------------------|
| Nominal Size inches | Actual Pipe Outside Diameter inches/mm | Nut Size inches/Metric | Socket Size inches/mm |
| 26 – 36             | 26.000 – 36.000<br>660.4 – 914         | 1 ¼<br>M30             | 2<br>50               |
| 42                  | 42.000<br>1067                         | 1 ½<br>M36             | 2 ¾<br>60             |

## ! WARNING

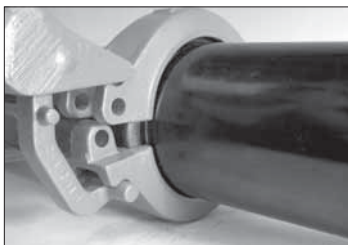
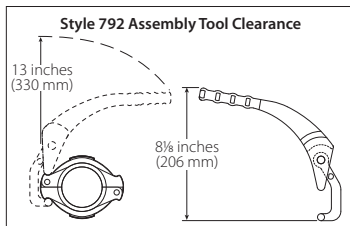


- Read and understand all instructions before attempting to install any Victaulic piping products.
  - Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.
  - Wear safety glasses, hardhat, and foot protection.
- Failure to follow these instructions could result in serious personal injury, improper product installation, and/or property damage.

### 1. Follow steps 1 – 4 of the “Preparatory Steps for Coupling Installation” section.



**2. INSTALL HOUSINGS:** Install one side of the hinged housing over the gasket, making sure the keys engage the grooves. Swing the other side of the housing into position. Squeeze the housings to further center the gasket and seat the housing.



### 3. POSITION ASSEMBLY TOOL:

Engage the “T” bar of the Style 792 Assembly Tool into the cradles on one side of the coupling housing. Engage the nose of the assembly tool into the cradles on the other side of the coupling housing.

**NOTE:** For ease of installing 6-inch/ 168.3-mm and larger size couplings, an extension for the assembly tool can be used. The extension can be fabricated from standard 3/4-inch/19-mm steel or aluminum pipe (not to exceed 10-inches/254-mm in length) and can be slipped over the handgrip of the assembly tool.

## ⚠ WARNING

- **DO NOT** use excessive force during assembly of Style 791 Couplings. If the assembly tool resists closure or the locking pin cannot be seated, check gasket position and make sure the pipe ends are within Victaulic specifications.
- **DO NOT** use hammers/heavy instruments to close the assembly tool. The use of hammers/heavy instruments to close the assembly tool can crack, distort, or misalign components.
- Use only the proper size Victaulic locking pin, which is supplied with each coupling.

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



**6. DRIVE LOCKING PIN:** Using a hammer, drive the pin through both holes in the coupling housings, and set the fluted notches into the hole. **NOTE:** Pin position should be similar to the permanent pin on the opposite side of the coupling.

**6a.** Remove the assembly tool by lifting it up and away from the coupling.

### Style 791 Locking Pin Sizes

| Nominal Size inches | Size Actual Pipe Outside Diameter inches/mm | Locking Pin †                   |            |
|---------------------|---------------------------------------------|---------------------------------|------------|
|                     |                                             | Size (Diameter x Length) inches | Color Code |
| 2                   | 2.375<br>60.3                               | 5/16 x 1 7/8                    | White      |
| 2 1/2               | 2.875<br>73.0                               | 3/8 x 1 7/8                     | Red        |
| 3                   | 3.500<br>88.9                               | 3/8 x 1 7/8                     | Red        |
| 4                   | 4.500<br>114.3                              | 7/16 x 2                        | Yellow     |
| 6                   | 6.625<br>168.3                              | 1/2 x 2 1/16                    | Green      |
| 8                   | 8.625<br>219.1                              | 5/16 x 2 5/16                   | Blue       |

†Extra Vic-Boltless Coupling locking pins are available in color-coded strips of 10 pins.



**4. ALIGN HOLES:** Push the assembly tool down firmly to bring the housings together and to align the holes for the locking pin.



**5. INSERT LOCKING PIN:** Make sure the proper size locking pin is available (refer to table on this page). Set the locking pin by inserting the plain end of the pin into the hole.

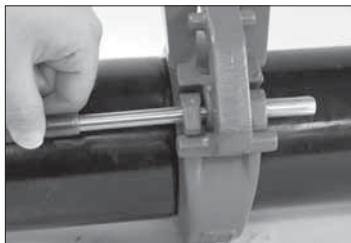
## Disassembly and Re-Use Instructions for Style 791 Vic-Boltless Couplings



### WARNING



- Depressurize and drain the piping system before attempting to remove any Victaulic piping products. Failure to follow this instruction could result in serious personal injury and/or property damage.



**1.** Engage the “T” bar of the Style 792 Assembly Tool into the machined cradles with the longer pin (not “as-cast” side). Engage the nose of the tool into the center cradle. Press the tool down until it hits the housing. Hold the tool in position.

**2.** Using a hammer and a drive pin punch (or a similar device that is smaller in diameter than the pin) on the plain end, drive the locking pin out of the hole to completely remove it from the coupling.

**NOTE:** It may be necessary to rotate the coupling to gain access to the pin when the coupling is installed with certain valves and fittings.

**3.** Lift the assembly tool up and away from the coupling. Remove the housings and the gasket.

**4.** Check the gasket to make sure it is not damaged. If the gasket is damaged, it must be replaced with a new, Victaulic-supplied gasket of a grade that is suitable for the intended service.

**5.** Check the housing hinge and locking pin to make sure they have not become loosened, distorted, bent, or damaged. If there is any doubt about the condition of the coupling, do not reuse.

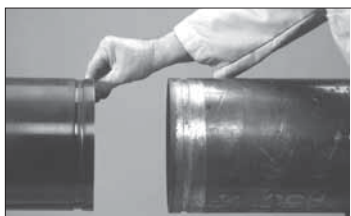
**6.** Follow all installation instructions, listed in this section, for re-assembly.

**NOTE:** Check pipe and groove conditions, lubricate the gasket, etc.

**! WARNING**



- Read and understand all instructions before attempting to install any Victaulic piping products.
  - Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.
  - Wear safety glasses, hardhat, and foot protection.
- Failure to follow these instructions could result in serious personal injury, improper product installation, and/or property damage.



**1. CHECK PIPE ENDS:** The outside surface of the pipe, between the groove and the pipe end, must be smooth and free from indentations, projections (including weld seams), and roll marks to ensure a leak-tight seal. All oil, grease, loose paint, dirt, and cutting particles must be removed.



**2. CHECK GASKET AND LUBRICATE:** Check the gasket to make sure it is suitable for the intended service. Apply a thin coat of Victaulic Lubricant or silicone lubricant to the gasket sealing lips and exterior.



**CAUTION**

- Always use a compatible lubricant to prevent the gasket from pinching/tearing during installation. Failure to follow this instruction could result in joint leakage.

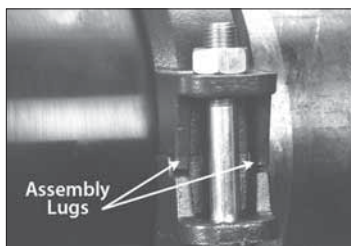


**3. INSTALL GASKET:** Install the larger opening of the gasket (marked NPS) over the larger pipe end (NPS side). Make sure the gasket does not overhang the pipe end.



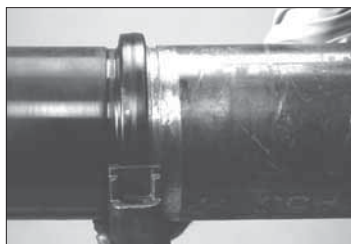
**4. JOIN PIPE ENDS:** Align and bring the NPS and JIS pipe ends together. Slide the gasket into position and center it between the groove in each pipe end.

**NOTE:** Make sure no portion of the gasket extends into the groove in either pipe and that the NPS side of the gasket is facing the NPS pipe.



## NOTICE

- Victaulic Style 707-IJ Transition Couplings are designed with assembly lugs to ensure proper assembly of housings (NPS to NPS and JIS to JIS). These lugs must be on opposite sides for proper assembly.



- 5. INSTALL HOUSINGS:** Install the housings over the gasket. Make sure the larger openings of the housings (marked NPS) face the larger pipe (NPS side) and that the housings' keys engage the grooves completely on both pipe ends.

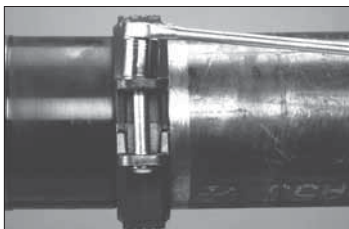


## CAUTION

- Make sure the gasket does not become rolled or pinched while installing the housings.
- Failure to follow this instruction could cause damage to the gasket, resulting in joint leakage.



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



- 7. TIGHTEN NUTS:** Tighten all nuts evenly by alternating sides until metal-to-metal contact occurs at the bolt pads. Make sure the housings' keys engage the grooves completely. **NOTE:** It is important to tighten all nuts evenly to prevent gasket pinching.

- 7a.** Visually inspect the bolt pads at each joint to ensure metal-to-metal contact is achieved.



## WARNING

- For proper assembly, the nuts must be tightened until metal-to-metal contact occurs at the bolt pads.
- Keep hands away from coupling openings during tightening.

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

## Style 707-IJ Helpful Information

| Size       |                 |                 | Nut Size       | Socket Size |
|------------|-----------------|-----------------|----------------|-------------|
| Nom. Size  | NPS OD          | JIS OD          | Metric/ inches | mm/ inches  |
| 200A<br>8  | 219.1<br>8.625  | 216.3<br>8.515  | M20<br>¾       | 32<br>1¼    |
| 250A<br>10 | 273.0<br>10.750 | 267.4<br>10.528 | M22<br>⅞       | 36<br>1⅞    |
| 300A<br>12 | 323.9<br>12.750 | 318.5<br>12.539 | M22<br>⅞       | 36<br>1⅞    |



# Advanced Groove System **AGS**<sup>®</sup> Couplings for Direct-Grooved Pipe or AGS Vic-Ring<sup>®</sup> Applications

## Installation Instructions



Style W07 AGS Rigid Coupling  
(24-inch/610-mm and Smaller Sizes)



Style W77 AGS Flexible Coupling  
(24-inch/610-mm and Smaller Sizes)



Style W89 AGS Rigid Coupling  
(24-inch/610-mm and Smaller Sizes)



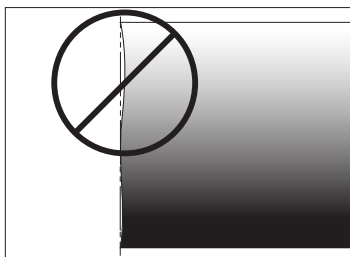
Style W07 AGS Rigid Coupling  
(26-inch/660-mm and Larger Sizes)



Style W77 AGS Flexible Coupling  
(26-inch/660-mm and Larger Sizes)

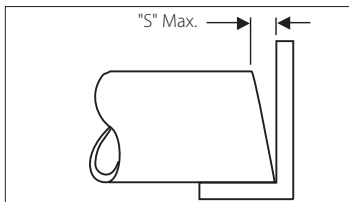
## PIPE END INSPECTION FOR **AGS** COUPLINGS – ALL SIZES

1. Pipe ends shall be visually inspected in accordance with the requirements listed in this section.



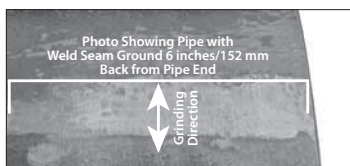
2. The front edge of the pipe end shall be uniform with no concave/convex surface features that will cause improper grooving roll tracking and result in difficulties during coupling assembly (refer to drawing above).

3. If pipe cut-off is required, Victaulic recommends the use of a mechanically-guided pipe cutting tool for proper pipe end preparation. Free-hand pipe end cutting is not acceptable.



4. Square cut the pipe ends ("S" dimension shown above) within  $\frac{1}{8}$  inch/3.2 mm.

## PIPE PREPARATION FOR **AGS** COUPLINGS (DIRECT-GROOVED APPLICATIONS) – ALL SIZES



1. Prior to grooving, weld seams must be ground flush to the pipe surface (inside diameter and outside diameter). Grind the weld seam from the pipe end to a minimum distance of 6 inches/152 mm back from the pipe end. This area must be smooth and free from indentations, projections, and roll marks to ensure a leak-tight seal. Pipe with external, axial weld seams can be supported with Victaulic Adjustable Pipe Stands. However, the weld seam must be smooth and rounded and at least three times as wide as it is high. The weld seam must not exceed  $\frac{1}{8}$  inch/3 mm in height.

1a. Groove the pipe in accordance with the Victaulic AGS grooving specifications in this manual. **NOTE: USE VICTAULIC AGS RW ROLL SETS FOR STANDARD-WEIGHT CARBON STEEL AND STAINLESS STEEL PIPE OR AGS RWX ROLL SETS SPECIFICALLY FOR LIGHT-WALL STAINLESS STEEL PIPE.**

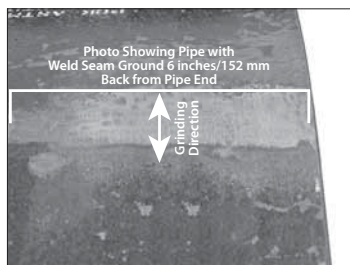


1b. Clean the outside surface of the pipe, from the groove to the pipe end, to remove all oil, grease, loose paint, and dirt.

## **AGS** VIC-RING® APPLICATION INFORMATION

Style W07 AGS Rigid Couplings, Style W77 AGS Flexible Couplings, and Style W89 Rigid Couplings can be installed on carbon steel pipe that is prepared with AGS Vic-Rings. Vic-Rings must be welded to the carbon steel pipe ends in accordance with current Victaulic specifications (refer to pipe preparation requirements below). **NOTE:** AGS Vic-Rings CANNOT be welded to stainless steel pipe for use with Style W89 AGS Rigid Couplings.

### **PIPE PREPARATION FOR STYLES W07, W77, AND W89 AGS** COUPLINGS (AGS VIC-RING® APPLICATIONS) – ALL SIZES



**1.** Prior to welding a Vic-Ring onto the pipe end, weld seams must be ground flush to the pipe surface (outside diameter). Grind the weld seam from the pipe end to a minimum distance of 6 inches/152 mm back from the pipe end. This area must be smooth and free from indentations, projections, and roll marks.

**1a.** Weld the Vic-Ring onto the pipe end per the specifications in the applicable Victaulic publication listed below:

- 16.11 for Style W07 Rigid Couplings
- 16.12 for Style W77 Flexible Couplings
- 16.15 for Style W89 Rigid Couplings.



**1b.** Clean the outside surface of the Vic-Rings to remove dirt and other foreign material.

**Style W07 - AGS** Rigid Coupling (24-inch/610-mm and Smaller Sizes)  
**Style W77 - AGS** Flexible Coupling (24-inch/610-mm and Smaller Sizes)

## **WARNING**



- Read and understand all instructions before attempting to install any Victaulic piping products.
  - Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.
  - Wear safety glasses, hardhat, and foot protection.
- Failure to follow these instructions could result in serious personal injury, improper product installation, and/or property damage.

## **NOTICE**

- The following installation steps feature photos of a Style W07 AGS Rigid Coupling on direct-grooved pipe. However, the same steps apply to installation of Style W77 AGS Flexible Couplings on direct-grooved pipe and installation of Styles W07 and W77 Couplings on pipe prepared with AGS Vic-Rings.



## **WARNING**

- **DO NOT** attempt to assemble Style W07 or Style W77 AGS Couplings on pipe that is direct-grooved with original-type grooving roll sets.

Failure to follow this instruction will cause improper assembly and joint failure, resulting in serious personal injury and/or property damage.

- 2. CHECK GASKET:** Check the gasket to make sure it is suitable for the intended service. The color code identifies the gasket grade. Apply a thin coat of Victaulic lubricant or silicone lubricant to the gasket lips, gasket exterior, and the interior surface of both coupling housings.



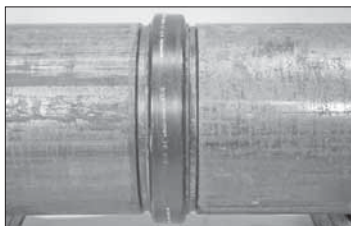
**STYLES W07 AND W77 COUPLINGS HAVE A TORQUE REQUIREMENT. REFER TO THE INSTRUCTIONS ON THE FOLLOWING PAGES OR THE MARKINGS ON THE HOUSINGS FOR THE TORQUE REQUIREMENT.**

- 1. Prepare the pipe by following the appropriate "Pipe End Inspection" and "Pipe Preparation" sections on page 120 or 121. NOTE: USE VICTAULIC AGS RW ROLL SETS FOR STANDARD-WEIGHT CARBON STEEL AND STAINLESS STEEL PIPE OR AGS RWX ROLL SETS SPECIFICALLY FOR LIGHT-WALL STAINLESS STEEL PIPE.**

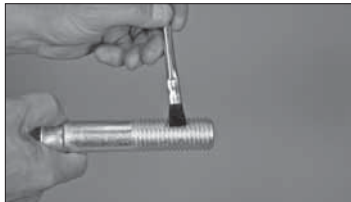
- 3. POSITION GASKET:** Position the gasket over the pipe end or AGS Vic-Ring. Make sure the gasket does not overhang the pipe end or AGS Vic-Ring.



**ADVANCED GROOVE SYSTEM (AGS) COUPLINGS  
FOR DIRECT-GROOVED PIPE OR AGS VIC-RING®  
APPLICATIONS INSTALLATION INSTRUCTIONS REV\_E**



**4. JOIN PIPE ENDS:** Align and bring the two pipe ends together. Slide the gasket into position, and center it between the groove in each pipe end or AGS Vic-Ring.



**5. LUBRICATE BOLT THREADS:** Apply a thin coat of Victaulic lubricant or silicone lubricant to the bolt threads. **NOTE:** If stainless steel bolts and nuts are special ordered, apply an anti-seize compound to the bolt threads.



## CAUTION

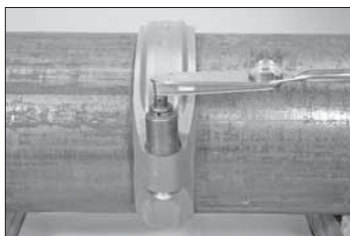
- **Make sure the gasket does not become rolled or pinched while installing the housings.**

**Failure to follow this instruction could cause damage to the gasket, resulting in joint leakage.**



**6. INSTALL HOUSINGS:** Install the housings over the gasket. Make sure the housings' keys engage the groove completely in each pipe end or AGS Vic-Ring. Support the segments while preparing to install the bolts and nuts.

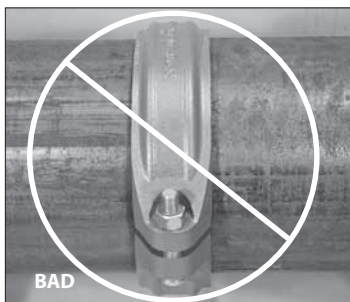
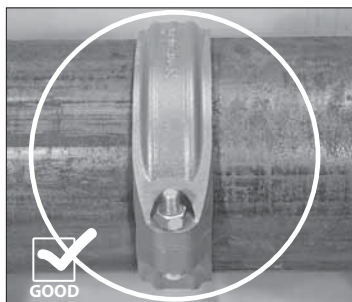
**6a. INSTALL BOLTS/NUTS:** Install the bolts, and thread a nut finger-tight onto each bolt. **NOTE:** Make sure the oval neck of each bolt seats properly in the bolt hole. **FOR 22-INCH/559-MM STYLE W07 AND STYLE W77 COUPLINGS WITH STAINLESS STEEL FASTENERS:** A washer must be installed under each nut.



**7. TIGHTEN NUTS:** Tighten the nuts evenly by alternating sides. Make sure the housings' keys engage the groove completely in each pipe end or AGS Vic-Ring. **Continue to tighten the nuts evenly by alternating sides until metal-to-metal bolt pad contact AND the specified torque value are achieved.** Refer to the "Required Assembly Torques" table on the following page.

**NOTE:** It is important to tighten the nuts evenly by alternating sides to prevent gasket pinching. Deep well sockets are recommended for proper installation due to the longer bolt lengths associated with these products. Deep well sockets provide the full nut engagement that is necessary during tightening.

**TO PREVENT LUBRICATION FROM DRYING OUT AND CAUSING GASKET PINCHING, ALWAYS BRING THE BOLT PADS INTO METAL-TO-METAL CONTACT IMMEDIATELY AFTER ASSEMBLING THE COUPLING ONTO THE PIPE END OR AGS VIC-RING.**



8. Visually inspect the bolt pads at each joint to ensure metal-to-metal contact is achieved across the entire bolt pad section.

## ⚠ WARNING

- For proper assembly, the nuts must be tightened evenly until metal-to-metal contact occurs at the bolt pads and the required torque values, listed in these instructions, are achieved.
  - Always bring the bolt pads into metal-to-metal contact immediately after assembling the coupling onto the pipe end or AGS Vic-Ring.
  - Keep hands away from coupling openings during tightening.
- Failure to follow these instructions could cause joint failure, serious personal injury, and property damage.

## Required Assembly Torques

| Size                   |                                              | Required Torques |
|------------------------|----------------------------------------------|------------------|
| Nominal Size<br>inches | Actual Pipe Outside<br>Diameter<br>inches/mm | ft-lbs<br>(N•m)  |
| 14 – 18                | 14.000 – 18.000                              | 250              |
|                        | 355.6 – 457                                  | 340              |
| 20 – 24                | 20.000 – 24.000                              | 375              |
|                        | 508 – 610                                    | 500              |

## Style W07 and W77 Helpful Information

| Size                      |                                                 | Number of<br>Bolts/Nuts | Nut Size      | Socket Size |
|---------------------------|-------------------------------------------------|-------------------------|---------------|-------------|
| Nominal<br>Size<br>inches | Actual Pipe<br>Outside<br>Diameter<br>inches/mm |                         | inches/Metric | inches/mm   |
| 14 – 18                   | 14.000 – 18.000                                 | 2                       | 1             | 1 ⅝         |
|                           | 355.6 – 457                                     |                         | M24           | 41          |
| 20 – 24                   | 20.000 – 24.000                                 | 2                       | 1 ⅝           | 1 13/16     |
|                           | 508 – 610                                       |                         | M27           | 46          |

**Style W07 - AGS Rigid Coupling (26-inch/660-mm and Larger Sizes)**  
**Style W77 - AGS Flexible Coupling (26-inch/660-mm and Larger Sizes)**

## ⚠ WARNING



- Read and understand all instructions before attempting to install any Victaulic piping products.
  - Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.
  - Wear safety glasses, hardhat, and foot protection.
- Failure to follow these instructions could result in serious personal injury, improper product installation, and/or property damage.

## NOTICE

- The following installation steps feature photos of a Style W07 AGS Rigid Coupling on direct-grooved pipe. However, the same steps apply to installation of Style W77 AGS Flexible Couplings on direct-grooved pipe and installation of Styles W07 and W77 Couplings on pipe prepared with AGS Vic-Rings.

## ⚠ WARNING

- DO NOT attempt to assemble Style W07 or Style W77 AGS Couplings on pipe that is direct-grooved with original-type grooving roll sets.

Failure to follow this instruction will cause improper assembly and joint failure, resulting in serious personal injury and/or property damage.

**STYLES W07 AND W77 COUPLINGS HAVE A TORQUE REQUIREMENT. REFER TO THE INSTRUCTIONS ON THE FOLLOWING PAGES OR THE MARKINGS ON THE HOUSINGS FOR THE TORQUE REQUIREMENT.**

1. Prepare the pipe by following the appropriate "Pipe End Inspection" and "Pipe Preparation" sections on page 120 or 121. **NOTE: USE VICTAULIC AGS RW ROLL SETS FOR STANDARD-WEIGHT CARBON STEEL AND STAINLESS STEEL PIPE OR AGS RWX ROLL SETS SPECIFICALLY FOR LIGHT-WALL STAINLESS STEEL PIPE.**

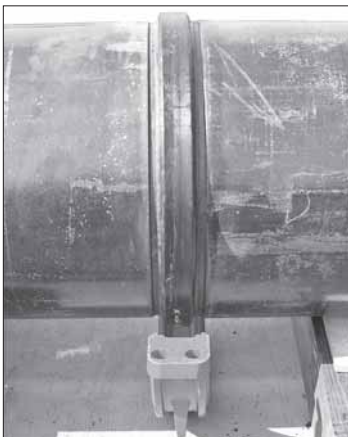


### 2. CHECK GASKET AND LUBRICATE:

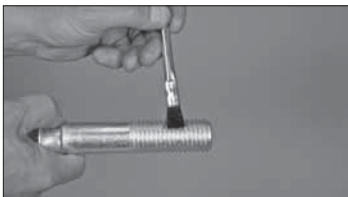
Check the gasket to make sure it is suitable for the intended service. The color code identifies the gasket grade. Apply a thin coat of Victaulic lubricant or silicone lubricant to the gasket lips, gasket exterior, and the interior surface of the coupling housings.



3. **POSITION GASKET:** Position the gasket over the pipe end or AGS Vic-Ring. Make sure the gasket does not overhang the pipe end or AGS Vic-Ring.



**4. JOIN PIPE ENDS:** Align and bring the two pipe ends together. Slide the gasket into position, and center it between the groove in each pipe end or AGS Vic-Ring.



**5. LUBRICATE BOLT THREADS:** Apply a thin coat of Victaulic lubricant or silicone lubricant to the bolt threads. **NOTE:** If stainless steel bolts and nuts are special ordered, apply an anti-seize compound to the bolt threads.

## NOTICE

- Lifting lugs are provided on the coupling housings to aid in assembly. Due to the weight of the coupling housings, mechanical lifting equipment is strongly recommended.



## CAUTION

- Make sure the gasket does not become rolled or pinched while installing the housings.

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



**6. INSTALL HOUSINGS:** Using a strapping method, similar to the one shown in the photos above with the bolts installed in the bolt holes, install the housings over the gasket. Make sure the housings' keys engage the groove completely in each pipe end or AGS Vic-Ring.





#### 6a. INSTALL FLAT WASHERS/NUTS:

Install a flat washer (supplied with the coupling) onto the end of each bolt, and thread a nut finger-tight onto each bolt.

**NOTE:** Make sure the oval neck of each bolt seats properly in the bolt hole.



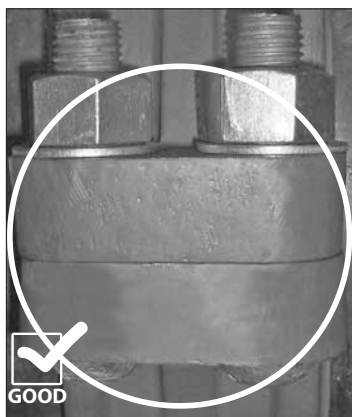
Repeat the tightening sequence shown above until the installation requirements in Step 7 are achieved.



**7. TIGHTEN NUTS:** Tighten the nuts evenly by alternating sides (refer to the graphics in the left column of this page for the tightening sequence). Make sure the housings' keys engage the groove completely in each pipe end or AGS Vic-Ring. **Continue to tighten the nuts evenly by alternating sides until metal-to-metal bolt pad contact AND the specified torque value are achieved.** Refer to the "Required Assembly Torques" table on the following page.

**NOTE:** It is important to tighten the nuts evenly by alternating sides to prevent gasket pinching. Deep well sockets are recommended for proper installation due to the longer bolt lengths associated with these products. Deep well sockets provide the full nut engagement that is necessary during tightening.

**TO PREVENT LUBRICATION FROM DRYING OUT AND CAUSING GASKET PINCHING, ALWAYS BRING THE BOLT PADS INTO METAL-TO-METAL CONTACT IMMEDIATELY AFTER ASSEMBLING THE COUPLING ONTO THE PIPE END OR AGS VIC-RING.**



8. Visually inspect the bolt pads at each joint to ensure metal-to-metal contact is achieved across the entire bolt pad section.

### **WARNING**

- Nuts must be tightened evenly until both conditions of metal-to-metal bolt pad contact AND the specified torque value are achieved.
- Always bring the bolt pads into metal-to-metal contact immediately after assembling the coupling onto the pipe end or AGS Vic-Ring.
- Keep hands away from coupling openings during tightening.

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

### Required Assembly Torques

| Coupling Size          |                                              | Required Torques |
|------------------------|----------------------------------------------|------------------|
| Nominal Size<br>inches | Actual Pipe Outside<br>Diameter<br>inches/mm | ft-lbs<br>(N•m)  |
| 26 – 28                | 26.000 – 28.000<br>660 – 711                 | 375<br>500       |
| 30 – 38                | 30.000 – 38.000<br>762 – 965                 | 500<br>678       |
| 40 – 60                | 40.000 – 60.000<br>1016 – 1524               | 600<br>814       |

### Style W07 and W77 Helpful Information

| Size                      |                                                 | Number of<br>Bolts/Nuts/<br>Washers | Bolt/Nut/<br>Washer Size | Socket Size |
|---------------------------|-------------------------------------------------|-------------------------------------|--------------------------|-------------|
| Nominal<br>Size<br>inches | Actual Pipe<br>Outside<br>Diameter<br>inches/mm |                                     | inches/Metric            | inches/mm   |
| 26 – 28                   | 26.000 – 28.000<br>660 – 711                    | 4                                   | 1 ½<br>M27               | 1 ⅜<br>46   |
| 30 – 38                   | 30.000 – 38.000<br>762 – 965                    | 4                                   | 1 ¼<br>M30               | 2<br>50     |
| 40 – 60                   | 40.000 – 60.000<br>1016 – 1524                  | 4                                   | 1 ½<br>M36               | 2 ¾<br>60   |





## WARNING



- Read and understand all instructions before attempting to install any Victaulic piping products.
  - Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.
  - Wear safety glasses, hardhat, and foot protection.
- Failure to follow these instructions could result in serious personal injury, improper product installation, and/or property damage.

## NOTICE

- The following installation steps feature photos of a Style W89 AGS Rigid Coupling on direct-grooved stainless steel pipe. However, the same steps apply to installation of Style W89 AGS Rigid Couplings on carbon steel pipe prepared with AGS Vic-Rings.

1. Prepare the pipe by following the appropriate "Pipe Visual Inspection" and "Pipe Preparation" sections on page 120 or 121. **NOTE: WHEN DIRECT-GROOVING STAINLESS STEEL PIPE, THE PIPE MUST BE ROLL GROOVED WITH VICTAULIC AGS ROLL SETS (RWX SPECIFICALLY FOR LIGHT-WALL STAINLESS STEEL PIPE AND RW FOR STANDARD-WALL STAINLESS STEEL PIPE).**



## WARNING

- Style W89 Couplings must be used only on pipe that is direct-grooved to Victaulic Advanced Groove System (AGS) specifications using Victaulic AGS roll sets (RWX specifically for light-wall stainless steel pipe and RW for standard-wall stainless steel pipe) or carbon steel pipe prepared with AGS Vic-Rings.
- **DO NOT** attempt to assemble this product on pipe that is direct-grooved with original-type grooving roll sets.

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

**STYLE W89 COUPLINGS HAVE A TORQUE REQUIREMENT. REFER TO THE INSTRUCTIONS ON THE FOLLOWING PAGES OR THE MARKINGS ON THE HOUSINGS FOR THE TORQUE REQUIREMENT.**



### 2. CHECK GASKET AND LUBRICATE:

Check the gasket to make sure it is suitable for the intended service. The color code identifies the gasket grade. Apply a thin coat of Victaulic lubricant or silicone lubricant to the gasket lips and exterior.



3. **POSITION GASKET:** Position the gasket over the pipe end or AGS Vic-Ring. Make sure the gasket does not overhang the pipe end or AGS Vic-Ring.



**4. JOIN PIPE ENDS:** Align and bring the two pipe ends together. Slide the gasket into position, and center it between the groove in each pipe end or AGS Vic-Ring.

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



#### 5. LUBRICATE BOLT THREADS:

Apply a thin coat of Victaulic Lubricant or silicone lubricant to the bolt threads.

**NOTE:** If stainless steel bolts and nuts are special ordered, apply an anti-seize compound to the bolt threads.



### WARNING

- Nuts must be tightened evenly until both conditions of metal-to-metal bolt pad contact AND the specified torque value are achieved.
- Always bring the bolt pads into metal-to-metal contact immediately after assembling the coupling onto the pipe end or AGS Vic-Ring.
- Keep hands away from coupling openings during tightening.

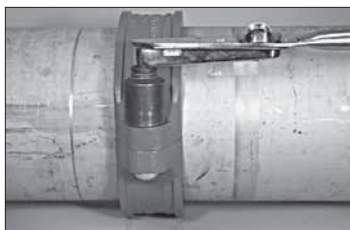
Failure to follow these instructions could cause joint failure, resulting in serious personal injury and/or property damage.



### CAUTION

- Make sure the gasket does not become rolled or pinched while installing the housings.

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



**6. INSTALL HOUSINGS:** Install the housings over the gasket. Make sure the housings' keys engage the groove completely in each pipe end or AGS Vic-Ring. Support the segments while preparing to install the bolts and nuts.

**8. TIGHTEN NUTS:** Tighten the nuts evenly by alternating sides. Make sure the housings' keys engage the groove completely in each pipe end or AGS Vic-Ring. **Continue to tighten the nuts evenly by alternating sides until metal-to-metal bolt pad contact AND a torque value of 375 ft-lbs/500 N•m are achieved.**



**NOTE:** It is important to tighten the nuts evenly by alternating sides to prevent gasket pinching. Deep well sockets are recommended for proper installation due to the longer bolt lengths associated with this product. Deep well sockets provide the full nut engagement that is necessary during tightening.

**TO PREVENT LUBRICATION FROM DRYING OUT AND CAUSING GASKET PINCHING, ALWAYS BRING THE BOLT PADS INTO METAL-TO-METAL CONTACT IMMEDIATELY AFTER ASSEMBLING THE COUPLING ONTO THE PIPE END OR AGS VIC-RING.**

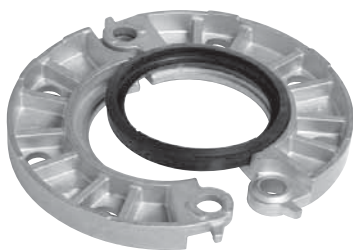
**Style W89 Helpful Information**

| Size                   |                                           | Nut Size          | Socket Size   |
|------------------------|-------------------------------------------|-------------------|---------------|
| Nominal Size<br>inches | Actual Pipe Outside Diameter<br>inches/mm | inches/<br>Metric | inches/<br>mm |
| 14 – 24                | 14.000 – 24.000<br>355.6 – 610            | 1 1/8<br>M27      | 1 13/16<br>46 |

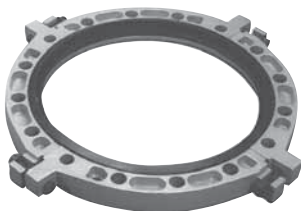


# Flange Adapters for Grooved-End Pipe

## Installation Instructions



Style 441 Vic-Flange Adapter



Style 741 Vic-Flange Adapter



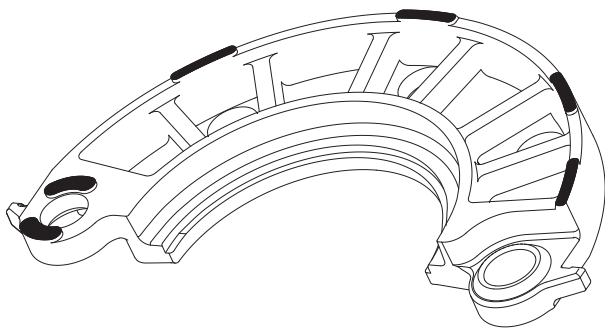
Style 743 Vic-Flange Adapter



Style 744 FireLock Flange Adapter

# STYLE 441 STAINLESS STEEL VIC-FLANGE® ADAPTER NOTES

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*Exaggerated for clarity*

- The Style 441 is designed for use with Class 150 raised-face flanges, in accordance with ANSI B16.5. When a Style 441 is used with a flat-faced flange, the raised projections on the outside edge and around the mating holes of the Style 441 must be ground flush to the body. The shaded areas on the sketch above identify the projections that must be ground flush on both segments.
- The Style 441 must not be used in installations where it does not mount flush with the mating flange. Flange washers, or anything else that prevents mounting the Style 441 flush with the mating flange, must not be used.
- The Style 441 must not be used as anchor points for tie rods across non-restrained joints.
- The Style 441 must not be used against rubber coated surfaces or with wafer or lug-type valves, or when it does not mount flush with the mating flange.
- Because of the outside flange dimension, the Style 441 must not be used 90° to one another on a standard fitting.
- **STANDARD, FULL-SHANK DIAMETER ASSEMBLY BOLTS ARE REQUIRED FOR PROPER INSTALLATION OF STYLE 441 VIC-FLANGE ADAPTERS.**

**! WARNING**



- Read and understand all instructions before attempting to install any Victaulic piping products.
  - Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.
  - Wear safety glasses, hardhat, and foot protection.
- Failure to follow these instructions could result in serious personal injury, improper product installation, and/or property damage.

**NOTICE**

- Make sure there is sufficient clearance behind the groove in the pipe to permit proper assembly of the Vic-Flange Adapter.



**3. CHECK GASKET AND**

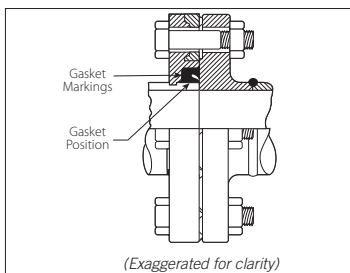
**LUBRICATE:** Check the gasket supplied to make sure it is suitable for the intended service. The color code identifies the gasket grade. Apply a thin coat of Victaulic lubricant or silicone lubricant to the gasket lips and exterior.



**1. CHECK PIPE ENDS:** The outside surface of the pipe, between the groove and the pipe end, must be smooth and free from indentations, projections (including weld seams), and roll marks to ensure a leak-tight seal. All oil, grease, loose paint, dirt, and cutting particles must be removed.



**2. INSERT MATING BOLT:** Insert a standard, full-shank diameter assembly bolt through a mating hole to act as a hinge, as shown above.

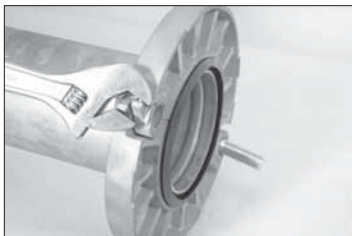


**4. INSTALL GASKET:** Install the gasket onto the pipe end. Make sure the gasket is positioned properly, as shown above. **NOTE:** The lettering on the outside of the gasket must face the gasket seating area of the Style 441 Vic-Flange Adapter.



## 5. INSTALL VIC-FLANGE

**ADAPTER:** Place the hinged flange around the grooved pipe end. Make sure the key section of the flange adapter engages with the groove in the pipe end.



**5a.** Closure lugs are provided to ease installation. Clamp both lugs with a wrench or pliers, and pull the two segments together until the bolt holes align.

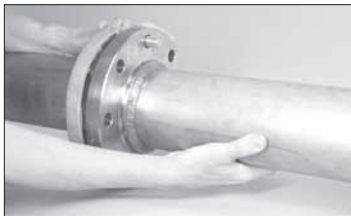
## NOTICE

- When using stainless steel bolts/nuts, an anti-seize lubricant must be applied to the bolt threads.



**5b.** When the bolt holes are aligned, insert a standard, full-shank diameter assembly bolt through the other mating hole of the Vic-Flange Adapter.

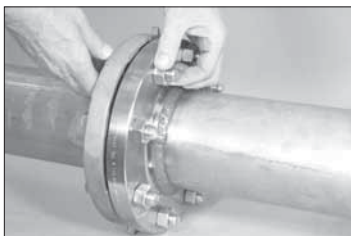
**5c.** Make sure the gasket is still seated properly in the flange adapter.



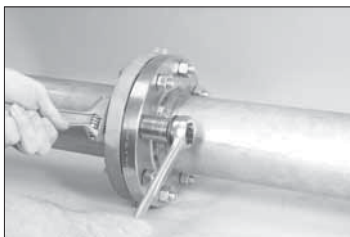
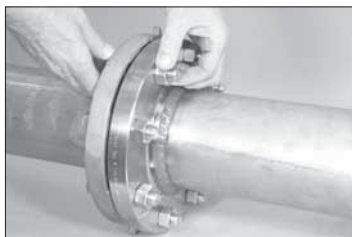
**6. JOIN VIC-FLANGE ADAPTER AND MATING FLANGE:** Join the Vic-Flange Adapter with the mating flange by aligning the two bolts with the holes in the mating flange.



**7. THREAD NUTS ONTO MATING BOLTS:** Thread a nut onto each mating bolt. Tighten the nuts until they are finger-tight.



**8. INSTALL REMAINING BOLTS/ NUTS:** Insert a standard, full-shank diameter assembly bolt through each remaining hole in the Vic-Flange Adapter and the mating flange. Thread a nut onto each bolt until they are finger-tight.



**8. INSTALL REMAINING BOLTS/ NUTS:** Insert a standard, full-shank diameter assembly bolt through each remaining hole in the Vic-Flange Adapter and the mating flange. Thread a nut onto each bolt until they are finger-tight.

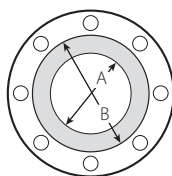
**9. TIGHTEN NUTS:** Tighten all nuts evenly in a crossing pattern, as with a standard flange assembly. Continue to tighten all nuts until the standard, flange-bolt torque recommendation is achieved.

### Style 441 Helpful Information

| Size                |                                        | Number of Assembly Bolts/ Nuts | Assembly Bolt/Nut Size x Length | Required Mating Face Sealing Surface inches/mm |              |
|---------------------|----------------------------------------|--------------------------------|---------------------------------|------------------------------------------------|--------------|
| Nominal Size inches | Actual Pipe Outside Diameter inches/mm |                                |                                 | "A" Maximum                                    | "B" Minimum  |
| 2                   | 2.375<br>60.3                          | 4                              | $\frac{5}{8}$ x 2 $\frac{3}{4}$ | 2.38<br>61                                     | 3.41<br>87   |
| 2½                  | 2.875<br>73.0                          | 4                              | $\frac{5}{8}$ x 3               | 2.88<br>73                                     | 3.91<br>99   |
| 3                   | 3.500<br>88.9                          | 4                              | $\frac{5}{8}$ x 3               | 3.50<br>89                                     | 4.53<br>11.5 |
| 4                   | 4.500<br>114.3                         | 8                              | $\frac{5}{8}$ x 3               | 4.50<br>114                                    | 5.53<br>141  |
| 6                   | 6.625<br>168.3                         | 8                              | $\frac{3}{4}$ x 3½              | 6.63<br>168                                    | 7.78<br>198  |

† Victaulic does not supply assembly bolts/nuts. Bolt/nut sizes are for conventional flange-to-flange connections. Full-shank diameter assembly bolts are required for proper installation of Victaulic Flange Adapters.

The shaded area of the mating face (shown to the right) must be free from gouges, undulations, and deformities of any type for proper sealing



# VICTAULIC FLANGE ADAPTER NOTES FOR 12-INCH/323.9-MM AND SMALLER SIZES

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## Style 741 Vic-Flange Adapter

## Style 744 FireLock Flange Adapter

## Style 743 Vic-Flange Adapter

- The Victaulic Flange Adapter design incorporates small teeth on the ID of the key section to resist rotation. These teeth must be removed when the Victaulic Flange Adapter is used with grooved-end Victaulic Series 700 Butterfly Valves, Schedule 5 pipe, and plastic pipe.
- Victaulic Flange Adapters must be assembled so there is no interference with mating components.
- Because of the outside flange dimension, Victaulic Flange Adapters must not be used within 90° of one another on a standard fitting.
- Victaulic Flange Adapters cannot be used on FireLock fittings.
- When wafer or lug-type valves are used adjoining a Victaulic fitting, check disc dimensions to ensure proper clearance.
- Victaulic Flange Adapters shall not be used as anchor points for tie rods across non-restrained joints.
- Mating Victaulic Flange Adapters to rubber faced flanges, valves, etc. requires the use of a Victaulic Flange Washer. Refer to the "Victaulic Flange Washer Notes" section on the following page.
- The face of the mating flange must be free from gouges, undulations, and deformities of any type for proper sealing. Refer to the installation instructions for complete information.
- The lettering on the outside of the gasket must face the gasket pocket of the Victaulic Flange Adapter. When installed correctly, the lettering on the gasket will not be visible.
- The hinge points of Victaulic Flange Adapters must be oriented approximately 90° to each other when mated.
- Style 741 Vic-Flange Adapters can be used only on the side of Series 700 Butterfly Valves that will not interfere with handle operation.
- Style 741 Vic-Flange Adapters can be used on all sizes of Series 761 Vic-300 MasterSeal Butterfly Valves and Series 716/716H Vic-Check Valves.
- Series 761 Vic-300 MasterSeal Butterfly Valves cannot be connected directly to flanged components with Style 743 Vic-Flange Adapters. A No. 46 ANSI 300 groove-by-flange adapter is required for this application.
- Style 741 Vic-Flange Adapters can be used only on one side of 8-inch/219.1-mm and smaller Series 765, 705, 766, and 707C Butterfly Valves that will not interfere with mating components and handle operation.
- Style 741 Vic-Flange Adapters cannot be used on 10-inch/273.0-mm Series 765 and Series 705 Butterfly Valves.
- Style 741 and Style 743 Vic-Flange Adapters can be installed on either end of a Series 717, 717H, 717R, and 717HR FireLock Check Valve.
- Series 765, 705, 766, and 707C Butterfly Valves cannot be connected directly to flanged components with Style 743 Vic-Flange Adapters. A No. 46 ANSI 300 groove-by-flange adapter is required for this application.
- Series 763 Stainless Steel Butterfly Valves cannot be connected directly to flanged components with Style 743 Vic-Flange Adapters. A No. 46 ANSI 300 groove-by-flange adapter is required for this application.
- Style 743 Vic-Flange Adapters are designed to mate with raised-face flanges. For connections to flat-faced flanges, the raised projections on the outside face of the Style 743 Vic-Flange Adapter must be removed.
- Style 743 Vic-Flange Adapters in 2, 2½, and 3-inch/60.3, 73.0, and 88.9-mm sizes must be ordered as a factory assembly when connected to a Victaulic fitting or valve. Contact Victaulic for details.
- **STANDARD, FULL-SHANK DIAMETER ASSEMBLY BOLTS ARE REQUIRED FOR PROPER INSTALLATION OF VICTAULIC FLANGE ADAPTERS.**



# VICTAULIC FLANGE WASHER NOTES FOR 12-INCH/323.9-MM AND SMALLER SIZES

## Style 741 Vic-Flange Adapter

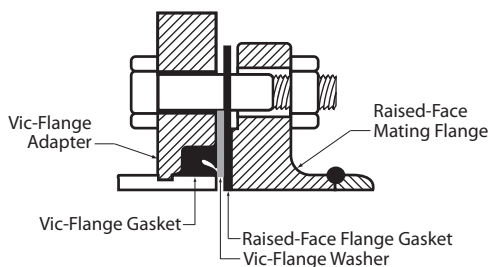
## Style 744 FireLock Flange Adapter

## Style 743 Vic-Flange Adapter

Victaulic Flange Adapters require a smooth, hard surface at the mating flange face for proper sealing. Some applications, for which the Victaulic Flange Adapter is otherwise well suited, do not provide an adequate mating surface. In such cases, a metal Victaulic Flange Washer (Type F phenolic when joining to copper systems) is recommended for insertion between the Victaulic Flange Adapter and the mating flange to provide the necessary sealing surface. To ensure the proper Victaulic Flange Washer is supplied, always specify the product style and size when ordering.

- A. When mating a Victaulic Flange Adapter to a serrated flange** – a flange gasket shall be used against the serrated flange. The Victaulic Flange Washer should then be inserted between the Victaulic Flange Adapter and the flange gasket.
- B. When mating a Victaulic Flange Adapter to a wafer-type valve that is rubber-lined and partially rubber-faced (smooth or not)** – the Victaulic Flange Washer shall be placed between the valve and the Victaulic Flange Adapter.
- C. When mating a Victaulic Flange Adapter to a rubber-faced flange, valve, etc.** – the Victaulic Flange Washer must be placed between the Victaulic Flange Adapter and the rubber-faced flange.
- D. When mating a Victaulic Flange Adapter to components (valves, strainers, etc.) where the component flange face has an insert** – follow the same arrangement as if the Victaulic Flange Adapter was being mated to a serrated flange. Refer to application “A” above.
- E. When mating Victaulic AWWA Flange Adapters to Victaulic NPS Flange Adapters** – the Victaulic Flange Washer must be placed between the two Victaulic Flange Adapters with the hinge points oriented 90° to each other. If one flange is not a Victaulic Flange Adapter (i.e. flanged valve), a flange gasket must be placed against the non-Victaulic Flange. The Victaulic Flange Washer must then be inserted between the flange gasket and the Victaulic Flange gasket.
- F. STYLE 741 AND STYLE 744 VIC-FLANGE WASHERS ARE DIFFERENT DIMENSIONS THAN STYLE 743 VIC-FLANGE WASHERS. DIRECT SUBSTITUTION IS PROHIBITED.**

### EXAMPLE:



*Exaggerated for Clarity*

**Style 741** - Vic-Flange Adapter (12-inch/323.9-mm and Smaller Sizes) –

ANSI 125, 150/DIN PN10 Class, or DIN PN16 Class

**Style 743** - Vic-Flange Adapter – ANSI Class 300

**Style 744** - FireLock Flange Adapter – ANSI Class 150

## **WARNING**



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

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

## **NOTICE**

- The following installation steps feature photos of a Style 741 Vic-Flange Adapter. However, the same installation steps apply to Style 743 Vic-Flange Adapters and Style 744 FireLock Flange Adapters, except where noted.
- Make sure there is sufficient clearance behind the pipe groove to permit proper assembly of the Vic-Flange Adapter



**1. CHECK PIPE ENDS:** The outside surface of the pipe, between the groove and the pipe end, must be smooth and free from indentations, projections (including weld seams), and roll marks to ensure a leak-tight seal. All oil, grease, loose paint, dirt, and cutting particles must be removed.

### **2. CHECK GASKET AND**

**LUBRICATE:** Check the gasket supplied to make sure it is suitable for the intended service. The color code identifies the gasket grade. Apply a thin coat of Victaulic lubricant or silicone lubricant to the gasket lips and exterior. **NOTE:** This gasket is designed to provide the sole seal. However, reference should be made to the notes at the beginning of this section for special applications.

## **NOTICE**

### **For FireLock Products Only:**

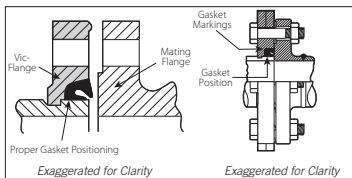
- Some Victaulic FireLock products may be provided with the Vic-Plus™ gasket system. If the coupling is provided with the Vic-Plus gasket system, additional lubrication is not required for the initial installation of wet pipe systems that are installed at or continuously operating above 0° F/-18° C.
- Refer to the “Lubrication” section of this manual for complete information.



## **CAUTION**

- Always use a compatible lubricant to prevent the gasket from pinching/tearing during installation. Failure to follow this instruction could result in joint leakage.





**3. INSTALL GASKET:** Install the gasket over the pipe end. Make sure the gasket is positioned properly, as shown above. **NOTE:** The lettering on the outside of the gasket must face the flange-adapter gasket pocket. When installed correctly, the lettering on the gasket will not be visible.



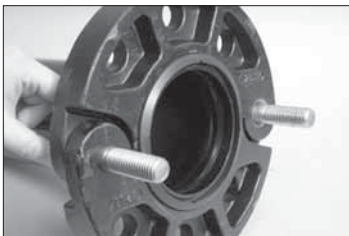
**4. INSTALL FLANGE ADAPTER:** Open the hinged flange adapter fully, and install the flange over the gasket. Make sure the flange key section engages the pipe groove properly.



**4a. FOR STYLE 741 AND STYLE 744 FLANGE ADAPTERS ONLY:** Closure lugs are provided for ease of installation. If necessary, use an adjustable wrench to bring the flange holes into alignment. This will ease insertion of the standard flange bolts into the mating holes.



**Style 741 and Style 744**

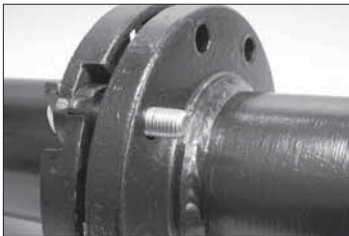


**Style 743**

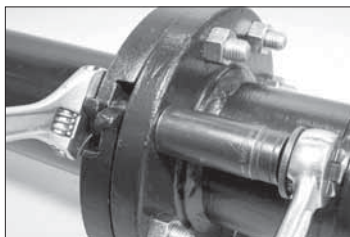
**5. INSERT MATING BOLTS:** Insert a standard, full-shank diameter assembly bolt through each of the two mating holes in the flange adapter. This will maintain the position of the flange in the pipe groove.



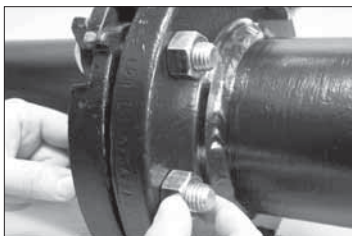
**5a.** Make sure the gasket is seated properly in the flange adapter.



**6. JOIN FLANGE ADAPTER AND MATING FLANGE:** Join the flange adapter with the mating flange by aligning the bolt holes.



**6a.** Thread standard flange nuts finger-tight onto the two mating bolts.



**7. INSTALL REMAINING BOLTS/ NUTS:** Insert a standard, full-shank diameter assembly bolt through each remaining hole in the flange adapter/ mating flange. Thread standard flange nuts finger-tight onto all bolts.

**8. TIGHTEN NUTS:** Tighten the nuts evenly, as with a regular flange assembly. Continue tightening until the flange faces come into firm, metal-to-metal contact or the standard, flange-bolt torque requirement is achieved.

## Style 741, 743, and 744 Helpful Information

| Size                      |                                        | Number of Assembly Bolts/Nuts Required † |           |           | Assembly Bolt/Nut Size x Length inches † |               |             | Required Mating Face Sealing Surface inches/mm |              |
|---------------------------|----------------------------------------|------------------------------------------|-----------|-----------|------------------------------------------|---------------|-------------|------------------------------------------------|--------------|
| Nominal Size inches or mm | Actual Pipe Outside Diameter inches/mm | Style 741                                | Style 743 | Style 744 | Style 741                                | Style 743     | Style 744   | "A" Maximum                                    | "B" Minimum  |
| 2                         | 2.375<br>60.3                          | 4                                        | 8         | 4         | 5/8 x 2 3/4                              | 5/8 x 3       | 5/8 x 2 3/4 | 2.38<br>61                                     | 3.41<br>87   |
| 2 1/2                     | 2.875<br>73.0                          | 4                                        | 8         | 4         | 5/8 x 3                                  | 3/4 x 3 1/4   | 5/8 x 3     | 2.88<br>73                                     | 3.91<br>99   |
| 3                         | 3.500<br>88.9                          | 4                                        | 8         | 4         | 5/8 x 3                                  | 3/4 x 3 1/2   | 5/8 x 3     | 3.50<br>89                                     | 4.53<br>115  |
| 4                         | 4.500<br>114.3                         | 8                                        | 8         | 8         | 5/8 x 3                                  | 3/4 x 3 3/4   | 5/8 x 3     | 4.50<br>114                                    | 5.53<br>141  |
| 5                         | 5.563<br>141.3                         | 8                                        | 8         | 8         | 3/4 x 3 1/2                              | 3/4 x 4       | 3/4 x 3 1/2 | 5.56<br>141                                    | 6.71<br>170  |
| 6                         | 6.625<br>168.3                         | 8                                        | 12        | 8         | 3/4 x 3 1/2                              | 3/4 x 4 1/2   | 3/4 x 3 1/2 | 6.63<br>168                                    | 7.78<br>198  |
| 165.1 mm<br>‡ *           | 6.500<br>165.1                         | 8                                        | —         | —         | 3/4 x 3 1/2                              | —             | —           | 6.50<br>165                                    | 7.66<br>195  |
| 8                         | 8.625<br>219.1                         | 8                                        | 12        | 8         | 3/4 x 3 1/2                              | 7/8 x 4 3/4   | 3/4 x 3 1/2 | 8.63<br>219                                    | 9.94<br>253  |
| 10 *                      | 10.750<br>273.0                        | 12                                       | 16        | —         | 7/8 x 4                                  | 1 x 5 1/4     | —           | 10.75<br>273                                   | 12.31<br>313 |
| 12 *                      | 12.750<br>323.9                        | 12                                       | 16        | —         | 7/8 x 4                                  | 1 1/8 x 5 3/4 | —           | 12.75<br>324                                   | 14.31<br>364 |

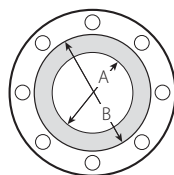
† Victaulic does not supply assembly bolts/nuts. Bolt/nut sizes are for conventional flange-to-flange connections. Longer bolts are required when Victaulic Flange Adapters are used with wafer-type valves. Full-shank diameter assembly bolts are required for proper installation of Victaulic Flange Adapters.

‡ Style 743 Vic-Flange Adapters are not available in the 165.1-mm size.

\* Style 744 FireLock Flange Adapters are not available in the 165.1-mm; 10-inch/273.0-mm; and 12-inch/323.9-mm sizes.

**NOTE:** Style 741 and Style 743 Vic-Flange Adapters provide rigid joints when used on pipe that is standard cut or roll grooved to Victaulic specifications. Consequently, no linear or angular movement is allowed at the joint.

The shaded area of the mating face (shown to the right) must be free from gouges, undulations, and deformities of any type for proper sealing.



## Style 741 Metric PN10 and PN16 Helpful Information

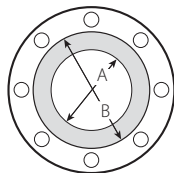
| Size            |                                        | PN10                                     |                                 | PN16                                     |                                 | Required Mating Face Sealing Surface mm/inches |              |
|-----------------|----------------------------------------|------------------------------------------|---------------------------------|------------------------------------------|---------------------------------|------------------------------------------------|--------------|
| Nominal Size mm | Actual Pipe Outside Diameter mm/inches | Number of Assembly Bolts/Nuts Required † | Assembly Bolt/Nut Size metric † | Number of Assembly Bolts/Nuts Required † | Assembly Bolt/Nut Size metric † | "A" Maximum                                    | "B" Minimum  |
| 50              | 60.3<br>2.375                          | 4                                        | M16                             | 4                                        | M16                             | 60<br>2.38                                     | 87<br>3.41   |
| 65              | 73.0<br>2.875                          | 4                                        | M16                             | 4                                        | M16                             | 76<br>3.00                                     | 103<br>4.05  |
| 76.1            | 76.1<br>3.000                          | 4                                        | M16                             | 4                                        | M16                             | 76<br>3.00                                     | 103<br>4.05  |
| 80              | 88.9<br>3.500                          | 8                                        | M16                             | 8                                        | M16                             | 89<br>3.50                                     | 115<br>4.53  |
| 100             | 114.3<br>4.500                         | 8                                        | M16                             | 8                                        | M16                             | 114<br>4.50                                    | 141<br>5.55  |
| 108.0           | 108.0<br>4.250                         | 8                                        | M16                             | 8                                        | M16                             | 108<br>4.25                                    | 133<br>5.24  |
| 133.0           | 133.0<br>5.250                         | 8                                        | M16                             | 8                                        | M16                             | 133<br>5.24                                    | 160<br>6.30  |
| 139.7           | 139.7<br>5.500                         | 8                                        | M16                             | 8                                        | M16                             | 140<br>5.51                                    | 168<br>6.61  |
| 150             | 168.3<br>6.625                         | 8                                        | M20                             | 8                                        | M20                             | 168<br>6.63                                    | 198<br>7.78  |
| 159.0           | 159.0<br>6.250                         | 8                                        | M20                             | 8                                        | M20                             | 159<br>6.25                                    | 187<br>7.36  |
| 165.1           | 165.1<br>6.500                         | 8                                        | M20                             | 8                                        | M20                             | 165<br>6.50                                    | 195<br>7.68  |
| 200             | 219.1<br>8.625                         | 8                                        | M20                             | 12                                       | M20                             | 219<br>8.63                                    | 252<br>9.94  |
| 250             | 273.0<br>10.750                        | 12                                       | M20                             | 12                                       | M24                             | 273<br>10.75                                   | 313<br>12.31 |
| 300             | 323.9<br>12.750                        | 12                                       | M20                             | 12                                       | M24                             | 324<br>12.75                                   | 365<br>14.31 |

† Victaulic does not supply assembly bolts/nuts. Bolt/nut sizes are for conventional flange-to-flange connections. Longer bolts are required when Victaulic Flange Adapters are used with wafer-type valves. Full-shank diameter assembly bolts are required for proper installation of Victaulic Flange Adapters.

**NOTES:** Style 741 Vic-Flange Adapters provide rigid joints when used on pipe that is standard cut or roll grooved to Victaulic specifications. Consequently, no linear or angular movement is allowed at the joint.

Contact Victaulic for information on AS2129 – Table E; ISO 2084 (PN10); DIN 2532 (PN10); and JIS B-2210 (10K) flanges.

The shaded area of the mating face (shown to the right) must be free from gouges, undulations, and deformities of any type for proper sealing.



## Style 741 Metric JIS 10K Helpful Information

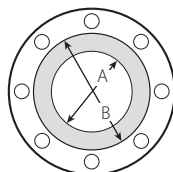
| Size            |                                        | JIS 10K                                  |                                 | Required Mating Face Sealing Surface mm/inches |             |
|-----------------|----------------------------------------|------------------------------------------|---------------------------------|------------------------------------------------|-------------|
| Nominal Size mm | Actual Pipe Outside Diameter mm/inches | Number of Assembly Bolts/Nuts Required † | Assembly Bolt/Nut Size metric † | "A" Maximum                                    | "B" Minimum |
| 73              | 73.0<br>2.880                          | 4                                        | M16                             | 73<br>2.88                                     | 99<br>3.91  |
| 65              | 76.1<br>3.000                          | 4                                        | M16                             | 76<br>3.00                                     | 103<br>4.05 |
| 80              | 88.9<br>3.500                          | 8                                        | M16                             | 89<br>3.50                                     | 115<br>4.53 |
| 100             | 114.3<br>4.500                         | 8                                        | M16                             | 114<br>4.50                                    | 141<br>5.53 |
| 141.3           | 141.3<br>5.560                         | 8                                        | M20                             | 141<br>5.56                                    | 171<br>6.71 |
| 165.1           | 165.1<br>6.500                         | 8                                        | M20                             | 165<br>6.50                                    | 195<br>7.66 |
| 150             | 168.3<br>6.625                         | 8                                        | M20                             | 168<br>6.63                                    | 198<br>7.78 |

† Victaulic does not supply assembly bolts/nuts. Bolt/nut sizes are for conventional flange-to-flange connections. Longer bolts are required when Victaulic Flange Adapters are used with wafer-type valves. Full-shank diameter assembly bolts are required for proper installation of Victaulic Flange Adapters.

**NOTES:** Style 741 Vic-Flange Adapters provide rigid joints when used on pipe that is standard cut or roll grooved to Victaulic specifications. Consequently, no linear or angular movement is allowed at the joint.

Contact Victaulic for information on AS2129 – Table E; ISO 2084 (PN10); DIN 2532 (PN10); and JIS B-2210 (10K) flanges.

The shaded area of the mating face (shown to the right) must be free from gouges, undulations, and deformities of any type for proper sealing.



# VICTAULIC FLANGE ADAPTER NOTES FOR 14-INCH/355.6-MM AND LARGER SIZES (NON-AGS)

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## Style 741 Vic-Flange Adapter

- Victaulic Flange Adapters must be assembled so there is no interference with mating components.
- Because of the outside flange dimension, Victaulic Flange Adapters must not be used within 90° of one another on a standard fitting.
- When wafer or lug-type valves are used adjoining a Victaulic fitting, check disc dimensions to ensure proper clearance.
- Victaulic Flange Adapters shall not be used as anchor points for tie rods across non-restrained joints.
- Mating Victaulic Flange Adapters to rubber-faced flanges, valves, etc. requires the use of a Victaulic Flange Washer. Refer to the “Victaulic Flange Washer Notes” section on the following page.
- The face of the mating flange must be free from gouges, undulations, and deformities of any type for proper sealing. Refer to the installation instructions for complete information.
- The lettering on the outside of the gasket must face the gasket pocket of the Victaulic Flange Adapter. When installed correctly, the lettering on the gasket will not be visible.
- **STANDARD, FULL-SHANK DIAMETER ASSEMBLY BOLTS ARE REQUIRED FOR PROPER INSTALLATION OF VICTAULIC FLANGE ADAPTERS.**

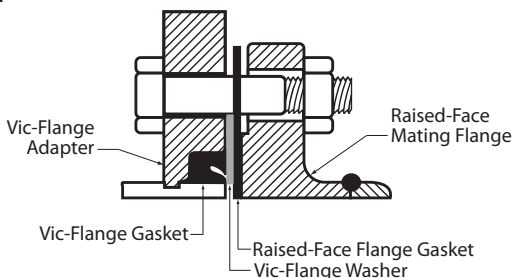
# VICTAULIC FLANGE WASHER NOTES FOR 14-INCH/355.6-MM AND LARGER SIZES (NON-AGS)

## Style 741 Vic-Flange Adapter

Victaulic Flange Adapters require a smooth, hard surface at the mating flange face for proper sealing. Some applications, for which the Victaulic Flange Adapter is otherwise well suited, do not provide an adequate mating surface. In such cases, a metal Victaulic Flange Washer is recommended for insertion between the Victaulic Flange Adapter and the mating flange to provide the necessary sealing surface. To ensure the proper Victaulic Flange Washer is supplied, always specify the product style and size when ordering.

- A. When mating a Victaulic Flange Adapter to a serrated flange** – a flange gasket shall be used against the serrated flange. The Victaulic Flange Washer should then be inserted between the Victaulic Flange Adapter and the flange gasket.
- B. When mating a Victaulic Flange Adapter to a wafer-type valve that is rubber-lined and partially rubber-faced (smooth or not)** – the Victaulic Flange Washer should be placed between the valve and the Victaulic Flange Adapter.
- C. When mating a Victaulic Flange Adapter to a rubber-faced flange, valve, etc.** – the Victaulic Flange Washer must be placed between the Victaulic Flange Adapter and the rubber-faced flange.
- D. When mating a Victaulic Flange Adapter to components (valves, strainers, etc.) where the component flange face has an insert** – follow the same arrangement as if the Victaulic Flange Adapter was being mated to a serrated flange. Refer to application “A” above.
- E. When mating Victaulic AWWA Flange Adapters to Victaulic NPS Flange Adapters** – the Victaulic Flange Transition Ring must be placed between the two Victaulic Flange Adapters with the draw bolt locations offset from each other. If one flange is not a Victaulic Flange Adapter (i.e. flanged valve), a flange gasket must be placed against the non-Victaulic flange. The Victaulic Flange Washer must then be inserted between the flange gasket and the Victaulic Flange gasket. **NOTE:** A Victaulic Transition Ring, rather than a Victaulic Flange Washer, must be used when mating a Style 741 Vic-Flange Adapter to a Style 341 Vic-Flange Adapter in 14 – 24-inch/355.6 – 610-mm sizes.

### EXAMPLE:



*Exaggerated for Clarity*

**⚠ WARNING**



- Read and understand all instructions before attempting to install any Victaulic piping products.
  - Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.
  - Wear safety glasses, hardhat, and foot protection.
- Failure to follow these instructions could result in serious personal injury, improper product installation, and/or property damage.

**NOTICE**

- Make sure there is sufficient clearance behind the pipe groove to permit proper assembly of the Vic-Flange Adapter.

**1. CHECK PIPE ENDS:** The outside surface of the pipe, between the groove and the pipe end, must be smooth and free from indentations, projections (including weld seams), and roll marks to ensure a leak-tight seal. All oil, grease, loose paint, dirt, and cutting particles must be removed.



**2. ADD FIRST SEGMENT:** Place the first segment onto the pipe, making sure that the key engages in the groove properly. **NOTE:** On vertical pipe, the segments must be held in place until all segments are fastened together. For horizontal pipe, the segments can be balanced on top of the pipe, as shown above.



**3. ADD ADDITIONAL SEGMENTS:** Add each segment by inserting the draw bolts (provided) into the flange adapter with the nuts (provided) loosely and uniformly tightened. This will permit the flange adapter to be rotated for bolt hole alignment in later steps.

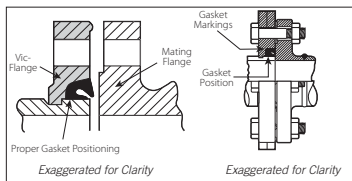


**4. CHECK GASKET AND LUBRICATE:** Check the gasket to make sure it is suitable for the intended service. Apply a thin coat of Victaulic Lubricant or silicone lubricant to the gasket lips and exterior. **NOTE:** This gasket is designed to provide the sole seal. However, reference should be made to the notes at the beginning of this section for special applications.



## CAUTION

- Always use a compatible lubricant to prevent the gasket from pinching/tearing during installation. Failure to follow this instruction could result in joint leakage.



**5. INSTALL GASKET:** Install the gasket into the cavity between the pipe OD and the flange recess. Make sure the gasket is positioned properly, as shown above. **NOTE:** The lettering on the outside of the gasket must face the flange-adapter gasket pocket of the Style 741 Vic-Flange Adapter. When installed correctly, the lettering on the gasket will not be visible.



**6. ALIGN VIC-FLANGE AND MATING FLANGE:** Rotate the Vic-Flange on the pipe end, as required, to align the holes with the mating flange.



## 7. INSERT STANDARD FULL-SHANK DIAMETER ASSEMBLY BOLTS AT LAP JOINTS:

Insert a standard, full-shank diameter assembly bolt into each of the four lap joint holes.

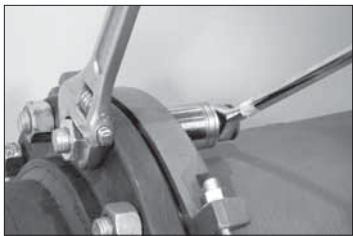
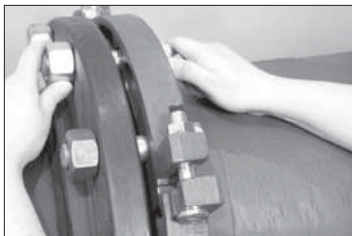
**NOTE:** It may be necessary to tighten the draw bolts to line up the lap joint bolt holes for insertion of the bolts.



**8. TIGHTEN DRAW BOLTS:** After the four assembly bolts are inserted into the lap-joint bolt holes, torque the draw bolts to approximately 150 ft-lbs/203 N•m. **NOTE:** It is normal to have a small amount of shift as these bolts are being torqued.



**9. JOIN VIC-FLANGE ADAPTER AND MATING FLANGE:** Direct the four assembly bolts, installed in step 7, into the mating flange holes. Hand-tighten a nut onto each of the four assembly bolts to prevent the bolts from pulling out.



## 10. INSTALL REMAINING BOLTS/

**NUTS:** Insert a standard, full-shank diameter assembly bolt through each remaining hole in the Vic-Flange Adapter/ mating flange. Thread standard flange nuts finger-tight onto all bolts.

## 11. TORQUE ASSEMBLY BOLTS:

Tighten all assembly bolts evenly until the required torque value is achieved. Refer to the "Style 741 Assembly Bolt Torque Requirements" table below for the torque requirement.

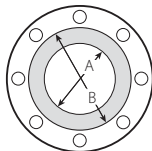
### Style 741 Helpful Information

| Size                |                                        | Assembly Bolts/Nuts †          |                               | Draw Bolts/Nuts §              |                               |                    | Required Mating Face Sealing Surface inches/mm |                |
|---------------------|----------------------------------------|--------------------------------|-------------------------------|--------------------------------|-------------------------------|--------------------|------------------------------------------------|----------------|
| Nominal Size inches | Actual Pipe Outside Diameter inches/mm | Number of Bolts/ Nuts Required | Bolt/Nut Size X Length inches | Number of Bolts/ Nuts Required | Bolt/Nut Size X Length inches | Socket Size inches | "A" Maximum                                    | "B" Minimum    |
| 14                  | 14.000<br>355.6                        | 12                             | 1 x 4½                        | 4                              | ¾ x 3½                        | 1⅝                 | 14.00<br>355.6                                 | 16.39<br>416.3 |
| 16                  | 16.000<br>406.4                        | 16                             | 1 x 4½                        | 4                              | ¾ x 3½                        | 1⅝                 | 16.00<br>406.4                                 | 18.39<br>467.1 |
| 18                  | 18.000<br>457                          | 16                             | 1 ⅞ x 4 ¾                     | 4                              | ¾ x 4 ¼                       | 1⅞                 | 18.00<br>457.2                                 | 20.00<br>208.0 |
| 20                  | 20.000<br>508                          | 20                             | 1 ⅞ x 5 ¼                     | 4                              | ¾ x 4 ¼                       | 1 ⅞                | 20.00<br>508.0                                 | 22.50<br>571.5 |
| 24                  | 24.000<br>610                          | 20                             | 1 ¼ x 5 ¾                     | 4                              | ¾ x 4 ¼                       | 1⅞                 | 24.00<br>610.0                                 | 27.75<br>704.9 |

† Victaulic does not supply assembly bolts/nuts. Bolt/nut sizes are for conventional flange-to-flange connections. Longer bolts are required when Vic-Flange Adapters are used with wafer-type valves. Full-shank diameter assembly bolts are required for proper installation of Style 741 Vic-Flange Adapters.

§ Draw bolts/nuts are supplied with 14 – 24-inch/355.6 – 610-mm Style 741 Vic-Flange Adapters.

The shaded area of the mating face (shown to the right) must be free from gouges, undulations, and deformities of any type for proper sealing.



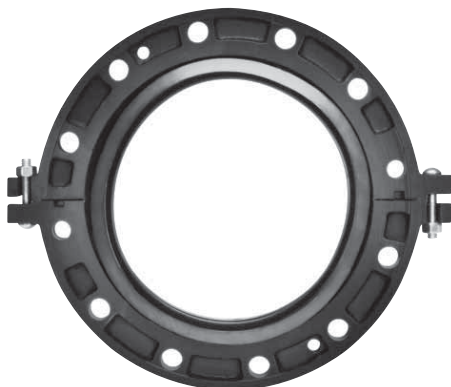
### Style 741 Assembly Bolt Torque Requirements

| Size                |                                        | Torque Requirements    |
|---------------------|----------------------------------------|------------------------|
| Nominal Size inches | Actual Pipe Outside Diameter inches/mm | ft-lbs<br>N•m          |
| 14 – 16             | 14.000 – 16.000<br>355.6 – 406.4       | 200 – 300<br>271 – 407 |
| 18 – 20             | 18.000 – 20.000<br>457 – 508           | 300 – 400<br>407 – 542 |
| 24                  | 24.000<br>610                          | 400 – 500<br>542 – 678 |



# Advanced Groove System **AGS**<sup>®</sup> Vic-Flange Adapter for Grooved-End Pipe

## Installation Instructions



Style W741 AGS Vic-Flange Adapter

# STYLE W741 **AGS**® VIC-FLANGE ADAPTER NOTES FOR 24-INCH/610-MM AND SMALLER SIZES

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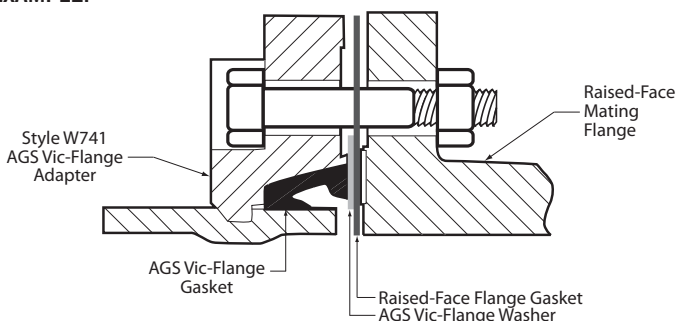
- When installing Style W741 AGS Vic-Flange Adapters, care must be taken to avoid interference with mating components.
- Because of the outside flange dimensions, Style W741 AGS Vic-Flange Adapters must not be used within 90° of one another on an AGS fitting.
- When wafer or lug-type valves are used adjoining a Victaulic AGS fitting, check the disc dimensions to ensure proper clearance.
- Series W761 AGS Vic-300 Butterfly Valves CAN be connected directly to flanged components with Style W741 AGS Vic-Flange Adapters.
- Style W741 AGS Vic-Flange Adapters can be installed on either end of a Series W715 AGS Double Disc Vic-Check Valve.
- Style W741 AGS Vic-Flange Adapters must not be used as anchor points for tie rods across non-restrained joints.
- Mating Style W741 AGS Vic-Flange Adapters to rubber-faced flanges, valves, etc. requires the use of an AGS Vic-Flange Washer. Refer to the “Style W741 AGS Vic-Flange Washer Notes” section on the following page.
- The face of the mating flange must be free from gouges, undulations, and deformities of any type for proper sealing. Refer to the installation instructions for complete information.
- The lettering on the outside of the gasket must face the gasket pocket of the Style W741 AGS Vic-Flange Adapter. When installed correctly, the lettering on the gasket will not be visible.
- When mating two Style W741 AGS Vic-Flange Adapters in 14 – 24-inch/ 355.6 – 610-mm sizes, the draw bolt locations must be offset from each other, and a transition ring must be used between the two Vic-Flange Adapters.
- **STANDARD, FULL-SHANK-DIAMETER ASSEMBLY BOLTS ARE REQUIRED FOR PROPER INSTALLATION OF STYLE W741 VIC-FLANGE ADAPTERS.**

# STYLE W741 AGS<sup>®</sup> VIC-FLANGE WASHER NOTES FOR 24-INCH/610-MM AND SMALLER SIZES

Style W741 AGS Vic-Flange Adapters require a smooth, hard surface at the mating flange face for proper sealing. Some applications, for which the Style W741 AGS Vic-Flange Adapter is otherwise well suited, do not provide an adequate mating surface. In such cases, a metal AGS Vic-Flange Washer is recommended for insertion between the Style W741 AGS Vic-Flange Adapter and the mating flange to provide the necessary sealing surface.

- A. When mating a Style W741 AGS Vic-Flange Adapter to a serrated flange** – a flange gasket shall be used against the serrated flange. The AGS Vic-Flange Washer should then be inserted between the Style W741 AGS Vic-Flange Adapter and the flange gasket.
- B. When mating a Style W741 AGS Vic-Flange Adapter to a wafer-type valve that is rubber lined and partially rubber faced (smooth or not)** – the AGS Vic-Flange Washer should be placed between the valve and the Style W741 AGS Vic-Flange Adapter.
- C. When mating a Style W741 AGS Vic-Flange Adapter to a rubber-faced flange, valve, etc.** – the AGS Vic-Flange Washer must be placed between the Style W741 AGS Vic-Flange Adapter and the rubber-faced flange.
- D. When mating a Style W741 AGS Vic-Flange Adapter to components (valves, strainers, etc.) where the component flange face has an insert** – follow the same arrangement as if the Style W741 AGS Vic-Flange Adapter was being mated to a serrated flange. Refer to application “A” above.
- E. When mating Victaulic AWWA Flange Adapters to Victaulic NPS Flange Adapters** – the Victaulic Flange Transition Ring must be placed between the two Victaulic Flange Adapters with the draw bolt locations offset from each other. If one flange is not a Victaulic Flange Adapter (i.e. flanged valve), a flange gasket must be placed against the non-Victaulic flange. The Victaulic Flange Washer must then be inserted between the flange gasket and the Victaulic Flange gasket. **NOTE:** A Victaulic Transition Ring, rather than a Victaulic Flange Washer, must be used when mating a Style W741 AGS Vic-Flange Adapter to a Style 341 Vic-Flange Adapter in 14 – 24-inch/355.6 – 610-mm sizes.

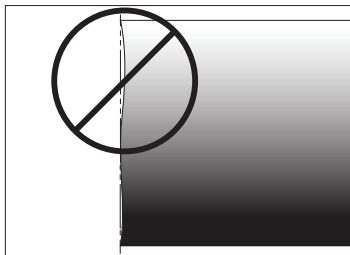
## EXAMPLE:



*Exaggerated for Clarity*

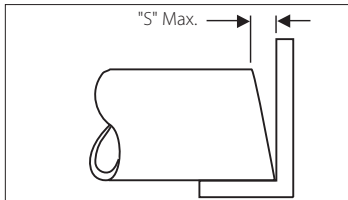
## PIPE END INSPECTION FOR **AGS** VIC-FLANGE ADAPTERS

1. Pipe ends shall be visually inspected in accordance with the requirements listed in this section.



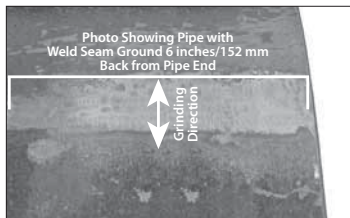
2. The front edge of the pipe end shall be uniform with no concave/convex surface features that will cause improper grooving roll tracking and result in difficulties during coupling assembly (refer to drawing above).

3. If pipe cut-off is required, Victaulic recommends the use of a mechanically-guided pipe cutting tool for proper pipe end preparation. Free-hand pipe end cutting is not acceptable.



4. Square cut the pipe ends ("S" dimension shown above) within  $\frac{1}{8}$  inch/3.2 mm.

## PIPE PREPARATION FOR **AGS** VIC-FLANGE ADAPTERS



1. Prior to grooving, weld seams must be ground flush to the pipe surface (inside diameter and outside diameter). Grind the weld seam from the pipe end to a minimum distance of 6 inches/152 mm back from the pipe end. This area must be smooth and free from indentations, projections, and roll marks to ensure a leak-tight seal. Pipe with external, axial weld seams can be supported with Victaulic Adjustable Pipe Stands. However, the weld seam must be smooth and rounded and at least three times as wide as it is high. The weld seam must not exceed  $\frac{1}{8}$  inch/3 mm in height.

1a. Groove the pipe in accordance with the Victaulic AGS grooving specifications in this manual. **NOTE: USE VICTAULIC AGS RW ROLL SETS FOR STANDARD-WEIGHT CARBON STEEL PIPE.**



1b. Clean the outside surface of the pipe, from the groove to the pipe end, to remove all oil, grease, loose paint, and dirt.

**! WARNING**



- Read and understand all instructions before attempting to install any Victaulic piping products.
  - Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.
  - Wear safety glasses, hardhat, and foot protection.
- Failure to follow these instructions could result in serious personal injury, improper product installation, and/or property damage.

**! WARNING**

- Style W741 AGS Vic-Flange Adapters must be used only on pipe that is prepared to Victaulic Advanced Groove System (AGS) specifications using Victaulic AGS (RW) roll sets. **DO NOT** attempt to assemble this flange adapter on pipe that is prepared with original-type grooving roll sets.

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

**THE STYLE W741 AGS VIC-FLANGE ADAPTER ASSEMBLY HAS A TORQUE REQUIREMENT. REFER TO THE INSTRUCTIONS ON THE FOLLOWING PAGES OR THE MARKINGS ON THE HOUSINGS FOR THE SPECIFIC TORQUE VALUE REQUIREMENT.**

1. Prepare the pipe by following the "Pipe End Inspection for AGS Vic-Flange Adapters" section and the "Pipe Preparation for AGS Vic-Flange Adapters" section. **NOTE: USE VICTAULIC AGS RW ROLL SETS FOR STANDARD-WEIGHT CARBON STEEL PIPE.**

**NOTICE**

- Make sure there is sufficient clearance behind the pipe groove to permit proper assembly of the Vic-Flange Adapter.



2. **ADD FIRST SEGMENT:** Place the first segment onto the pipe. Make sure the key engages completely in the groove.

**NOTE:** On vertical pipe, the first segment must be held in place until the second segment is installed and fastened to the first segment. For horizontal pipe, the first segment can be balanced on top of the pipe, as shown above.

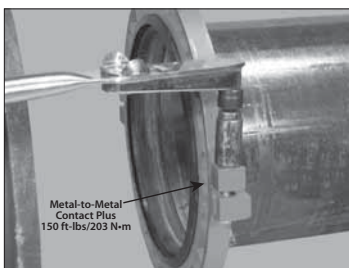


3. **ADD SECOND SEGMENT:** Add the second segment by inserting the draw bolts (provided) into the flange adapter with the nuts (provided) loosely and tightened uniformly. This will permit the flange adapter to be rotated for bolt hole alignment in later steps. Make sure the key of both segments engages completely in the groove.

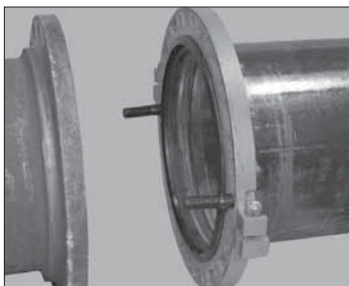


## 5a. ALIGN VIC-FLANGE AND

**MATING FLANGE:** Rotate the Style W741 AGS Vic-Flange Adapter on the pipe end, as required, to align the holes with the mating flange.



**6. TIGHTEN DRAW BOLTS:** Torque the draw bolts to approximately 150 ft-lbs/ 203 N•m to achieve metal-to-metal contact.

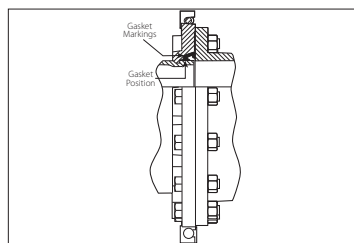
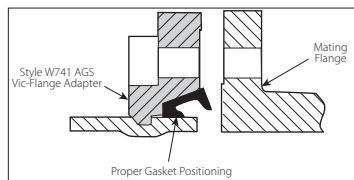


**7. INSERT STANDARD, FULL-SHANK-DIAMETER ASSEMBLY BOLTS AT LAP JOINTS:** Insert a standard, full-shank-diameter assembly bolt into each of the lap-joint bolt holes. Refer to the “Style W741 Helpful Information” table on the following page.



**8. JOIN VIC-FLANGE ADAPTER AND MATING FLANGE:** Direct the standard, full-shank-diameter assembly bolts, installed in step 7, into the mating flange holes. Hand-tighten a nut onto each bolt to prevent the bolts from pulling out.

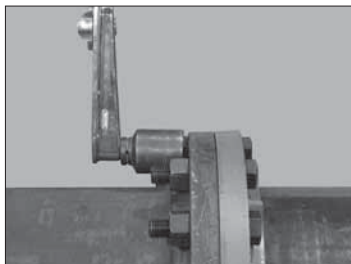
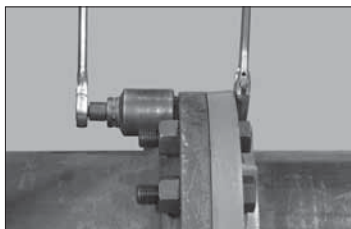
**4. CHECK GASKET:** Check the gasket to make sure it is suitable for the intended service. The color code identifies the gasket grade. Apply a thin coat of Victaulic lubricant or silicone lubricant to the gasket lips and exterior. **NOTE:** This gasket is designed to provide the sole seal. However, reference should be made to the notes at the beginning of this section for special applications.



*Exaggerated for Clarity*

**5. INSTALL GASKET:** Install the gasket into the cavity between the pipe OD and the flange recess. Make sure the gasket is positioned properly, as shown above. **NOTE:** The lettering on the outside of the gasket must face the flange-adapter gasket pocket of the Style W741 AGS Vic-Flange Adapter. When installed correctly, the lettering on the gasket will not be visible.





## 9a. TORQUE ALL STANDARD, FULL-SHANK-DIAMETER ASSEMBLY BOLTS:

Tighten all standard, full-shank-diameter assembly bolts evenly until the required torque value is achieved. Refer to the “Style W741 Assembly Bolt Torque Requirements” table below for the specific torque requirement.

### Style W741 Assembly Bolt Torque Requirements

| Size                |                                        | Torque Requirement     |
|---------------------|----------------------------------------|------------------------|
| Nominal Size inches | Actual Pipe Outside Diameter inches/mm | ft-lbs<br>N•m          |
| 14 – 16             | 14.000 – 16.000<br>355.6 – 406.4       | 200 – 300<br>271 – 407 |
| 18 – 20             | 18.000 – 20.000<br>457 – 508           | 300 – 400<br>407 – 542 |
| 24                  | 24.000<br>610                          | 400 – 500<br>542 – 678 |

## 9. ADD REMAINING STANDARD, FULL-SHANK-DIAMETER ASSEMBLY BOLTS:

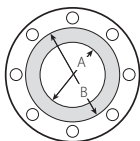
Insert standard, full-shank-diameter assembly bolts into the remaining holes in the Style W741 AGS Vic-Flange and mating flange. Hand-tighten a nut onto each bolt.

### Style W741 Helpful Information

| Flange Size         |                                        | Full-Shank-Diameter Assembly Bolts/Nuts † |                               | Draw Bolts/Nuts §             |                               |                    | Required Mating Face Sealing Surface inches/mm |                |
|---------------------|----------------------------------------|-------------------------------------------|-------------------------------|-------------------------------|-------------------------------|--------------------|------------------------------------------------|----------------|
| Nominal Size inches | Actual Pipe Outside Diameter inches/mm | Number of Bolts/Nuts Required             | Bolt/Nut Size X Length inches | Number of Bolts/Nuts Required | Bolt/Nut Size X Length inches | Socket Size inches | “A” Max.                                       | “B” Min.       |
| 14                  | 14.000<br>355.6                        | 12                                        | 1 x 4½                        | 2                             | ⅝ x 3½                        | 1⅝                 | 14.00<br>355.6                                 | 16.00<br>406.4 |
| 16                  | 16.000<br>406.4                        | 16                                        | 1 x 4½                        | 2                             | ⅝ x 3½                        | 1⅝                 | 16.00<br>406.4                                 | 18.00<br>457.2 |
| 18                  | 18.000<br>457                          | 16                                        | 1 ⅜ x 4 ¾                     | 2                             | ¾ x 4¼                        | 1 ⅜                | 18.00<br>457.2                                 | 20.00<br>508.0 |
| 20                  | 20.000<br>508                          | 20                                        | 1 ⅜ x 5 ¼                     | 2                             | ¾ x 4¼                        | 1 ⅜                | 20.00<br>508.0                                 | 22.00<br>558.8 |
| 24                  | 24.000<br>610                          | 20                                        | 1 ¼ x 5 ¾                     | 2                             | ¾ x 4¼                        | 1 ⅜                | 24.00<br>610.0                                 | 26.00<br>660.4 |

† Victaulic does not supply assembly bolts/nuts. Bolt/nut sizes are for conventional flange-to-flange connections. Longer bolts are required when Vic-Flange Adapters are used with wafer-type valves. Standard, full-shank-diameter assembly bolts are required for proper installation of Style W741 AGS Vic-Flange Adapters.

§ Draw bolts/nuts are supplied with 14 – 24-inch/355.6 – 610-mm Style W741 AGS Vic-Flange Adapters.

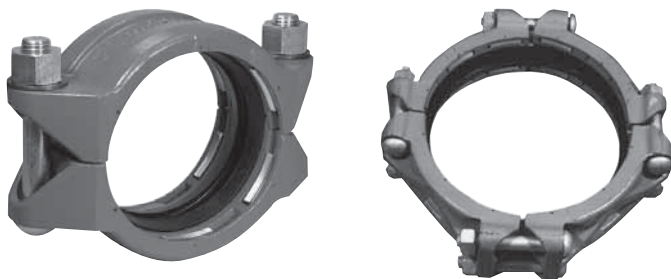


The shaded area of the mating face (shown to the left) must be free from gouges, undulations, and deformities of any type for proper sealing.



# Couplings for Plain-End Pipe

## Installation Instructions



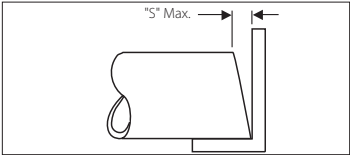
Style 99  
Roust-A-Bout Coupling

**! WARNING**



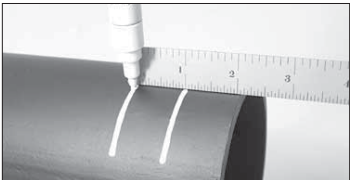
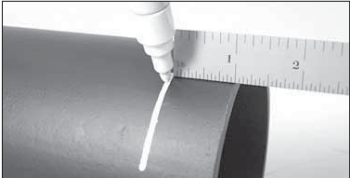
- Read and understand all instructions before attempting to install any Victaulic piping products.
- Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.
- Wear safety glasses, hardhat, and foot protection.

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



**1. PREPARE PIPE ENDS:** Square cut the pipe ends (“S” dimension shown) within 1/2 inch/0.8mm for 1 – 6-inch/ 33.7 – 168.3-mm sizes and 3/8 inch/1.6mm for 8 – 12-inch/219.1 – 323.9-mm sizes.  
**NOTE:** Both pipe ends must be the same outside diameter.

**1a.** Make sure pipe ends are clean and free from damage and scratches within 1 1/2 inches/38mm from the ends. Remove cutting particles.



**2. MARK PIPE ENDS:** Using a measuring tape and a bright-colored pencil or paint stick, place a mark 1 inch/25 mm from the pipe ends. This mark will be used for reference in centering the gasket during installation. Make at least four of these marks equally-spaced around the circumference of the pipe ends.

**2a.** Refer to the “Insertion Depth Requirements” table below. Using a measuring tape and a bright-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 make sure the pipe is inserted properly in the coupling. Make at least four of these marks equally-spaced around the circumference of the pipe ends.

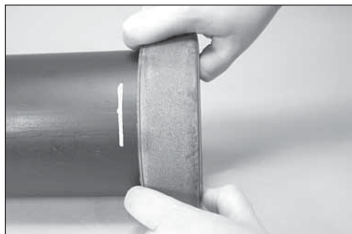
**Insertion Depth Requirements**

| Size                      |                                        | Insertion Depth (2nd Mark) |
|---------------------------|----------------------------------------|----------------------------|
| Nominal Size inches or mm | Actual Pipe Outside Diameter inches/mm | inches mm                  |
| 1                         | 1.315 33.7                             | 1 1/4 32                   |
| 1 1/2                     | 1.900 48.3                             | 1 1/2 38                   |
| 2 – 3                     | 2.375 – 3.500 60.3 – 88.9              | 1 3/4 45                   |
| 76.1 mm                   | 3.000 76.1                             | 1 1/2 38                   |
| 3 1/2                     | 4.000 101.6                            | 1 7/8 48                   |
| 4                         | 4.500 114.3                            | 2 1/8 54                   |
| 139.7 mm                  | 5.500 139.7                            | 1 3/4 45                   |
| 5 – 6                     | 5.563 – 6.625 141.3 – 168.3            | 2 1/4 57                   |
| 165.1 mm                  | 6.500 165.1                            | 2 1/4 57                   |
| 8 – 10                    | 8.625 – 10.750 219.1 – 273.0           | 2 3/8 61                   |
| 12                        | 12.750 323.9                           | 2 1/4 57                   |

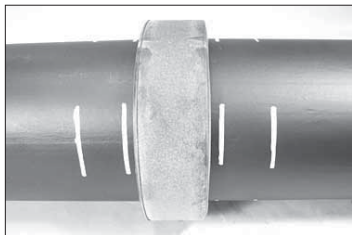




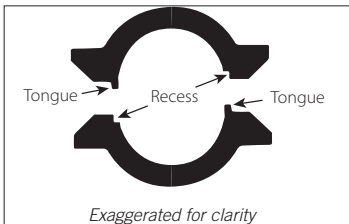
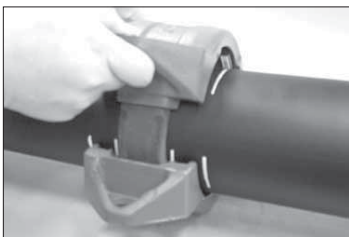
**3. CHECK GASKET AND LUBRICATE:** Check the gasket to make sure it is suitable for the intended service. The color code identifies the gasket grade. Apply a thin coat of Victaulic Lubricant or silicone lubricant to the gasket lips and exterior.



**4. INSTALL GASKET:** Install the gasket over the pipe end. Make sure the gasket does not overhang the pipe end.



**5. JOIN PIPE ENDS:** Align and bring the pipe ends together. Slide the gasket into position by centering it between the first set of pipe marks. **NOTE:** The pipe ends should be butted; however, if a gap is present between the pipe ends, the gap must not exceed  $\frac{1}{4}$  inch/6.4 mm.



**6. INSTALL HOUSINGS:** Install the housings over the gasket. Make sure the tongue-and-recess features mate properly (tongue in recess) and that the housings are centered between the second set of pipe marks. The second set of marks must indicate full insertion into the coupling.

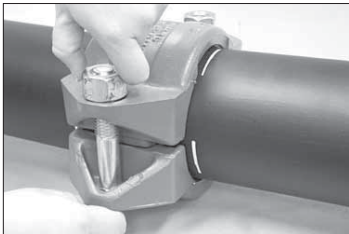
**NOTE:** The 1-inch/33.7-mm; 76.1 mm; 1½-inch/48.3-mm; and 139.7-mm sizes do not contain the tongue-and-recess features.



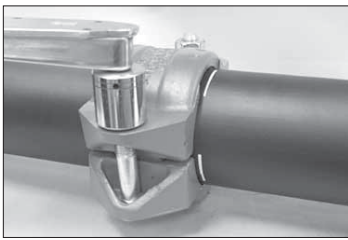
## CAUTION

- Make sure the gasket does not become rolled or pinched while installing the housings.

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



**7. INSTALL BOLTS/NUTS:** Insert the bolts. Thread a nut onto each bolt finger-tight. **NOTE:** Make sure the oval neck of the bolts seat properly in the bolt holes.



**8. TIGHTEN NUTS:** Tighten all nuts evenly by alternating sides until the required torque value is achieved at each nut. Refer to the “Style 99 Torque Requirements” table below for the required torque value. **The use of a torque wrench is strongly recommended for proper assembly of Style 99 Roust-A-Bout Couplings.** **NOTE:** It is important to tighten all nuts evenly to prevent gasket pinching and to produce bolt pad gaps that are equal on both sides of the coupling.

### Style 99 Torque Requirements

| Size                      |                                        | Torque Requirements |
|---------------------------|----------------------------------------|---------------------|
| Nominal Size inches or mm | Actual Pipe Outside Diameter inches/mm | ft-lbs N•m          |
| 1                         | 1.315<br>33.7                          | 35<br>48            |
| 1 ½                       | 1.900<br>48.3                          | 60<br>81            |
| 2 – 2 ½                   | 2.375 – 2.875<br>60.3 – 73.0           | 150<br>203          |
| 76.1 mm                   | 3.000<br>76.1                          | 95<br>129           |
| 3 – 4                     | 3.500 – 4.500<br>88.9 – 114.3          | 200<br>271          |
| 139.7 mm                  | 5.500<br>139.7                         | 160<br>217          |
| 5                         | 5.563<br>141.3                         | 250<br>339          |
| 165.1 mm                  | 6.500<br>165.1                         | 250<br>339          |
| 6 – 8                     | 6.625 – 8.625<br>168.3 – 219.1         | 250<br>339          |
| 10                        | 10.750<br>273.0                        | 300<br>407          |
| 12                        | 12.750<br>323.9                        | 350<br>475          |



### WARNING

- The housings’ tongue and recess features must be mated properly (tongue in recess).
- Torque requirements, specified in these instructions, must be achieved for proper coupling installation.
- Bolt pad gaps must be equal on both sides of the coupling.
- Keep hands away from coupling openings during tightening.

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

### RE-INSTALLATION OF STYLE 99

**COUPLINGS:** Style 99 Couplings can be re-installed as long as the teeth inside the coupling housings are clean and free from any damage. If pipe ends contain damage or scratches within 1 ½ inches/38mm from the ends, corrective action must be taken by cutting off the ends and preparing them in accordance with Step 1 on page 160.

### Style 99 Helpful Information

| Size                      |                                        | Style 99                |                        |
|---------------------------|----------------------------------------|-------------------------|------------------------|
| Nominal Size inches or mm | Actual Pipe Outside Diameter inches/mm | Nut Size inches/ Metric | Socket Size inches/ mm |
| 1                         | 1.315<br>33.7                          | ¾<br>M10                | 1 ⅛<br>17              |
| 1 ½                       | 1.900<br>48.3                          | ½<br>M12                | ¾<br>22                |
| 2 – 2 ½                   | 2.375 – 2.875<br>60.3 – 73.0           | ⅝<br>M16                | 1 ⅛<br>27              |
| 76.1 mm                   | 3.000<br>76.1                          | ½<br>M12                | ¾<br>22                |
| 3 – 4                     | 3.500 – 4.500<br>88.9 – 114.3          | ¾<br>M20                | 1 ¼<br>32              |
| 139.7 mm                  | 5.500<br>139.7                         | ¾<br>M20                | 1 ¼<br>32              |
| 5                         | 5.563<br>141.3                         | ⅞<br>M22                | 1 ⅞<br>36              |
| 165.1 mm                  | 6.500<br>165.1                         | 1<br>M24                | 1 ⅝<br>41              |
| 6                         | 6.625<br>168.3                         | 1<br>M24                | 1 ⅞<br>41              |
| 8 – 10                    | 8.625 – 10.750<br>219.1 – 273.0        | ⅞<br>M22                | 1 ⅞<br>36              |
| 12                        | 12.750<br>323.9                        | 1<br>M24                | 1 ⅞<br>41              |

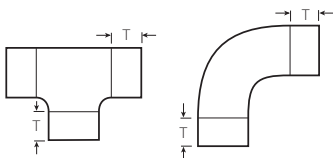


## Required Tangent Lengths for Plain-End Pipe Fittings (for Style 99 Roust-A-Bout Couplings)

### **WARNING**

- The required tangent lengths, listed below, must be used when connecting Style 99 Roust-A-Bout Couplings to fittings for plain-end pipe.
- Failure to follow this instruction could cause joint failure, resulting in serious personal injury and/or property damage.

Style 99 Roust-A-Bout Couplings require sufficient tangent lengths for proper assembly to fittings. The following table applies to all fittings for plain-end pipe used with Style 99 Roust-A-Bout Couplings (elbows, tees, laterals, wyes, crosses, bull plugs, and nipples).



| Size                         |                                           | Required Minimum Tangent Length "T" |
|------------------------------|-------------------------------------------|-------------------------------------|
| Nominal Size<br>inches or mm | Actual Pipe Outside Diameter<br>inches/mm | inches/mm                           |
| 1 ½                          | 1.900<br>48.3                             | 1.50<br>38.1                        |
| 2                            | 2.375<br>60.3                             | 1.75<br>44.5                        |
| 2 ½                          | 2.875<br>73.0                             | 1.75<br>44.5                        |
| 76.1 mm                      | 3.00<br>76.1                              | 1.50<br>38.1                        |
| 3                            | 3.500<br>88.9                             | 1.75<br>44.5                        |
| 3 ½                          | 4.000<br>101.6                            | 1.75<br>44.5                        |
| 4                            | 4.500<br>114.3                            | 2.00<br>50.8                        |
| 139.7 mm                     | 5.500<br>139.7                            | 1.75<br>44.5                        |
| 5                            | 5.563<br>141.3                            | 2.13<br>54.1                        |
| 6                            | 6.625<br>168.3                            | 2.13<br>54.1                        |
| 165.1 mm                     | 6.500<br>165.1                            | 2.13<br>54.1                        |
| 8                            | 8.625<br>219.1                            | 2.25<br>57.2                        |
| 10                           | 10.750<br>273.0                           | 2.25<br>57.2                        |
| 12                           | 12.750<br>323.9                           | 2.25<br>57.2                        |

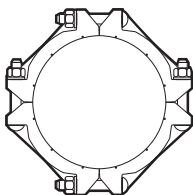
## Style 99 - Roust-A-Bout Coupling (14-inch/355.6-mm and Larger Sizes)

### **WARNING**

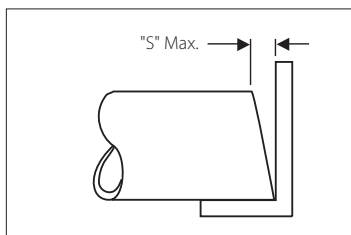


- Read and understand all instructions before attempting to install any Victaulic piping products.
  - Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.
  - Wear safety glasses, hardhat, and foot protection.
- Failure to follow these instructions could result in serious personal injury, improper product installation, and/or property damage.

Style 99 Couplings, in 14-inch/355.6-mm and larger sizes, are cast in segments to ease handling.



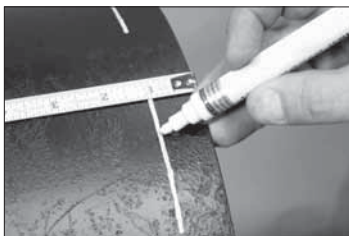
Typical 14 – 18-inch/355.6 – 457-mm Sizes



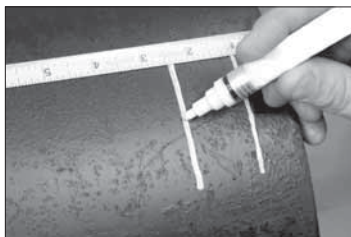
*Exaggerated for clarity*

**1. PREPARE PIPE ENDS:** Square cut the pipe ends ("S" dimension shown) within  $\frac{1}{16}$  inch/1.6 mm. **NOTE:** Both pipe ends must be the same outside diameter.

**1a.** Make sure pipe ends are clean and free from damage and scratches within  $1\frac{1}{2}$  inches/38 mm from the ends. Remove cutting particles.



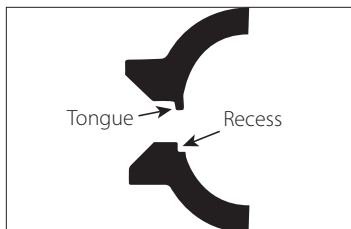
**2. MARK PIPE ENDS:** Using a measuring tape and a bright-colored pencil or paint stick, place a mark 1 inch/25 mm from the pipe ends. This mark will be used for reference in centering the gasket during installation. Make at least four of these marks equally-spaced around the circumference of the pipe ends.



**2a.** Refer to the “Insertion Depth Requirements” table below. Using a measuring tape and a bright-colored marking 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 make sure the pipe is inserted properly in the coupling. Make at least four of these marks equally-spaced around the circumference of the pipe ends.

### Insertion Depth Requirements

| Size                      |                                                 | Insertion Depth<br>(2nd Mark) |
|---------------------------|-------------------------------------------------|-------------------------------|
| Nominal<br>Size<br>inches | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | inches<br>mm                  |
| 14 – 18                   | 14.000 – 18.000<br>355.6 – 457                  | 2 3/8<br>61                   |



### 3. ASSEMBLE SEGMENTS:

Assemble the segments loosely into two equal halves, as shown above. Make sure the tongue and recess features mate properly (tongue-to-recess). Allow slight clearance between the segments to ease assembly onto the pipe.



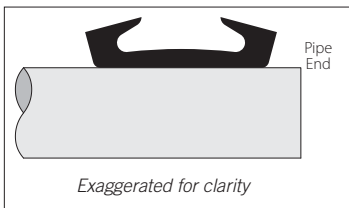
### 4. CHECK GASKET AND

**LUBRICATE:** Check the gasket to make sure it is suitable for the intended service. The color code identifies the gasket grade. Apply a thin coat of Victaulic Lubricant or silicone lubricant to the gasket lips and exterior.

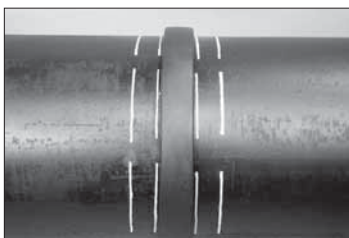


### CAUTION

- Always use a compatible lubricant to prevent the gasket from pinching/tearing during installation. Failure to follow this instruction could result in joint leakage.



**5. INSTALL GASKET:** For larger-size couplings, it may be easier to turn the gasket inside out, then slide it over the pipe end. Make sure the gasket does not overhang the pipe end.



**6. JOIN PIPE ENDS:** Align and bring the pipe ends together. Roll the gasket into position by centering it between the first set of pipe marks. **NOTE:** The pipe ends should be butted; however, if a gap is present between the pipe ends, the gap must not exceed 1/4 inch/6.4 mm.

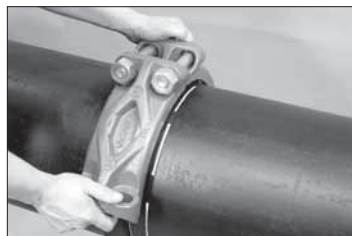
## ⚠ CAUTION

- Make sure the gasket does not become rolled or pinched while installing the housings.

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

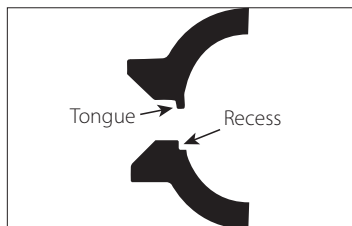


**8. TIGHTEN NUTS:** Tighten all nuts evenly by alternating sides until the required torque value is achieved at each nut. Refer to the “Style 99 Torque Requirements” table below for the required torque value. **The use of a torque wrench is strongly recommended for proper assembly of Style 99 Roust-A-Bout Couplings.** **NOTE:** It is important to tighten all nuts evenly to prevent gasket pinching and to produce bolt pad gaps that are equal at each set of bolt pads.



### 7. INSTALL FIRST SEGMENT

**ASSEMBLY:** Install one of the pre-assembled halves over the gasket.



### 7a. INSTALL REMAINING SEGMENT ASSEMBLY:

Install the second assembly onto the pipe, making sure the tongue-and-recess features mate properly (tongue to recess) and that the housings are centered between the second set of pipe marks. While supporting the weight of the assembly, install the remaining bolts, and thread the nuts finger-tight onto the bolts. **NOTE:** Make sure the oval neck of each bolt seats properly in the bolt hole.

## ⚠ WARNING

- The housings' tongue and recess features must be mated properly (tongue in recess).
- Torque requirements, specified in these instructions, must be achieved for proper coupling installation.
- Bolt pad gaps must be equal on both sides of the coupling.
- Keep hands away from coupling openings during tightening.

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

### Style 99 Torque Requirements

| Size                |                                        | Torque Requirements |
|---------------------|----------------------------------------|---------------------|
| Nominal Size inches | Actual Pipe Outside Diameter inches/mm | ft-lbs<br>N•m       |
| 14 – 18             | 14.000 – 18.000<br>355.6 – 457         | 350<br>475          |

### Style 99 Helpful Information

| Size                |                                        | Style 99               |                       |
|---------------------|----------------------------------------|------------------------|-----------------------|
| Nominal Size inches | Actual Pipe Outside Diameter inches/mm | Nut Size inches/Metric | Socket Size inches/mm |
| 14 – 18             | 14.000 – 18.000<br>355.6 – 457         | 1<br>M24               | 1 5/8<br>41           |

**RE-INSTALLATION OF STYLE 99 COUPLINGS:** Style 99 Couplings can be re-installed as long as the teeth inside the coupling housings are clean and free from any damage. If pipe ends contain damage or scratches within 1 ½ inches/38mm from the ends, corrective action must be taken by cutting off the ends and preparing them in accordance with Step 1 on page 164.

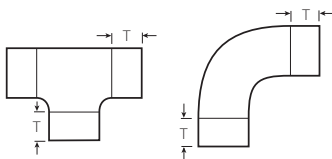
## Required Tangent Lengths for Plain-End Pipe Fittings (for Style 99 Roust-A-Bout Couplings)

### WARNING

- The required tangent lengths, listed below, must be used when connecting Style 99 Roust-A-Bout Couplings to fittings for plain-end pipe.

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

Style 99 Roust-A-Bout Couplings require sufficient tangent lengths for proper assembly to fittings. The following table applies to all fittings for plain-end pipe used with Style 99 Roust-A-Bout Couplings (elbows, tees, laterals, wyes, crosses, bull plugs, and nipples).



| Size                |                                        | Required Minimum Tangent Length "T" |
|---------------------|----------------------------------------|-------------------------------------|
| Nominal Size inches | Actual Pipe Outside Diameter inches/mm | inches/mm                           |
| 14 – 18             | 14.000 – 18.000<br>355.6 – 457         | 2.25<br>57.2                        |



# Hole-Cut Products

## Installation Instructions



Style 920 and 920N Mechanical-T



Style 922 FireLock Outlet-T



Style 923 Vic-Let Strapless Outlet



Style 924 Vic-O-Well Strapless  
Thermometer Outlet

**! WARNING**



- Read and understand all instructions before attempting to install any Victaulic piping products.
  - Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.
  - Wear safety glasses, hardhat, and foot protection.
- Failure to follow these instructions could result in serious personal injury, improper product installation, and/or property damage.

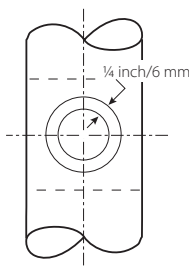
The Style 912 FireLock® Low-Profile Sprinkler-Tee is designed for direct connection of sprinkler heads and is FM Approved up to 300 psi/2068 kPa and VdS and LPCB Approved up to 232 psi/16 Bar at ambient temperatures that are typical for fire protection systems.

### Pipe Preparation

**NOTICE**

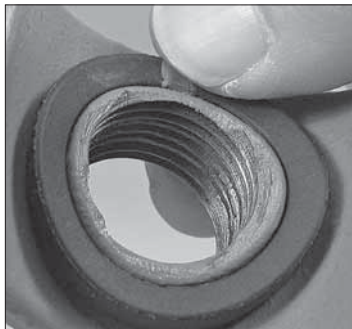
- Victaulic hole cutting tools are recommended for proper hole preparation.

- Proper preparation of the hole is essential for sealing and performance.
- Drill a  $1\frac{5}{16}$ -inch/24-mm minimum hole (1-inch/25-mm maximum hole) on the centerline of the pipe. **NOTE:** Holes MUST be drilled on the centerline of the pipe.
- Style 912 Low-Profile Sprinkler-Tee products are designed with female threads to ISO 7-Rp 1/2 (Rp 1/2 BSPP per BS21) and can accommodate only male sprinkler threads. **FOR SPRINKLER USE ONLY. DO NOT USE AS A BRANCH OUTLET.**
- Ensure that a  $\frac{1}{4}$ -inch/6-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 and sharp or rough edges from the hole that might affect assembly, proper seating of the locating collar, flow from the outlet, or gasket seating.



*Exaggerated for clarity*

## Installation



- 1. CHECK GASKET:** Make sure the gasket is seated fully in the gasket pocket. **DO NOT LUBRICATE THE GASKET.**



- 2. ASSEMBLE HOUSINGS:** Remove the flange nut and bolt from one side of the Style 912 assembly. Thread the remaining flange nut loosely onto the bolt (flange nut should be flush with end of bolt) to allow for the “swing-over” feature.



- 3. INSTALL HOUSINGS:** Install the outlet housing onto the pipe by centering the locating collar in the hole. To check for proper engagement, slide the outlet housing back and forth while pushing down. A properly positioned outlet housing can be moved only a small amount in any direction.

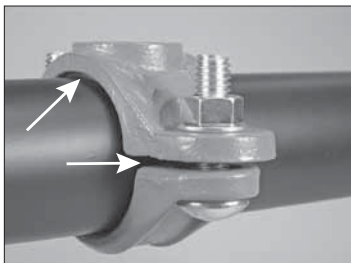
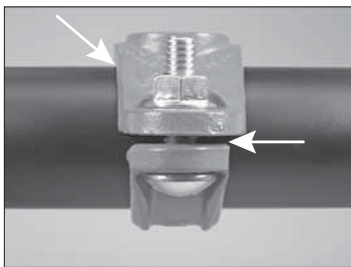
- 3a.** Rotate the lower housing around the pipe, while holding the outlet housing in place to make sure the locating collar remains seated properly in the hole.



- 4. INSTALL REMAINING BOLT/ FLANGE NUT:** Insert the other track bolt into the lower housing and outlet housing. Thread the flange nut onto the bolt finger-tight. Make sure the track heads of the bolts seat properly in the bolt holes.



- 5. TIGHTEN FLANGE NUTS:** Tighten the flange nuts evenly to an approximate torque value of 20 ft-lbs/27.1-N•m to ensure proper gasket compression. **NOTE:** To avoid over-tightening the flange nuts, use a wrench with a maximum length of 8 inches/200 mm. **DO NOT** over-tighten the flange nuts.



## WARNING

- **DO NOT** over-tighten the flange nuts. Over-tightening the flange nuts can over-compress the gasket and distort the outlet housing and lower housing. Over-tightening does not enhance product performance.

Failure to follow this instruction could cause product failure, resulting in serious personal injury and/or property damage.

### Style 912 Helpful Information

| Run X Branch<br>FPT | Nut Size<br>inches/Metric | Socket<br>Size<br>inches/mm |
|---------------------|---------------------------|-----------------------------|
| All Sizes           | $\frac{3}{8}$<br>M10      | $\frac{9}{16}$<br>15        |

**6. INSPECT THE ASSEMBLY:** The outlet housing, near the gasket, should not make metal-to-metal contact with the pipe. In addition, a small bolt pad gap is expected between the outlet housing and the lower housing, as shown above.

**! WARNING**



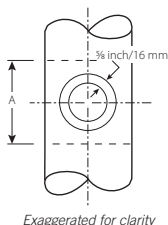
- Read and understand all instructions before attempting to install any Victaulic piping products.
  - Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.
  - Wear safety glasses, hardhat, and foot protection.
- Failure to follow these instructions could result in serious personal injury, improper product installation, and/or property damage.

**Pipe Preparation for Mechanical-T Outlet and Mechanical-T Cross Installation**

**NOTICE**

- Victaulic hole cutting tools are recommended for proper hole preparation.

- Proper preparation of the hole is essential for sealing and performance. Make sure the correct hole saw size is being used. Refer to the “Style 920/920N Mechanical-T Outlet and Mechanical-T Cross Pipe Preparation Requirements” table for the proper hole saw size.
- Holes MUST be drilled on the centerline of the pipe. Holes for Mechanical-T Cross assemblies must be cut on the centerline of the pipe at predetermined locations for each branch. Holes for Mechanical-T Cross assemblies must be in line within  $\frac{1}{8}$  inch/1.6 mm of each other.
- Ensure that a  $\frac{3}{8}$ -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 and sharp or rough edges from the hole. Burrs and sharp edges might affect assembly, proper seating of the locating collar, flow from the outlet, or gasket sealing.
- The pipe around the entire circumference, within the “A” dimension shown in the sketch below, must be free from any dirt, scale, or projections that might prevent the housing from seating fully on the pipe. Refer to the “Style 920/920N Mechanical-T Outlet and Mechanical-T Cross Pipe Preparation Requirements” table on the following page for the “A” dimension.
- **DO NOT USE STYLE 920/920N MECHANICAL-T BOLTED BRANCH OUTLETS ON PVC PLASTIC PIPE.**



## NOTICE

- For proper installation, some new sizes of Style 920N products require a different hole size than the Style 920 or Style 921 it replaces. Make sure the proper size hole is prepared for the size and style being installed (refer to the table below for requirements).

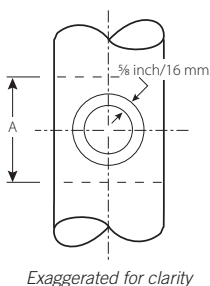
### Style 920/920N Mechanical-T Outlet and Mechanical-T Cross Pipe Preparation Requirements

| Size                          | Hole Dimensions<br>inches/mm                  |                                           | Surface<br>Preparation<br>"A" Dimension |
|-------------------------------|-----------------------------------------------|-------------------------------------------|-----------------------------------------|
|                               | Nominal<br>Outlet Size<br>inches<br>Actual mm | Minimum Hole<br>Diameter/Hole<br>Saw Size | Maximum<br>Allowable<br>Diameter        |
| All ½-inch/<br>21.3 Outlets   | 1 ½<br>38                                     | 1 ⅝<br>41                                 | 3 ½<br>89                               |
| All ¾-inch/<br>26.9 Outlets   | 1 ½<br>38                                     | 1 ⅝<br>41                                 | 3 ½<br>89                               |
| All 1-inch/<br>33.7 Outlets   | 1 ½<br>38                                     | 1 ⅝<br>41                                 | 3 ½<br>89                               |
| All 1 ¼-inch/<br>42.4 Outlets | 1 ¾<br>44                                     | 1 ⅞<br>48                                 | 4<br>102                                |
| All 1 ½-inch/<br>48.3 Outlets | 2†<br>51                                      | 2 ⅞<br>54                                 | 4<br>102                                |
| All 2-inch/<br>60.3 Outlets   | 2 ½‡<br>64                                    | 2 ⅞<br>67                                 | 4 ½<br>114                              |
| All 2 ½-inch/<br>73.0 Outlets | 2 ¾<br>70                                     | 2 ⅞<br>73                                 | 5<br>127                                |
| All 76.1-mm<br>Outlets        | 2 ¾<br>70                                     | 2 ⅞<br>73                                 | 5 ½<br>140                              |
| All 3-inch/<br>88.9 Outlets   | 3 ½<br>89                                     | 3 ⅝<br>92                                 | 5 ½<br>140                              |
| All 4-inch/<br>114.3 Outlets  | 4 ½<br>114                                    | 4 ⅝<br>118                                | 6 ½<br>165                              |
| All 108.0-mm<br>Outlets       | 4 ½<br>114                                    | 4 ⅝<br>118                                | 6 ½<br>165                              |

† 2 x 1 ½-inch/60.3 x 48.3-mm Style 920N products require a 1 ¾-inch/44-mm hole.

‡ 8 x 2-inch/219.1 x 60.3-mm Style 920 products require a 2 ¾-inch/70-mm size hole.

**NOTE:** Style 920 and Style 920N housings CANNOT be mated to each other to achieve cross connections.

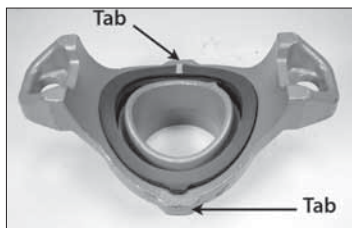


## Mechanical-T Installation



- 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



- 2. CHECK GASKET AND LUBRICATE:** Inspect the sealing surface of the gasket to make sure 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 above photos for differences between the gaskets.

**2a. For Metal Pipe:** Lubricate the exposed sealing surface of the gasket in accordance with the "Lubricant Compatibility for Gaskets" table below.

**2b. For HDPE Pipe:** Lubricate the exposed sealing surface of the gasket in accordance with the "Lubricant Compatibility for Gaskets" table below. **DO NOT** use Victaulic lubricant on HDPE pipe. Always consult with the pipe manufacturer for lubricant compatibility requirements.



- 3. 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.

## Lubricant Compatibility for Gaskets

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

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



**3a.** Make sure 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. **NOTE:** Make sure the oval neck of each bolt seats properly in the bolt hole.



**5. TIGHTEN NUTS:** Make sure 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.

**5a. For Metal Pipe:** The nuts must be torqued to 50ft-lbs/68N•m with even gaps between the bolt pads. **DO NOT** exceed 70ft-lbs/95N•m of torque on the nuts.

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

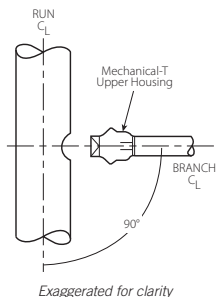


## WARNING

- 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 bolt 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, make sure 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, dry pendent sprinkler heads, etc., should be verified as suitable for use with this Victaulic product. Failure to verify suitability in advance may result in assembly problems or leakage.



## Style 920N Mechanical-T Crosses

- 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.**
- Install the cross connection in accordance with the instructions in this section. Make sure the locating collar on each side is positioned securely inside the hole. Nuts must be torqued to 50ft-lbs/68 N•m, with even gaps between the bolt pads, to ensure the cross assembly is rigid. **DO NOT** exceed 70ft-lbs/95 N•m of torque on the nuts.
- **DO NOT mix Style 920 Outlets with Style 920N Outlets when making cross assemblies.**



## Style 920 Helpful Information

| Size                         |                                                 | Nut Size          | Socket Size   |
|------------------------------|-------------------------------------------------|-------------------|---------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | inches/<br>Metric | inches/<br>mm |
| 76.1 mm                      | 3.000<br>76.1                                   | ½<br>M12          | ⅞<br>22       |
| 108.0 mm                     | 4.250<br>108.0                                  | ½<br>M12          | ⅞<br>22       |
| 4                            | 4.500<br>114.3                                  | ½<br>M12          | ⅞<br>22       |
| 133.0 mm                     | 5.250<br>133.0                                  | ⅝<br>M16          | 1 ⅛<br>27     |
| 139.7 mm                     | 5.500<br>139.7                                  | ⅝<br>M16          | 1 ⅛<br>27     |
| 5 – 6                        | 5.563 – 6.625<br>141.3 – 168.3                  | ⅝<br>M16          | 1 ⅛<br>27     |
| 159.0 mm                     | 6.250<br>159.0                                  | ⅝<br>M16          | 1 ⅛<br>27     |
| 165.1 mm                     | 6.500<br>165.1                                  | ⅝<br>M16          | 1 ⅛<br>27     |
| 200A (JIS)                   | —<br>216.3                                      | ¾<br>M20          | 1 ¼<br>32     |
| 8                            | 8.625<br>219.1                                  | ¾<br>M20          | 1 ¼<br>32     |

## Style 920N Helpful Information

| Size                         |                                                 | Nut Size          | Socket Size   |
|------------------------------|-------------------------------------------------|-------------------|---------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | inches/<br>Metric | inches/<br>mm |
| 2 – 6                        | 2.375 – 6.625<br>60.3 – 168.3                   | ½<br>M12          | ⅞<br>22       |
| 76.1 – 139.7 mm              | 3.000 – 5.500<br>76.1 – 139.7                   | ½<br>M12          | ⅞<br>22       |
| 159.0 mm                     | 6.250<br>159.0                                  | ⅝<br>M16          | 1 ⅛<br>27     |
| 165.1 mm                     | 6.500<br>165.1                                  | ½<br>M12          | ⅞<br>22       |

## ! WARNING



- Read and understand all instructions before attempting to install any Victaulic piping products.
  - Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.
  - Wear safety glasses, hardhat, and foot protection.
- Failure to follow these instructions could result in serious personal injury, improper product installation, and/or property damage.

The Style 922 FireLock Outlet-T is UL Listed and FM Approved up to 300 psi/2068 kPa and VdS approved up to 16 Bar at ambient temperatures that are typical for fire protection systems.

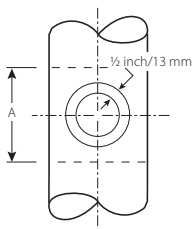
### Pipe Preparation for Outlet-T Installation

- The Style 922 FireLock Outlet-T is designed for direct connection of sprinkler heads, drop nipples, sprigs, drains, gauges, and other outlet products.

## NOTICE

- Victaulic hole cutting tools are recommended for proper hole preparation.

- Proper preparation of the hole is essential for sealing and performance.
- Drill a 1 3/16-inch/30-mm minimum hole (1 1/4-inch/32-mm maximum hole) on the centerline of the pipe. **NOTE:** Holes MUST be drilled on the centerline of the pipe.
- Victaulic female threaded products are designed to accommodate standard NPT or BSPT (Optional) male pipe threads only. Use of male threaded products with special features, such as probes, dry pendent sprinkler heads, etc., should be verified as suitable for use with this Victaulic product. Failure to verify suitability in advance may result in assembly problems or leakage.
- Ensure that a 1/2-inch/13-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 and sharp or rough edges from the hole. Burrs and sharp edges might affect assembly, proper seating of the locating collar, flow from the outlet, or gasket seating.

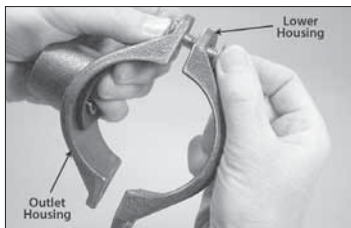


*Exaggerated for clarity*

## Installation



**1. INSTALL GASKET:** Install the gasket into the gasket pocket, as shown above. Press the gasket along the full circumference to ensure that it seats fully in the gasket pocket. **DO NOT LUBRICATE THE GASKET.**



**2. ASSEMBLE HOUSINGS:** Insert a bolt into the two housings. Thread a flange nut loosely onto the end of the bolt (nut should be flush with end of bolt) to allow for the “swing-over” feature.

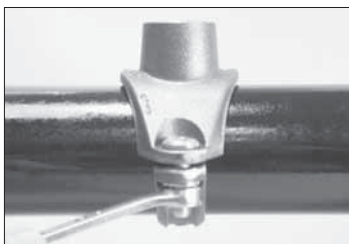


**3. INSTALL HOUSINGS:** Install the outlet housing onto the pipe by centering the locating collar in the hole. To check for proper engagement, slide the outlet housing back and forth while pushing down. A properly positioned outlet housing can be moved only a small amount in any direction.

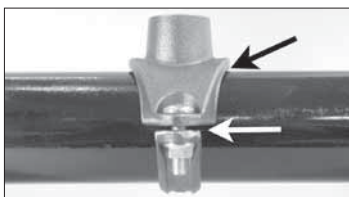
**3a.** While holding the outlet housing in place, rotate the lower housing around the pipe. Make sure the locating collar remains seated properly in the hole.



**4. INSTALL REMAINING BOLT/ NUT:** Insert the remaining bolt into the outlet housing and lower housing. Thread a flange nut onto the bolt finger-tight. **NOTE:** Make sure the oval neck of each bolt seats properly in the bolt hole.



**5. TIGHTEN NUTS:** Tighten the flange nuts evenly by alternating sides to an approximate torque value of 20 ft-lbs/ 27 N•m to ensure proper gasket compression. **NOTE:** To avoid over-tightening the flange nuts, use a wrench with a maximum length of 8 inches/ 200mm. **DO NOT** over-tighten the flange nuts.



**5a. INSPECT THE ASSEMBLY:** The outlet housing, near the gasket, should not make metal-to-metal contact with the pipe. In addition, a small gap is should be present between the outlet housing and the lower housing, as shown above.

### Style 922 Helpful Information

| Run X Branch | Nut Size<br>inches/Metric | Socket<br>Size<br>inches/mm |
|--------------|---------------------------|-----------------------------|
| All Sizes    | 3/8<br>M10                | 9/16<br>15                  |

**Style 923** - Vic-Let™ Strapless Outlet

**Style 924** - Vic-O-Well™ Strapless Thermometer Outlet

## **WARNING**



- Read and understand all instructions before attempting to install any Victaulic piping products.
  - Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.
  - Wear safety glasses, hardhat, and foot protection.
- Failure to follow these instructions could result in serious personal injury, improper product installation, and/or property damage.

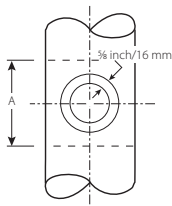
- Victaulic Style 923 Vic-Let Strapless Outlets are rated to 300-psi/2068-kPa working pressure on standard-weight steel pipe in sizes 4 – 8 inches/114.3 – 219.1-mm and Schedule 10 through 40 steel pipe in sizes 10-inches/273.0-mm and larger. In addition, Style 923 Vic-Let Strapless Outlets are UL/ULC Listed for 175-psi/1206 kPa fire protection service.
- Victaulic Style 924 Vic-O-Well Strapless Thermometer Outlets are rated to 300-psi/2068-kPa working pressure on standard weight steel pipe. In addition, Style 924 Vic-O-Well Strapless Thermometer Outlets contain 1 ¼ - 18NEF extra-fine threads to receive thermometers with a 6-inch/152-mm nominal bulb length only.

### Pipe Preparation for Strapless Outlets

## **NOTICE**

- Victaulic hole cutting tools are recommended for proper hole preparation.
- Due to deformation of the collar, Style 923 and Style 924 products should not be re-used after the initial installation.

- Proper preparation of the hole is essential for sealing and performance.
- Drill a 1 ½-inch/38-mm minimum hole (1 ⅞-inch/40-mm maximum hole) on the centerline of the pipe. **NOTE:** Holes **MUST** be drilled on the centerline of the pipe.
- 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 and sharp or rough edges from the hole. Burrs and sharp edges might affect assembly, flow from the outlet, or gasket seating.
- The pipe, within the “A” dimension shown in the sketch below, must be free from any dirt, scale, or projections that might prevent the strapless outlet from seating fully on the pipe.



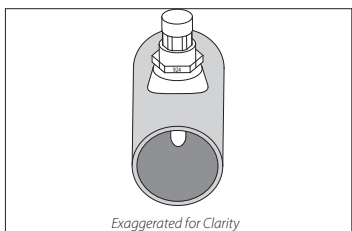
*Exaggerated for clarity*



## Installation

### NOTICE

- The following installation steps feature photos of the Style 923 Vic-Let Strapless Outlet. In addition, these steps apply to the Style 924 Vic-O-Well Strapless Thermometer Outlets.



- 1. CHECK PRODUCT:** Make sure the "923" or "924" marking on the top hex nut is facing toward the curvature of the collar (along pipe axis), as shown above.

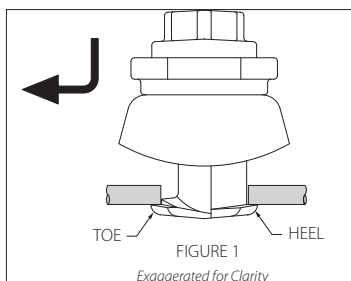


- 2. POSITION ASSEMBLY NUT:** Position the lettered face of the assembly nut at the top of the threads, as shown above. **DO NOT** remove the assembly nut.

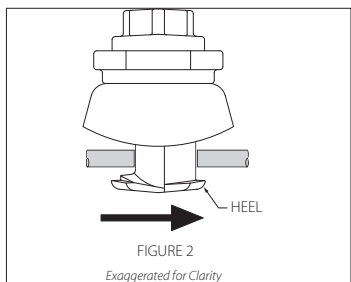


- 3. LUBRICATE GASKET:** Apply a thin coat of Victaulic lubricant or silicone

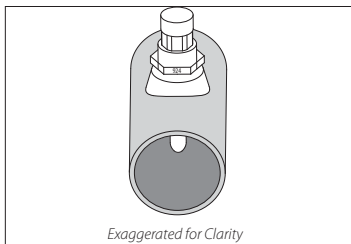
lubricant to the exposed gasket sealing lip to ensure proper sealing. **DO NOT** use petroleum-based lubricants on the gasket.



- 4. SEAT OUTLET:** Align the "foot" of the outlet with the pipe. Tilt the "toe" into the hole to insert the outlet (refer to Figure 1 above).

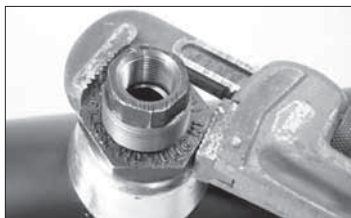


- 5. POSITION OUTLET:** Shift the outlet to position the "heel" inside the pipe, as shown in Figure 2 above. **NOTE:** The heel must be positioned, as shown in Figure 2 above, to ensure proper performance under operating conditions.



## 6. HAND-TIGHTEN ASSEMBLY NUT:

Hold the collar in position, and hand-tighten the assembly nut. Check for proper positioning after tightening by attempting to tilt the outlet in the hole. The outlet should not shift. If the outlet shifts, loosen the assembly nut, re-position the outlet, and hand-tighten the assembly nut again. **NOTE:** Make sure the “923” or “924” marking on the top hex nut is still facing toward the curvature of the collar (along pipe axis), as shown above.



## 7. WRENCH-TIGHTEN NUT:

Wrench-tighten the assembly nut until the collar deforms and contacts the pipe evenly on all sides. Maintain collar/gasket alignment to prevent gasket pinching. **DO NOT** exceed 200ft-lbs/271 N•m. **NOTE:** For 4 – 8-inch/114.3 – 219.1-mm size outlets, a “ratcheting” motion will help maintain alignment with the collar.

## NOTICE

- Due to deformation of the collar, Style 923 Vic-Let Outlets and Style 924 Vic-O-Well Outlets should not be reused after the initial installation.

**8. CHECK ASSEMBLY:** After wrench-tightening the assembly nut, check to make sure the curvature of the collar conforms to the curvature of the pipe. In addition, make sure the collar contacts the pipe evenly on all sides and that no portion of the gasket is exposed.



## WARNING

- The collar must deform to contact the pipe evenly on all sides.
- DO NOT** exceed 200 ft-lbs/ 271 N•m on the assembly nut during installation.
- DO NOT** exceed 1 ½ times the working pressure during system tests.

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



**9. MAKE CONNECTION:** Make the required connection by using a second wrench on the top hex only. To prevent loosening of the outlet in the hole, **DO NOT** use the assembly nut for tightening this connection.

## NOTICE

- Victaulic Style 923 Vic-Let Strapless Outlets contain female threads that are designed to accommodate standard ANSI male threads only. Use of male threaded products that contain special features such as probes, dry pendent sprinkler heads, etc., must be checked for compatibility with this product.
- Victaulic Style 924 Vic-O-Well Strapless Thermometer Outlets contain 1 ¼ - 18NEF 2B extra-fine threads to receive thermometers with a 6-inch/152-mm nominal bulb length only.



# Valve Installation and Operation

## Butterfly Valves, Check Valves, Ball Valves, Plug Valves



**Vic®-300 MasterSeal™  
Butterfly Valve**



**Series W761 AGS  
Vic-300 Butterfly Valve**



**Series 763 Butterfly  
Valve with Gear Operator**



**Series 712/712S Swing  
Check Valve**



**Series 717HR  
FireLock Check Valve**



**Series 779 Venturi  
Check Valve**



**Series 728 FireLock Ball  
Valve**



**Series 726  
Vic-Ball Valve**



**Series 722  
Ball Valve**



**Series 377  
Vic-Plug Balancing Valve**

**NOTE: More valve series are featured in this section.**

# BUTTERFLY VALVE INSTALLATION AND OPERATION

When installing a Victaulic butterfly valve into a piping system, follow the instructions supplied with the coupling. Refer to the notes below for applications/limitations.

**DO NOT INSTALL BUTTERFLY VALVES INTO THE SYSTEM WITH THE DISC IN THE FULLY OPEN POSITION.**

When using butterfly valves for throttling service, Victaulic recommends the disc to be positioned no less than 30 degrees open. For best results, the disc should be between 30 and 70 degrees open. High pipeline velocities and/or throttling with the disc less than 30 degrees open may result in noise, vibration, cavitation, severe line erosion, and/or loss of control. For details regarding throttling services, contact Victaulic.

Victaulic recommends limiting the flow velocities for water service to 20feet per second/6.1 meters per second. When higher flow velocities are necessary, contact Victaulic. When dealing with flow media other than water, contact Victaulic.

When directly connecting an end cap to a butterfly valve, use only a tapped end cap for pressure relief. If the butterfly valve is opened then closed unknowingly while the end cap is attached, the space between the disc and end cap will be filled and pressurized. A sudden release of energy can occur if the end cap is removed while the space behind it is pressurized. **PRESSURE MUST BE VENTED THROUGH THE TAP BEFORE ATTEMPTING TO REMOVE THE CAP.**



## DANGER



- When directly connecting an end cap to a butterfly valve, use only a tapped end cap for pressure relief.
  - Pressure must be vented through the tap before attempting to remove the cap.
- Failure to follow these instructions could result in death or serious personal injury.

Victaulic Butterfly Valves are designed with grooved ends for use with grooved pipe couplings. If flange connections are required, refer to the notes on the following page regarding Vic-Flange Adapter restrictions.

## NOTICE

- **DO NOT** install valves with the disc in the full-open position. Make sure no part of the disc protrudes beyond the end of the valve body.
- Use **ONLY** grooved-end, NPS carbon steel pipe with Victaulic Butterfly Valves. **DO NOT** use plain-end NPS pipe or grooved cast ductile iron pipe.
- To prevent valves from rotating in the system, Victaulic recommends installing butterfly valves with at least one Victaulic rigid coupling. If two Victaulic flexible couplings are used, additional support may be required to prevent the valve from rotating. Refer to the instructions, supplied with the couplings and butterfly valves, for proper installation.

### **Series 700 Butterfly Valves**

- Victaulic recommends Style 07 Zero-Flex Rigid Couplings or Style 107 Quick-Vic Rigid Couplings with the Series 700 Butterfly Valve to eliminate joint deflection or valve rotation at the coupling connection to the piping system. For installation requirements, follow the instructions supplied with the coupling.

### **Series 761 Vic-300 MasterSeal Butterfly Valves**

- For Series 761 Vic-300 MasterSeal Butterfly Valves, lubricated nitrile “T” seat seals are recommended for dry or lubricated gas services.
- Style 741 Vic-Flange Adapters can be used on all sizes of Series 761 Vic-300 MasterSeal Butterfly Valves.
- Series 761 Vic-300 MasterSeal Butterfly Valves cannot be connected directly to flanged components with Style 743 Vic-Flange Adapters. A No. 46 ANSI 300 groove-by-flange adapter is required for this application.

### **Series W761 AGS Vic-300 Butterfly Valve**

- Series W761 AGS Vic-300 Butterfly Valves CAN be connected directly to flanged components with Style W741 AGS Vic-Flange Adapters.
- When connecting a Series W761 AGS Vic-300 Butterfly Valve to a Series W715 AGS Double Disc Vic-Check® Valve, a pipe spool is required between the two valves to prevent disc interference.
- When a Series W715 AGS Double Disc Vic-Check Valve is placed near a Series W761 AGS Vic-300 Butterfly Valve, orient the center brace/disc shaft of the Series W715 at right angles to the butterfly valve stem. Failure to do so will cause uneven and unstable flow through the Series W715, resulting in noise and reduced valve life.

### **Series 765, 705, 766, and 707C Butterfly Valves**

- Style 741 Vic-Flange Adapters can be used only on one side of 8-inch/219.1-mm and smaller Series 765, 705, 766, and 707C Butterfly Valves that will not interfere with mating components and handle operation.
- Style 741 Vic-Flange Adapters cannot be used on 10-inch/273.0-mm Series 765 and Series 705 Butterfly Valves.
- Series 765, 705, 766, and 707C Butterfly Valves cannot be connected directly to flanged components with Style 743 Vic-Flange Adapters. A No. 46 ANSI 300 groove-by-flange adapter is required for this application.

### **Series 763 Stainless Steel Butterfly Valve**

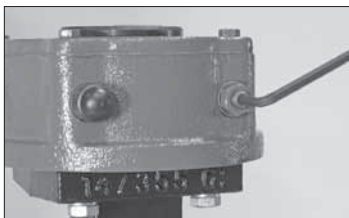
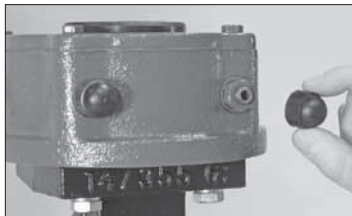
- Series 763 Stainless Steel Butterfly Valves CANNOT be connected directly to flanged components with Style 743 Vic-Flange Adapters. A No. 46 ANSI 300 groove-by-flange adapter is required for this application.

## **ADJUSTING THE TRAVEL LIMIT STOPS FOR VICTAULIC BUTTERFLY VALVES WITH GEAR OPERATORS**

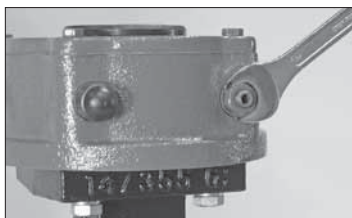
Adjustment of the travel limit stops for Victaulic Butterfly Valves with gear operators can be performed while the system is operational. **NOTE:** Cycling of the valve to test travel limit stop adjustments may affect downstream equipment. Refer to the instructions on the following pages for detailed instructions on how to adjust the travel limit stops.

## ADJUSTING THE GEAR OPERATOR'S CLOSED TRAVEL LIMIT STOPS FOR SERIES 761 VIC-300 MASTERSEAL, SERIES W761 AGS VIC-300, AND SERIES 763 STAINLESS STEEL BUTTERFLY VALVES

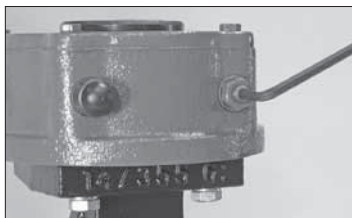
1. Turn the handwheel of the gear operator counterclockwise to ensure the valve disc is not in the fully closed position.



2. Remove the travel stop dust cap from the right side of the gear operator, as shown above.



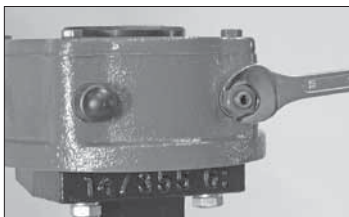
3. Using an appropriately sized wrench, loosen the hex lock nut (counterclockwise) located on the right side of the gear operator.



6. With the valve disc in the closed (shut) position, tighten the internal set screw (clockwise) with an appropriately sized allen wrench.

### NOTICE

- System pressure upstream of the valve may increase while the valve disc is in the fully closed position.
- Flow downstream of the valve will be interrupted with the disc in the fully closed position.



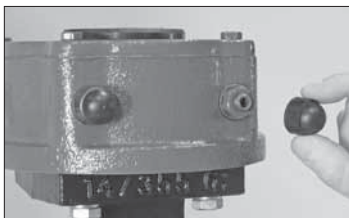
4. Using an appropriately sized allen wrench, loosen the internal set screw counterclockwise to increase the distance for disc travel.

- 4a. Using an appropriately sized allen wrench, tighten the internal set screw clockwise to decrease the distance for disc travel.

5. Turn the handwheel of the gear operator in the clockwise direction to place the valve disc in the closed (shut) position. Confirm that the valve is providing shutoff service. Repeat steps 4 and 4a, as necessary.

7. Using an appropriately sized wrench, tighten the hex lock nut (clockwise) located on the right side of the gear operator.

8. Verify proper operation of the gear operator by turning the handwheel.



9. Replace the travel stop dust cap.

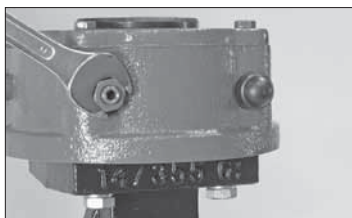
10. Follow the "Adjusting the Gear Operator's Open Travel Limit Stops" section on the following page.

## ADJUSTING THE GEAR OPERATOR'S OPEN TRAVEL LIMIT STOPS FOR SERIES 761 VIC-300 MASTERSEAL, SERIES W761 AGS VIC-300, AND SERIES 763 STAINLESS STEEL BUTTERFLY VALVES

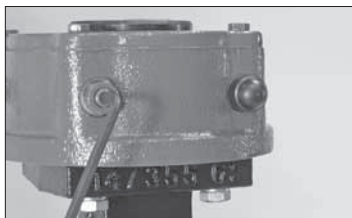
1. Turn the handwheel of the gear operator clockwise to place the valve disc in the slightly open position.



2. Remove the travel stop dust cap from the left side of the gear operator, as shown above.

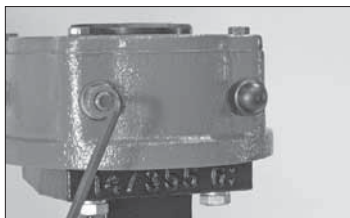


3. Using an appropriately sized wrench, loosen the hex lock nut (counterclockwise) located on the left side of the gear operator.

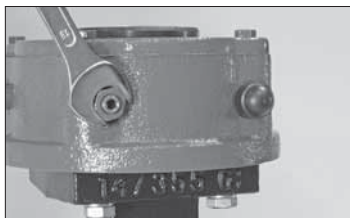


4. Using an appropriately sized allen wrench, loosen the internal set screw counterclockwise.

5. Turn the handwheel of the gear operator to place the valve disc in the desired open position.



6. With the valve disc in the desired open position, tighten the internal set screw (clockwise) with an appropriately sized allen wrench.



7. Using an appropriately sized wrench, tighten the hex lock nut (clockwise) located on the left side of the gear operator.

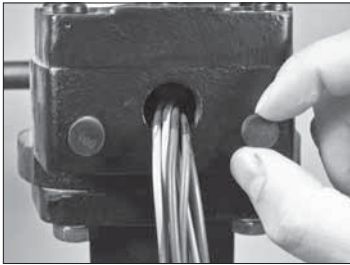
8. Verify proper operation of the gear operator by turning the handwheel.



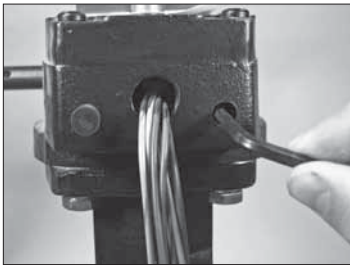
9. Replace the travel stop dust cap.

# ADJUSTING THE GEAR OPERATOR'S CLOSED TRAVEL LIMIT STOPS FOR 10 - 12-INCH/273.0 - 323.9-MM SERIES 765, 705, 766, AND 707C BUTTERFLY VALVES

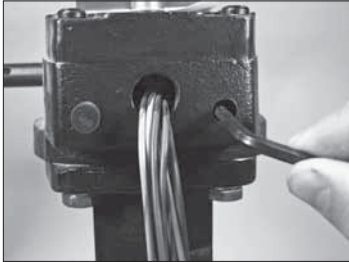
1. Turn the handwheel of the gear operator counterclockwise to ensure the valve disc is not in the fully closed position.



2. Remove the travel stop dust cap from the right side of the gear operator, as shown above.



3. Using an appropriately sized allen wrench, loosen the internal set screw counterclockwise to increase the distance for disc travel.
- 3a. Using an appropriately sized allen wrench, tighten the internal set screw clockwise to decrease the distance for disc travel.
- 3b. Turn the handwheel of the gear operator in the clockwise direction to place the valve disc in the closed (shut) position. Confirm that the valve is providing shutoff service. Repeat steps 3 and 3a, as necessary.



4. With the valve disc in the closed (shut) position, tighten the internal set screw (clockwise) with an appropriately sized allen wrench.

| NOTICE                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• System pressure upstream of the valve may increase while the valve disc is in the fully closed position.</li><li>• Flow downstream of the valve will be interrupted with the disc in the fully closed position.</li></ul> |

5. Verify proper operation of the gear operator by turning the handwheel.



6. Replace the travel stop dust cap.
7. Follow the "Adjusting the Gear Operator's Open Travel Limit Stops" section on the following page.

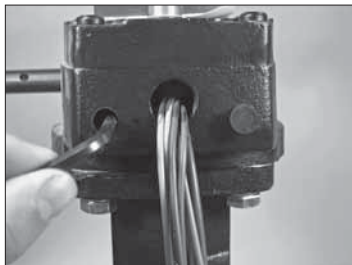
## ADJUSTING THE GEAR OPERATOR'S OPEN TRAVEL LIMIT STOPS FOR 10 - 12-INCH/273.0 - 323.9-MM SERIES 765, 705, 766, AND 707C BUTTERFLY VALVES

1. Turn the handwheel of the gear operator clockwise to place the valve disc in the slightly open position.



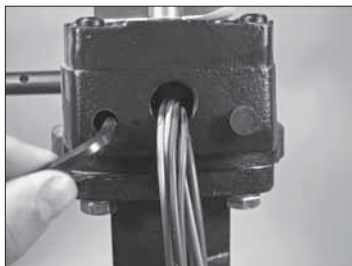
6. Replace the travel stop dust cap.

2. Remove the travel stop dust cap from the left side of the gear operator, as shown above.



3. Using an appropriately sized allen wrench, loosen the internal set screw counterclockwise.

- 3a. Turn the handwheel of the gear operator to place the valve disc in the desired open position.



4. With the valve disc in the desired open position, tighten the internal set screw (clockwise) with an appropriately sized allen wrench.

5. Verify proper operation of the gear operator by turning the handwheel.

# CHECK VALVE INSTALLATION AND OPERATION

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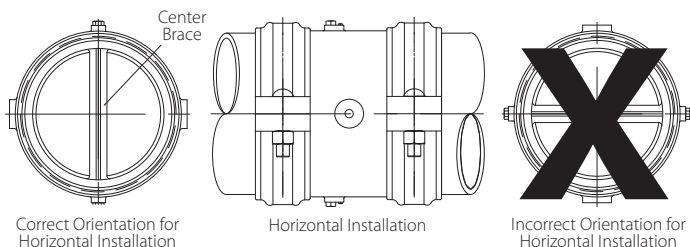
When installing a Victaulic check valve into a piping system, follow the instructions supplied with the coupling. Refer to the notes below for applications/limitations.

Placement of check valves too close to sources of unstable flow will shorten the life of the valve and may potentially damage the system. To extend valve life, valves should be installed a reasonable distance downstream from pumps, elbows, expanders, reducers, or other similar devices. Sound piping practices dictate a minimum of five times the pipe diameter for general use. Distances between three and five diameters are allowable, provided the flow velocity is less than 8 feet per second/2.4 meters per second. Distances less than three diameters are not recommended and will violate the Victaulic product warranty. **NOTE:** These distances do not apply to fire protection installations.

## **Series 712, 712S, and 713 Swinger Check Valves**

- Series 712, 712S, and 713 Swinger Check Valves must be installed with the arrow on the body pointing in the correct direction of flow through the pipeline.
- Series 712, 712S, and 713 Swinger Check Valves **SHOULD NOT** be installed vertically.

## **Series W715 AGS Double Disc Vic-Check Valve**



- Series W715 AGS Double Disc Vic-Check Valves can be installed either vertically (flow up) or horizontally.
- For horizontal installations, the center brace inside the Series W715 AGS Double Disc Vic-Check Valve must be in the vertical position, as shown above.
- Style W741 AGS Vic-Flange Adapters can be installed on either end of a Series W715 AGS Double Disc Vic-Check Valve.
- When connecting a Series W715 AGS Double Disc Vic-Check Valve to a Series W761 AGS Vic-300 Butterfly Valve, a pipe spool is required between the two valves to prevent disc interference.
- When a Series W715 AGS Double Disc Vic-Check Valve is placed near a Series W761 AGS Vic-300 Butterfly Valve, orient the center brace/disc shaft of the Series W715 at right angles to the butterfly valve stem. Failure to do so will cause uneven and unstable flow through the Series W715, resulting in noise and reduced valve life.

## **Series 716/716H Vic-Check Valves**

- Series 716/716H Vic-Check Valves can be installed either vertically (flow up) or horizontally with the arrow on the body pointing in the correct direction of flow through the pipeline.
- Style 741 Vic-Flange Adapters can be installed on either end of a Series 716/716H Vic-Check Valve.

### Series 717, 717H, 717R, and 717HR FireLock Check Valves

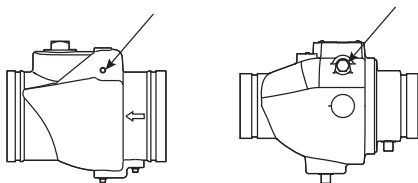
- Series 717, 717H, 717R, and 717HR FireLock Check Valves can be installed either vertically (flow up) or horizontally with the arrow on the body pointing in the correct direction of flow through the pipeline.
- Style 741 and Style 744 Vic-Flange Adapters can be installed on either end of a Series 717, 717H, 717R, or 717HR FireLock Check Valve.

### Series 779 Venturi Check Valve

- Series 779 Venturi Check Valves can be installed either vertically (flow up) or horizontally with the arrow on the body pointing in the correct direction of flow through the pipeline.

### For Series 716/716H Vic-Check Valves, Series 717/717H/717R/717HR FireLock Check Valves, and 779 Venturi Check Valves

- The bushing or pipe plug that retains the shaft/disc must be located at the top of the valve in horizontal installations (refer to drawing below).



## BALL VALVE INSTALLATION AND OPERATION

### Series 722 Threaded Ball Valve

### Series 723 Diverter Ball Valve

### Series 726 Vic-Ball Valve

### Series 728 FireLock Ball Valve

When installing a Victaulic ball valve into a piping system, follow the instructions supplied with the coupling. For threaded valves, follow standard threading practices for proper installation. **NOTE:** Victaulic ball valves are intended for open/closed services only and **MUST NOT** be used for throttling services.

When directly connecting an end cap to a ball valve, use only a tapped end cap for pressure relief. If the ball valve is opened then closed unknowingly while the end cap is attached, the space between the ball and end cap will be filled and pressurized. A sudden release of energy can occur if the end cap is removed while the space behind it is pressurized. **PRESSURE MUST BE VENTED THROUGH THE TAP BEFORE ATTEMPTING TO REMOVE THE CAP.**

## **! DANGER**



- When directly connecting an end cap to a ball valve, use only a tapped end cap for pressure relief.
  - Pressure must be vented through the tap before attempting to remove the cap.
- Failure to follow these instructions could result in death or serious personal injury.

# PLUG VALVE INSTALLATION AND OPERATION

When directly connecting an end cap to a plug valve, use only a tapped end cap for pressure relief. If the plug valve is opened then closed unknowingly while the end cap is attached, the space between the plug and end cap will be filled and pressurized. A sudden release of energy can occur if the end cap is removed while the space behind it is pressurized. **PRESSURE MUST BE VENTED THROUGH THE TAP BEFORE ATTEMPTING TO REMOVE THE CAP.**

## ⚠ DANGER



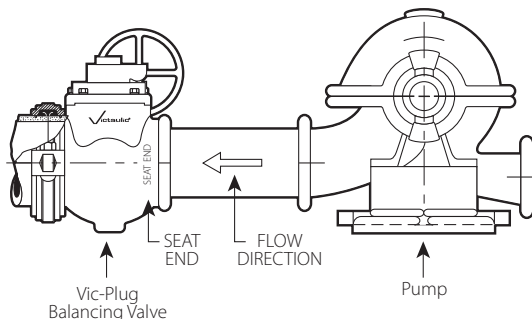
- When directly connecting an end cap to a plug valve, use only a tapped end cap for pressure relief.
  - Pressure must be vented through the tap before attempting to remove the cap.
- Failure to follow these instructions could result in death or serious personal injury.**

### Series 365 Vic-Plug™ AWWA Plug Valve

- Refer to the operation and maintenance manual supplied with the Series 365 Plug Valve for detailed information regarding valve installation, accessory installation, and maintenance requirements.

### Series 377 Vic-Plug Balancing Valve

- Refer to the operation and maintenance manual supplied with the Series 377 Vic-Plug Balancing Valve for detailed information regarding valve installation, accessory installation, and maintenance requirements.
- The Series 377 Vic-Plug Balancing Valve is an eccentric, grooved-end plug valve designed specifically for throttling services.
- For 3 – 12-inch/88.9 – 323.9-mm sizes, the Victaulic Style 307 Transition Coupling is available to directly connect the Series 377 to grooved-end steel and other NPS pipe. For installing these sizes of Vic-Plug valves into a piping system, follow the instructions supplied for the Style 307 Transition Coupling.



**Series 377 Vic-Plug Balancing Valves must be installed with the seat upstream (closest to the pump discharge)**

# Flow Metering Product

## Installation Information



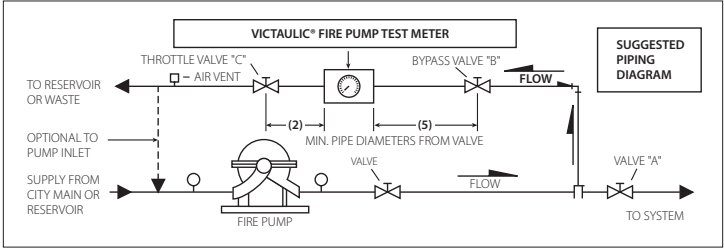
Style 735 Fire Pump Test Meter

# STYLE 735 FIRE PUMP TEST METER

Victaulic Style 735 Fire Pump Test Meters are designed specifically for monitoring fire protection systems. The Style 735 contains grooved ends for easy installation with Victaulic couplings that are FM Approved. The maximum working pressure for Model “L” Style 735 Fire Pump Test Meters is 175 psi/1200kPa, and the Model “S” is rated to 500 psi/3450kPa.

To ensure proper installation and accurate flow readings, all sizes of Style 735 Fire Pump Test Meters have a minimum straight-pipe requirement of five diameters upstream and two diameters downstream from any valve or fitting (refer to the drawing below).

**NOTE:** The Style 735 can be installed either horizontally or vertically.



## Operating Instructions for Victaulic Style 735 Fire Pump Test Meters

1. Close the system valve “A.”
2. Open the bypass valve “B,” and throttle valve “C.”
3. Purge the meter, which is located on the Style 735 Fire Pump Test Meter, as follows:
  - 3a. Open the station shutoff valves (below meter), and vent the valves (above meter). When a steady stream of water passes through each plastic hose, the meter is purged of air. Close all valves after the air is purged.
4. Start the fire pump, and read the meter in gpm ( $m^3/hr$ ).
5. Refer to the gpm requirement for the pump, and adjust the throttle valve to achieve various flow readings. Record the gpm, suction pressure, and discharge pressures, etc., in accordance with requirements established by the local authority having jurisdiction.

# Helpful Information

English and Metric Conversion Chart

ANSI Commercial Pipe Sizes

Decimal Equivalents of Fractions

Minutes Converted to Decimals of a Degree

Water Pressure to Feet-of-Head

Feet-of-Head of Water to Pressure

Where to Find Installation Instructions for Additional Products

## ENGLISH AND METRIC CONVERSION CHART

| Convert US to Metric |                                           | Convert Metric to US |                                                     |
|----------------------|-------------------------------------------|----------------------|-----------------------------------------------------|
| 25.4 X               | inches (in)                               | =                    | millimeters (mm) X 0.03937                          |
| 0.3048 X             | feet (ft)                                 | =                    | meter (m) X 3.281                                   |
| 0.4536 X             | pounds (lbs)                              | =                    | kilograms (kg) X 2.205                              |
| 28.35 X              | ounces (oz)                               | =                    | grams (g) X 0.03527                                 |
| 6.894 X              | pressure (psi)                            | =                    | kilopascals (kPa) X 0.145                           |
| .069 X               | pressure                                  | =                    | Bar X 14.5                                          |
| 4.45 X               | end load (lbs)                            | =                    | Newtons (N) X 0.2248                                |
| 1.356 X              | torque (ft-lbs)                           | =                    | Newton meters (N•m) X 0.738                         |
| F – 32 ÷ 1.8         | temperature (°F)                          | =                    | Celsius (°C) C ÷ 1.778 X 1.8                        |
| 745.7 X              | horsepower (hp)                           | =                    | watts (W) X 1.341 X 10 <sup>-3</sup>                |
| 3.785 X              | gallons per minute (gpm)                  | =                    | liters per minute (l/m) X 0.2642                    |
| 3.7865 X             | 10 <sup>-3</sup> gallons per minute (gpm) | =                    | cubic meters per minute (m <sup>3</sup> /m) X 264.2 |

ANSI COMMERCIAL PIPE SIZES

| Size                      |                                            |              | Nominal Wall – inches/mm |         |         |         |              |              |         | Thickness – inches/mm |              |          |          |          |               |               |
|---------------------------|--------------------------------------------|--------------|--------------------------|---------|---------|---------|--------------|--------------|---------|-----------------------|--------------|----------|----------|----------|---------------|---------------|
| Nominal Size<br>inches/mm | Actual<br>Outside<br>Diameter<br>inches/mm | Sch. 5S      | Sch. 10S                 | Sch. 10 | Sch. 20 | Sch. 30 | Std.         | Sch. 40      | Sch. 60 | Extra<br>Strong       | Sch. 80      | Sch. 100 | Sch. 120 | Sch. 140 | Sch. 160      | XX<br>Strong  |
| ⅝<br>4                    | 0.405<br>10.3                              | —            | 0.049<br>1.2             | —       | —       | —       | 0.068<br>1.7 | 0.068<br>1.7 | —       | 0.095<br>2.4          | 0.095<br>2.4 | —        | —        | —        | —             | —             |
| ⅜<br>8                    | 0.540<br>13.7                              | —            | 0.065<br>1.7             | —       | —       | —       | 0.088<br>2.2 | 0.088<br>2.2 | —       | 0.119<br>3.0          | 0.119<br>3.0 | —        | —        | —        | —             | —             |
| ⅜<br>10                   | 0.675<br>17.1                              | —            | 0.065<br>1.7             | —       | —       | —       | 0.091<br>2.3 | 0.091<br>2.3 | —       | 0.126<br>3.2          | 0.126<br>3.2 | —        | —        | —        | —             | —             |
| ½<br>15                   | 0.840<br>21.3                              | 0.065<br>1.7 | 0.083<br>2.1             | —       | —       | —       | 0.109<br>2.8 | 0.109<br>2.8 | —       | 0.147<br>3.7          | 0.147<br>3.7 | —        | —        | —        | 0.188<br>4.8  | 0.294<br>7.5  |
| ¾<br>20                   | 1.050<br>26.9                              | 0.065<br>1.7 | 0.083<br>2.1             | —       | —       | —       | 0.113<br>2.9 | 0.113<br>2.9 | —       | 0.154<br>3.9          | 0.154<br>3.9 | —        | —        | —        | 0.219<br>5.6  | 0.308<br>7.8  |
| 1<br>25                   | 1.315<br>33.7                              | 0.065<br>1.7 | 0.109<br>2.8             | —       | —       | —       | 0.133<br>3.4 | 0.133<br>3.4 | —       | 0.179<br>4.5          | 0.179<br>4.5 | —        | —        | —        | 0.250<br>6.4  | 0.358<br>9.1  |
| 1¼<br>32                  | 1.660<br>42.4                              | 0.065<br>1.7 | 0.109<br>2.8             | —       | —       | —       | 0.140<br>3.6 | 0.140<br>3.6 | —       | 0.191<br>4.9          | 0.191<br>4.9 | —        | —        | —        | 0.250<br>6.4  | 0.382<br>9.7  |
| 1½<br>40                  | 1.900<br>48.3                              | 0.065<br>1.7 | 0.109<br>2.8             | —       | —       | —       | 0.145<br>3.7 | 0.145<br>3.7 | —       | 0.200<br>5.1          | 0.200<br>5.1 | —        | —        | —        | 0.281<br>7.1  | 0.400<br>10.2 |
| 2<br>50                   | 2.375<br>60.3                              | 0.065<br>1.7 | 0.109<br>2.8             | —       | —       | —       | 0.154<br>3.9 | 0.154<br>3.9 | —       | 0.218<br>5.5          | 0.218<br>5.5 | —        | —        | —        | 0.344<br>8.7  | 0.436<br>11.1 |
| 2½<br>65                  | 2.875<br>73.0                              | 0.083<br>2.1 | 0.120<br>3.0             | —       | —       | —       | 0.203<br>5.2 | 0.203<br>5.2 | —       | 0.276<br>7.0          | 0.276<br>7.0 | —        | —        | —        | 0.375<br>9.5  | 0.552<br>14.0 |
| 3<br>80                   | 3.500<br>88.9                              | 0.083<br>2.1 | 0.120<br>3.0             | —       | —       | —       | 0.216<br>5.5 | 0.216<br>5.5 | —       | 0.300<br>7.6          | 0.300<br>7.6 | —        | —        | —        | 0.438<br>11.1 | 0.600<br>15.2 |
| 3½<br>90                  | 4.000<br>101.6                             | 0.083<br>2.1 | 0.120<br>3.0             | —       | —       | —       | 0.226<br>5.7 | 0.226<br>5.7 | —       | 0.318<br>8.1          | 0.318<br>8.1 | —        | —        | —        | —             | —             |



# ANSI COMMERCIAL PIPE SIZES

| Size                      |                                            |              | Nominal Wall – inches/mm |              |              |               |              |               |               | Thickness – inches/mm |               |               |               |               |               |               |  |
|---------------------------|--------------------------------------------|--------------|--------------------------|--------------|--------------|---------------|--------------|---------------|---------------|-----------------------|---------------|---------------|---------------|---------------|---------------|---------------|--|
| Nominal Size<br>inches/mm | Actual<br>Outside<br>Diameter<br>inches/mm | Sch. 5S      | Sch. 10S                 | Sch. 10      | Sch. 20      | Sch. 30       | Std.         | Sch. 40       | Sch. 60       | Extra<br>Strong       | Sch. 80       | Sch. 100      | Sch. 120      | Sch. 140      | Sch. 160      | XX<br>Strong  |  |
| 4<br>100                  | 4.500<br>114.3                             | 0.083<br>2.1 | 0.120<br>3.0             | —            | —            | —             | 0.237<br>6.0 | 0.237<br>6.0  | —             | 0.337<br>8.6          | 0.337<br>8.6  | —             | 0.438<br>11.1 | —             | 0.531<br>13.5 | 0.674<br>17.1 |  |
| 5<br>125                  | 5.563<br>141.3                             | 0.109<br>2.8 | 0.134<br>3.4             | —            | —            | —             | 0.258<br>6.6 | 0.258<br>6.6  | —             | 0.375<br>9.5          | 0.375<br>9.5  | —             | 0.500<br>12.7 | —             | 0.625<br>15.9 | 0.750<br>19.1 |  |
| 6<br>150                  | 6.625<br>168.3                             | 0.109<br>2.8 | 0.134<br>3.4             | —            | —            | —             | 0.280<br>7.1 | 0.280<br>7.1  | —             | 0.432<br>11.0         | 0.432<br>11.0 | —             | 0.562<br>14.3 | —             | 0.719<br>18.3 | 0.864<br>21.9 |  |
| 8<br>200                  | 8.625<br>219.1                             | 0.109<br>2.8 | 0.148<br>3.8             | —            | 0.250<br>6.4 | 0.277<br>7.0  | 0.322<br>8.2 | 0.322<br>8.2  | 0.406<br>10.3 | 0.500<br>12.7         | 0.500<br>12.7 | 0.594<br>15.1 | 0.719<br>18.3 | 0.812<br>20.6 | 0.906<br>23.0 | 0.875<br>22.2 |  |
| 10<br>250                 | 10.750<br>273.0                            | 0.134<br>3.4 | 0.165<br>4.2             | —            | 0.250<br>6.4 | 0.307<br>7.8  | 0.365<br>9.3 | 0.365<br>9.3  | 0.500<br>12.7 | 0.500<br>12.7         | 0.594<br>15.1 | 0.719<br>18.3 | 0.844<br>21.4 | 1.000<br>25.4 | 1.125<br>28.6 | 1.000<br>25.4 |  |
| 12<br>300                 | 12.750<br>323.9                            | 0.156<br>4.0 | 0.180<br>4.6             | —            | 0.250<br>6.4 | 0.330<br>8.4  | 0.375<br>9.5 | 0.406<br>10.3 | 0.562<br>14.3 | 0.500<br>12.7         | 0.688<br>17.5 | 0.844<br>21.4 | 1.000<br>25.4 | 1.125<br>28.6 | 1.312<br>33.3 | 1.000<br>25.4 |  |
| 14 OD                     | 14.000<br>355.6                            | 0.156<br>4.0 | 0.188<br>4.8             | 0.250<br>6.4 | 0.312<br>7.9 | 0.375<br>9.5  | 0.375<br>9.5 | 0.438<br>11.1 | 0.594<br>15.1 | 0.500<br>12.7         | 0.750<br>19.1 | 0.938<br>23.8 | 1.094<br>27.8 | 1.250<br>31.8 | 1.406<br>35.7 | —             |  |
| 16 OD                     | 16.000<br>406.4                            | 0.165<br>4.2 | 0.188<br>4.8             | 0.250<br>6.4 | 0.312<br>7.9 | 0.375<br>9.5  | 0.375<br>9.5 | 0.500<br>12.7 | 0.656<br>16.7 | 0.500<br>12.7         | 0.844<br>21.4 | 1.031<br>26.2 | 1.219<br>31.0 | 1.438<br>36.5 | 1.594<br>40.5 | —             |  |
| 18 OD                     | 18.000<br>457.0                            | 0.165<br>4.2 | 0.188<br>4.8             | 0.250<br>6.4 | 0.312<br>7.9 | 0.438<br>11.1 | 0.375<br>9.5 | 0.562<br>14.3 | 0.750<br>19.1 | 0.500<br>12.7         | 0.938<br>23.8 | 1.156<br>29.4 | 1.375<br>34.9 | 1.562<br>39.7 | 1.781<br>45.2 | —             |  |
| 20 OD                     | 20.000<br>508.0                            | 0.188<br>4.8 | 0.218<br>5.5             | 0.250<br>6.4 | 0.375<br>9.5 | 0.500<br>12.7 | 0.375<br>9.5 | 0.594<br>15.1 | 0.812<br>20.6 | 0.500<br>12.7         | 1.031<br>26.2 | 1.281<br>32.5 | 1.500<br>38.1 | 1.750<br>44.5 | 1.969<br>50.0 | —             |  |
| 22 OD                     | 22.000<br>559.0                            | 0.188<br>4.8 | 0.218<br>5.5             | 0.250<br>6.4 | 0.375<br>9.5 | 0.500<br>12.7 | 0.375<br>9.5 | —             | 0.875<br>22.2 | 0.500<br>12.7         | 1.125<br>28.6 | 1.375<br>34.9 | 1.625<br>41.3 | 1.875<br>47.6 | 2.125<br>54.0 | —             |  |
| 24 OD                     | 24.000<br>610.0                            | 0.218<br>5.5 | 0.250<br>6.4             | 0.250<br>6.4 | 0.375<br>9.5 | 0.562<br>14.3 | 0.375<br>9.5 | 0.688<br>17.5 | 0.969<br>24.6 | 0.500<br>12.7         | 1.219<br>31.0 | 1.531<br>38.9 | 1.812<br>46.0 | 2.062<br>52.4 | 2.344<br>59.5 | —             |  |

# ANSI COMMERCIAL PIPE SIZES

| Size                      |                                            | Nominal Wall – inches/mm |              |              |               |               |              |               | Thickness – inches/mm |                 |               |          |          |          |          |              |
|---------------------------|--------------------------------------------|--------------------------|--------------|--------------|---------------|---------------|--------------|---------------|-----------------------|-----------------|---------------|----------|----------|----------|----------|--------------|
| Nominal Size<br>inches/mm | Actual<br>Outside<br>Diameter<br>inches/mm | Sch. 5S                  | Sch. 10S     | Sch. 10      | Sch. 20       | Sch. 30       | Std.         | Sch. 40       | Sch. 60               | Extra<br>Strong | Sch. 80       | Sch. 100 | Sch. 120 | Sch. 140 | Sch. 160 | XX<br>Strong |
| 26 OD                     | 26.000<br>660.4                            | —                        | —            | 0.312<br>7.9 | 0.500<br>12.7 | —             | 0.375<br>9.5 | —             | —                     | 0.500<br>12.7   | 1.313<br>33.4 | —        | —        | —        | —        | —            |
| 28 OD                     | 28.000<br>711.0                            | —                        | —            | 0.312<br>7.9 | 0.500<br>12.7 | 0.625<br>15.9 | 0.375<br>9.5 | —             | —                     | 0.500<br>12.7   | —             | —        | —        | —        | —        | —            |
| 30 OD                     | 30.000<br>762.0                            | 0.250<br>6.4             | 0.312<br>7.9 | 0.312<br>7.9 | 0.500<br>12.7 | 0.625<br>15.9 | 0.375<br>9.5 | —             | —                     | 0.500<br>12.7   | —             | —        | —        | —        | —        | —            |
| 32 OD                     | 32.000<br>813.0                            | —                        | —            | 0.312<br>7.9 | 0.500<br>12.7 | 0.625<br>15.9 | 0.375<br>9.5 | 0.688<br>17.5 | —                     | 0.500<br>12.7   | —             | —        | —        | —        | —        | —            |
| 34 OD                     | 34.000<br>863.6                            | —                        | —            | 0.312<br>7.9 | 0.500<br>12.7 | 0.625<br>15.9 | 0.375<br>9.5 | 0.688<br>17.5 | —                     | 0.500<br>12.7   | —             | —        | —        | —        | —        | —            |
| 36 OD                     | 36.000<br>914.0                            | —                        | —            | 0.312<br>7.9 | 0.500<br>12.7 | 0.625<br>15.9 | 0.375<br>9.5 | 0.750<br>19.1 | —                     | 0.500<br>12.7   | —             | —        | —        | —        | —        | —            |
| 42 OD                     | 42.000<br>1067.0                           | —                        | —            | —            | 0.375<br>9.5  | —             | —            | —             | —                     | 0.500<br>12.7   | —             | —        | —        | —        | —        | —            |



## DECIMAL EQUIVALENTS OF FRACTIONS

| Fraction in inches | Decimal Equivalent inches | Decimal Equivalent millimeters |
|--------------------|---------------------------|--------------------------------|
| $\frac{1}{64}$     | 0.016                     | 0.397                          |
| $\frac{1}{32}$     | 0.031                     | 0.794                          |
| $\frac{3}{64}$     | 0.047                     | 1.191                          |
| $\frac{1}{16}$     | 0.063                     | 1.588                          |
| $\frac{5}{64}$     | 0.0781                    | 1.984                          |
| $\frac{3}{32}$     | 0.094                     | 2.381                          |
| $\frac{7}{64}$     | 0.109                     | 2.778                          |
| $\frac{1}{8}$      | 0.125                     | 3.175                          |
| $\frac{9}{64}$     | 0.141                     | 3.572                          |
| $\frac{5}{32}$     | 0.156                     | 3.969                          |
| $\frac{11}{64}$    | 0.172                     | 4.366                          |
| $\frac{3}{16}$     | 0.188                     | 4.763                          |
| $\frac{13}{64}$    | 0.203                     | 5.159                          |
| $\frac{7}{32}$     | 0.219                     | 5.556                          |
| $\frac{15}{64}$    | 0.234                     | 5.953                          |
| $\frac{1}{4}$      | 0.250                     | 6.350                          |
| $\frac{17}{64}$    | 0.266                     | 6.747                          |
| $\frac{9}{32}$     | 0.281                     | 7.144                          |
| $\frac{19}{64}$    | 0.297                     | 7.541                          |
| $\frac{5}{16}$     | 0.313                     | 7.938                          |
| $\frac{21}{64}$    | 0.328                     | 8.334                          |
| $\frac{1}{3}$      | 0.333                     | 8.467                          |
| $\frac{11}{32}$    | 0.344                     | 8.731                          |
| $\frac{23}{64}$    | 0.359                     | 9.128                          |
| $\frac{3}{8}$      | 0.375                     | 9.525                          |
| $\frac{25}{64}$    | 0.391                     | 9.922                          |
| $\frac{13}{32}$    | 0.406                     | 10.319                         |
| $\frac{27}{64}$    | 0.422                     | 10.716                         |
| $\frac{7}{16}$     | 0.438                     | 11.113                         |
| $\frac{29}{64}$    | 0.453                     | 11.509                         |
| $\frac{15}{32}$    | 0.469                     | 11.906                         |
| $\frac{1}{2}$      | 0.500                     | 12.700                         |

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

## MINUTES CONVERTED TO DECIMALS OF A DEGREE

| Min. | Deg.  |
|------|-------|
| 1    | .0166 |
| 2    | .0333 |
| 3    | .0500 |
| 4    | .0666 |
| 5    | .0833 |
| 6    | .1000 |
| 7    | .1166 |
| 8    | .1333 |
| 9    | .1500 |
| 10   | .1666 |
| 11   | .1833 |
| 12   | .2000 |
| 13   | .2166 |
| 14   | .2333 |
| 15   | .2500 |

| Min. | Deg.  |
|------|-------|
| 16   | .2666 |
| 17   | .2833 |
| 18   | .3000 |
| 19   | .3166 |
| 20   | .3333 |
| 21   | .3500 |
| 22   | .3666 |
| 23   | .3833 |
| 24   | .4000 |
| 25   | .4166 |
| 31   | .5166 |
| 32   | .5333 |
| 33   | .5500 |
| 34   | .5666 |
| 35   | .5833 |

| Min. | Deg.  |
|------|-------|
| 26   | .4333 |
| 27   | .4500 |
| 28   | .4666 |
| 29   | .4833 |
| 30   | .5000 |
| 41   | .6833 |
| 42   | .7000 |
| 43   | .7166 |
| 44   | .7333 |
| 45   | .7500 |
| 46   | .7666 |
| 47   | .7833 |
| 48   | .8000 |
| 49   | .8166 |
| 50   | .8333 |

| Min. | Deg.   |
|------|--------|
| 36   | .6000  |
| 37   | .6166  |
| 38   | .6333  |
| 39   | .6500  |
| 40   | .6666  |
| 51   | .8500  |
| 52   | .8666  |
| 53   | .8833  |
| 54   | .9000  |
| 55   | .9166  |
| 56   | .9333  |
| 57   | .9500  |
| 58   | .9666  |
| 59   | .9833  |
| 60   | 1.0000 |

WATER PRESSURE TO FEET-OF-HEAD

| 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          | 76.63                  |
| 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                 |



# 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             |
|---------------------------------------------------------------------|----------------------------------------|
| AquaFlex® Products                                                  | Instructions Shipped with Product      |
| Aquamine® Spline Couplings                                          | I-Aquamine                             |
| Depend-O-Lok Type Couplings                                         | Instructions Shipped with Coupling     |
| FireLock® Automatic Sprinkler Products                              | I-40                                   |
| FireLock Fire Protection Valves and Accessories                     | Manual Shipped with Valve or Accessory |
| PermaLynx™ Permanent Push-to-Connect System Products                | I-PermaLynx and I-600                  |
| Pipe Preparation Tools                                              | Manual Shipped with Tool               |
| Pressfit® System Products                                           | I-500                                  |
| Vic-Press Schedule 10S System Products                              | I-P500                                 |
| Series 247 FireLock Residential Zone Control Riser Module Assembly  | I-247                                  |
| 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 608 Copper Connection Butterfly Valve                        | I-600                                  |
| Series 700 Butterfly Valve                                          | Manual Shipped with Valve and I-100    |
| Series 702 Butterfly Valve                                          | I-702.GO                               |
| Series 705 FireLock Butterfly Valve                                 | I-765/705                              |
| Series 707C Supervised Closed Butterfly Valve                       | I-766/707C                             |
| Series 712/712S Swinger® Check Valve                                | I-100                                  |
| Series 713 Swinger Check Valve                                      | I-100                                  |
| Series W715 AGS Double Disc Vic-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 722 Brass Body Ball 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                          |



| <b>Product</b>                                                         | <b>Where to Find Instructions</b> |
|------------------------------------------------------------------------|-----------------------------------|
| Series 731-D Suction Diffuser                                          | I-731D                            |
| Series 731-I Suction Diffuser (Europe Only)                            | I-731I/W731I                      |
| Series W731-I AGS Suction Diffuser (Europe Only)                       | I-731I/W731I                      |
| Series 732 Vic-Strainer Wye Type                                       | I-730/732/AGS                     |
| Series W732 AGS Vic-Strainer Wye Type                                  | I-730/732/AGS                     |
| 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 TA Bypass                                               | Instructions Shipped with Valve   |
| Series 785 TA TBVS Sweated-End Mini Circuit Balancing Valve            | Instructions Shipped with Valve   |
| Series 786 TA STAS Soldered-End Circuit Balancing Valve                | Instructions Shipped with Valve   |
| Series 787 TA STAD NPT Female Threaded Circuit Balancing Valve         | Instructions Shipped with Valve   |
| Series 788 TA STAF Flanged-End Circuit Balancing Valve                 | Instructions Shipped with Valve   |
| Series 789 TA STAG Grooved-End Circuit Balancing Valve                 | Instructions Shipped with Valve   |
| Style 005 FireLock Rigid Coupling                                      | I-100                             |
| Style 009H/009/009V 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-mm Sizes)  | IT-07 and I-100                   |
| Style W07 AGS Rigid Coupling                                           | I-W07/W77 and I-100               |
| 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                             |



| <b>Product</b>                                                                                       | <b>Where to Find Instructions</b> |
|------------------------------------------------------------------------------------------------------|-----------------------------------|
| Style 77/77A/77S Flexible Coupling                                                                   | I-100                             |
| Style 77DX Flexible Stainless Steel Coupling for Duplex and Super Duplex Pipe                        | I-100                             |
| Style W77 AGS Flexible Coupling                                                                      | I-W07/W77 and I-100               |
| Style 78/78A Snap-Joint® Coupling                                                                    | I-100                             |
| Style 89 Rigid Coupling for Stainless Steel                                                          | IT-89 and I-100                   |
| Style W89 AGS Rigid Coupling for Stainless Steel                                                     | I-W89                             |
| Style 99 Roust-A-Bout Coupling for Plain-End Steel                                                   | IT-99 and I-100                   |
| Style 107H/107 QuickVic® Rigid Coupling for Steel Pipe                                               | I-107H/107 and I-100              |
| Style 150 Mover® Expansion Joint                                                                     | Submittal 09.06                   |
| Style 155 Expansion Joint                                                                            | Submittal 09.06                   |
| Style W155 AGS Expansion Joint                                                                       | Submittal 09.06                   |
| Style 177 QuickVic Flexible Coupling for Steel Pipe                                                  | I-177 and I-100                   |
| Style 307 Coupling for Grooved NPS 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-441 and I-100                   |
| Style 475 Lightweight, Flexible Stainless Steel Coupling                                             | I-100                             |
| Style 475DX Flexible Stainless Steel Coupling for Duplex and Super Duplex Pipe                       | I-100                             |
| Style 489 Rigid Coupling for Stainless Steel (1½ – 4-inch/48.3 – 114.3-mm Sizes)                     | IT-489.2-4 and I-100              |
| Style 489 Rigid Coupling for Stainless Steel (6 – 12-inch and 139.7 – 318.5-mm Metric and JIS Sizes) | IT-489 and I-100                  |
| Style 489DX Stainless Steel Coupling for Duplex and Super Duplex Pipe                                | I-100                             |
| 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                           |



| Product                                                                               | Where to Find Instructions      |
|---------------------------------------------------------------------------------------|---------------------------------|
| Style 735 Fire Pump Test Meter                                                        | I-100                           |
| Style 738 TA Portable Differential Meter                                              | Instructions Shipped with Meter |
| Style 739 Portable Master Meter                                                       | Instructions Shipped with Meter |
| Style 740 TA CBI Meter                                                                | Instructions Shipped with Meter |
| Style 741 NPS and Metric Vic-Flange Adapter                                           | I-100                           |
| Style W741 AGS Vic-Flange Adapter                                                     | IT-W741 and I-100               |
| Style 743 Vic-Flange Adapter                                                          | I-100                           |
| Style 744 FireLock Flange Adapter                                                     | I-100                           |
| Style 750 Reducing Coupling                                                           | I-100                           |
| Style 770 Large-Diameter Coupling                                                     | IT-770 and I-100                |
| Style 791 Vic-Boltless® Coupling                                                      | I-100                           |
| Style 808 Duo-Lock Coupling                                                           | I-808                           |
| Style 912 FireLock Low-Profile Sprinkler-Tee (Europe Only)                            | I-912 and I-100                 |
| Style 920 and 920N Mechanical-T Outlets                                               | I-920/920N and I-100            |
| Style 922 FireLock Outlet-T                                                           | I-922 and I-100                 |
| Style 923 Vic-Let Strapless Outlet                                                    | I-923 and I-100                 |
| Style 924 Vic-O-Well Strapless Thermometer Outlet                                     | I-100                           |
| Style 926 Mechanical-T Spigot Assembly                                                | I-926 and I-100                 |
| Style 931 Vic-Tap II Mechanical-T                                                     | VT-II                           |
| Style 994 Vic-Flange Adapter for HDPE                                                 | IT-994 and I-900                |
| Style 995 Coupling for Plain-End NPS and Metric HDPE                                  | IT-995 and I-900                |
| Style 997 Transition Coupling for HDPE to Steel                                       | IT-997 and I-900                |
| Style 2970 Aquamine Coupling for Plain-end NPS PVC                                    | IT-2970                         |
| Style 2971 Aquamine Transition Coupling for Plain-End NPS PVC to Plain-End HDPE       | IT-2971                         |
| Style 2972 Aquamine Transition Coupling for Plain-End NPS PVC to Grooved NPS 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)                      | IT-70 and I-100                 |
| 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 center-to-end, end-to-end, take-out, and similar overall dimensions for couplings, flange adapters, fittings, valves, and accessories. Refer to the current Victaulic submittal for complete dimensional information and for products not listed in this section.

## NOTICE

- Always refer to the current Victaulic submittal publication in the G-100 General Catalog or on the website [www.victaulic.com](http://www.victaulic.com) for the most up-to-date dimensional information.

### FOR STAINLESS STEEL FITTINGS:

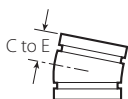
- For stainless steel fitting product data, refer to submittal 17.04, 17.10, 17.15, or 17.16 in the G-100 General Catalog or on the website [www.victaulic.com](http://www.victaulic.com).

# STANDARD FITTINGS

No. 10 – 90° Elbow  
No. 11 – 45° Elbow  
No. 12 – 22½° Elbow



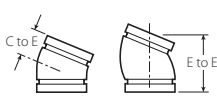
No. 10 – 90° Elbow



No. 13 – 11¼° Elbow  
No. 100 – 90° Long Radius Elbow  
No. 110 – 45° Long Radius Elbow



No. 11 – 45° Elbow



No. 12 – 22½° Elbow



No. 100 – 90° Elbow



No. 110 – 45° Elbow

No. 13 – 11¼° Elbow

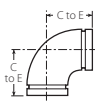
| Size                               |                                                 | No. 10<br>90° Elbow | No. 11<br>45° Elbow | No. 12<br>22½° Elbow<br>(sw) | No. 13<br>11¼° Elbow<br>(sw) | No. 100†<br>90° Long<br>Radius<br>Elbow (S) | No. 110†<br>45° Long<br>Radius<br>Elbow (S) |
|------------------------------------|-------------------------------------------------|---------------------|---------------------|------------------------------|------------------------------|---------------------------------------------|---------------------------------------------|
| Nominal<br>Size<br>inches or<br>mm | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | C to E<br>inches/mm | C to E<br>inches/mm | C to E<br>inches/mm          | C to E<br>inches/mm          | C to E<br>inches/mm                         | C to E<br>inches/mm                         |
| ¾                                  | 1.050<br>26.9                                   | 2.25<br>57          | 1.50<br>38          | 1.63 sw<br>41                | 1.38 sw<br>35                | —                                           | —                                           |
| 1                                  | 1.315<br>33.7                                   | 2.25<br>57          | 1.75<br>44          | 3.25 @<br>83                 | 1.38 sw<br>35                | —                                           | —                                           |
| 1¼                                 | 1.660<br>42.4                                   | 2.75<br>70          | 1.75<br>44          | 1.75<br>44                   | 1.38 sw<br>35                | —                                           | —                                           |
| 1½                                 | 1.900<br>48.3                                   | 2.75<br>70          | 1.75<br>44          | 1.75<br>44                   | 1.38 sw<br>35                | —                                           | —                                           |
| 2                                  | 2.375<br>60.3                                   | 3.25<br>83          | 2.00<br>51          | 3.75 @<br>95                 | 1.38<br>35                   | 4.38<br>111                                 | 2.75<br>70                                  |
| 2½                                 | 2.875<br>73.0                                   | 3.75<br>95          | 2.25<br>57          | 4.00 @<br>102                | 1.50<br>38                   | 5.13<br>130                                 | 3.00<br>76                                  |
| 76.1 mm                            | 3.000<br>76.1                                   | 3.75<br>95          | 2.25<br>57          | 2.24<br>57                   | 1.50<br>38                   | —                                           | —                                           |
| 3                                  | 3.500<br>88.9                                   | 4.25<br>108         | 2.50<br>64          | 4.50 @<br>114                | 1.50<br>38                   | 5.88<br>149                                 | 3.38<br>86                                  |
| 3½                                 | 4.000<br>101.6                                  | 4.50<br>114         | 2.75<br>70          | 2.50 sw<br>64                | 1.75 sw<br>44                | —                                           | —                                           |
| 4                                  | 4.500<br>114.3                                  | 5.00<br>127         | 3.00<br>76          | 2.88<br>73                   | 1.75<br>44                   | 7.50<br>191                                 | 4.00<br>102                                 |
| 108.0 mm                           | 4.250<br>108.0                                  | 5.00<br>127         | 3.00<br>76          | —                            | —                            | —                                           | —                                           |
| 4½                                 | 5.000<br>127.0                                  | 5.25 sw<br>133      | 3.13 sw<br>79       | 3.50<br>89                   | 1.88 sw<br>48                | —                                           | —                                           |
| 5                                  | 5.563<br>141.3                                  | 5.50<br>140         | 3.25<br>83          | 2.88 sw<br>73                | 2.00 sw<br>51                | +                                           | +                                           |
| 133.0 mm                           | 5.250<br>133.0                                  | 5.50<br>140         | 3.25<br>83          | —                            | —                            | —                                           | —                                           |
| 139.7 mm                           | 5.500<br>139.7                                  | 5.50<br>140         | 3.25<br>83          | 2.87<br>73                   | 2.00<br>51                   | —                                           | —                                           |
| 6                                  | 6.625<br>168.3                                  | 6.50<br>165         | 3.50<br>89          | 6.25 @<br>159                | 2.00<br>51                   | 10.75<br>273                                | 5.50<br>140                                 |
| 159.0 mm                           | 6.250<br>159.0                                  | 6.50<br>165         | 3.50<br>89          | —                            | —                            | —                                           | —                                           |



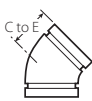
Always refer to the current Victaulic submittal publication in the G-100 General Catalog or on the website [www.victaulic.com](http://www.victaulic.com) for the most up-to-date dimensional information.



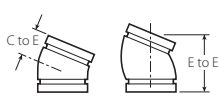
# STANDARD FITTINGS



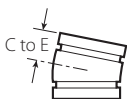
No. 10 – 90° Elbow



No. 11 – 45° Elbow



No. 12 – 22½° Elbow



No. 13 – 11¼° Elbow



No. 100 – 90° Elbow



No. 110 – 45° Elbow

| Size                               |                                                                            | No. 10<br>90° Elbow | No. 11<br>45° Elbow | No. 12<br>22½° Elbow<br>(sw) | No. 13<br>11¼° Elbow<br>(sw) | No. 100†<br>90° Long<br>Radius<br>Elbow (S) | No. 110†<br>45° Long<br>Radius<br>Elbow (S) |
|------------------------------------|----------------------------------------------------------------------------|---------------------|---------------------|------------------------------|------------------------------|---------------------------------------------|---------------------------------------------|
| Nominal<br>Size<br>inches or<br>mm | Actual Pipe<br>Outside<br>Diameter<br>inches/mm                            | C to E<br>inches/mm | C to E<br>inches/mm | C to E<br>inches/mm          | C to E<br>inches/mm          | C to E<br>inches/mm                         | C to E<br>inches/mm                         |
| 165.1 mm                           | 6.500<br>165.1                                                             | 6.50<br>165         | 3.50<br>89          | 3.13<br>79                   | 2.00<br>51                   | 10.75<br>273                                | 5.50<br>140                                 |
| 8                                  | 8.625<br>219.1                                                             | 7.75<br>197         | 4.25<br>108         | 7.75 @<br>197                | 2.00<br>51                   | 14.25<br>362                                | 7.25<br>184                                 |
| 10                                 | 10.750<br>273.0                                                            | 9.00<br>229         | 4.75<br>121         | 4.38 sw<br>111               | 2.13 sw<br>54                | 15.00<br>381                                | 6.25<br>159                                 |
| 12                                 | 12.750<br>323.9                                                            | 10.00<br>254        | 5.25<br>133         | 4.88 sw<br>124               | 2.25 sw<br>57                | 18.00<br>457                                | 7.50<br>191                                 |
| 14 #                               | 14.000<br>355.6                                                            | 14.00<br>355.6      | 5.75<br>146         | 5.00 sw<br>127               | 3.50 sw<br>89                | 21.00 s<br>533                              | 8.75 s<br>222                               |
| 377.0 mm †                         | 14.843<br>377.0                                                            | 14.84<br>376.9      | 6.15<br>156.2       | —                            | —                            | —                                           | —                                           |
| 16 #                               | 16.000<br>406.4                                                            | 16.00<br>406.4      | 6.63<br>168         | 5.00 sw<br>127               | 4.00 sw<br>102               | 24.00 s<br>610                              | 10.00 s<br>254                              |
| 426.0 mm †                         | 16.772<br>426.0                                                            | 16.77<br>426.0      | 6.95<br>176.5       | —                            | —                            | —                                           | —                                           |
| 18 #                               | 18.000<br>457.0                                                            | 18.00<br>457.2      | 7.46<br>189         | 5.50 sw<br>140               | 4.50 sw<br>114               | 27.00 s<br>686                              | 11.25 s<br>286                              |
| 480.0 mm †                         | 18.898<br>480.0                                                            | 18.90<br>480.0      | 7.83<br>198.8       | —                            | —                            | —                                           | —                                           |
| 20 #                               | 20.000<br>508.0                                                            | 20.00<br>508.0      | 8.28<br>210         | 6.00 sw<br>152               | 5.00 sw<br>127               | 30.00 s<br>762                              | 12.50 s<br>318                              |
| 530.0 mm †                         | 20.866<br>530.0                                                            | 20.87<br>530.0      | 8.64<br>219.4       | —                            | —                            | —                                           | —                                           |
| 24 #                               | 24.000<br>610.0                                                            | 24.00<br>609.6      | 9.94<br>252         | 7.00 sw<br>178               | 6.00 sw<br>152               | 36.00 s<br>914                              | 15.00 s<br>381                              |
| 630.0 mm †                         | 24.803<br>630.0                                                            | 24.80<br>630.0      | 10.27<br>261.0      | —                            | —                            | —                                           | —                                           |
| 14 – 24                            | <b>AGS</b> For AGS fitting information, refer to the AGS fittings section. |                     |                     |                              |                              |                                             |                                             |

@ Gooseneck design, end-to-end dimension

# For use on cut-grooved systems only. For roll grooved systems, Victaulic offers the Advanced Groove System (AGS).

† Chinese standard sizes

**NOTE:** All fittings are ductile iron unless noted otherwise with an “sw” or “s”.  
SW = Segmentally Welded, S = Carbon Steel



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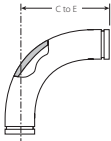
# STANDARD FITTINGS

## No. 100-3D – 90° Long Radius Elbow 3D

## No. 110-3D – 45° Long Radius Elbow 3D

With added wall thickness at bend for abrasive services

| Size                   |                                              | No. 100-3D<br>90° Long Radius Elbow | No. 110-3D<br>45° Long Radius Elbow |
|------------------------|----------------------------------------------|-------------------------------------|-------------------------------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside Diameter<br>inches/mm | C to E<br>inches/mm                 | C to E<br>inches/mm                 |
| 2                      | 2.375<br>60.3                                | 10.00<br>254                        | 6.50<br>165                         |
| 3                      | 3.500<br>88.9                                | 13.00<br>330                        | 7.75<br>197                         |
| 4                      | 4.500<br>114.3                               | 16.00<br>406                        | 9.00<br>229                         |
| 6                      | 6.625<br>168.3                               | 24.00<br>610                        | 13.50<br>343                        |



No. 100-3D



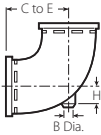
No. 110-3D

**NOTE:** All fittings are ductile iron unless noted otherwise with an “sw” or “s”. SW = Segmentally Welded, S = Carbon Steel

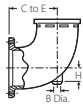
## No. R-10G – Grooved x Grooved Reducing Base Support Elbow

## No. R-10F – Grooved x Flanged Reducing Base Support Elbow

| Size                             |              | No. R-10<br>Reducing Base Support Elbow |                |                            |
|----------------------------------|--------------|-----------------------------------------|----------------|----------------------------|
| Nominal Size<br>inches/Actual mm |              | C to E<br>inches/mm                     | H<br>inches/mm | B<br>Diameter<br>inches/mm |
| 6<br>168.3                       | × 4<br>114.3 | 9.00<br>229                             | 1.25<br>32     | 1.50<br>38                 |
|                                  | × 5<br>141.3 | 9.00<br>229                             | 1.50<br>38     | 1.50<br>38                 |
| 8<br>219.1                       | × 6<br>168.3 | 10.50<br>267                            | 2.13<br>54     | 1.50<br>38                 |
| 10<br>273.0                      | × 8<br>219.1 | 12.00<br>305                            | 2.40<br>61     | 1.50<br>38                 |



No. R-10G



No. R-10F

**NOTE:** All fittings are ductile iron unless noted otherwise with an “sw” or “s”. SW = Segmentally Welded, S = Carbon Steel

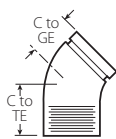
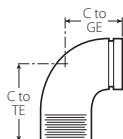
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# STANDARD FITTINGS

## No. 18 – 90° Adapter Elbow

## No. 19 – 45° Adapter Elbow



No. 18 – 90° Elbow

No. 19 – 45° Elbow

| Size                      |                                                 | No. 18<br>90° Adapter Elbow @ |                      | No. 19<br>45° Adapter Elbow @ |                      |
|---------------------------|-------------------------------------------------|-------------------------------|----------------------|-------------------------------|----------------------|
| Nominal<br>Size<br>inches | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | C to GE<br>inches/mm          | C to TE<br>inches/mm | C to GE<br>inches/mm          | C to TE<br>inches/mm |
| ¾                         | 1.050<br>26.9                                   | 2.25<br>57                    | 2.25<br>57           | 1.50<br>38                    | 1.50<br>38           |
| 1                         | 1.315<br>33.7                                   | 2.25<br>57                    | 2.25<br>57           | —                             | —                    |
| 1 ¼                       | 1.660<br>42.4                                   | 2.75<br>70                    | 2.75<br>70           | —                             | —                    |
| 1 ½                       | 1.900<br>48.3                                   | 2.75<br>70                    | 2.75<br>70           | 1.75<br>44                    | 1.75<br>44           |
| 2                         | 2.375<br>60.3                                   | 3.25<br>83                    | 4.25<br>108          | —                             | —                    |
| 2 ½                       | 2.875<br>73.0                                   | 3.75<br>95                    | 3.75<br>95           | 2.25<br>57                    | 2.25<br>57           |
| 3                         | 3.500<br>88.9                                   | 4.25<br>108                   | 6.00<br>152          | 2.50<br>64                    | 4.25<br>108          |
| 3 ½                       | 4.000<br>101.6                                  | 4.50<br>114                   | 6.25<br>159          | 5.25<br>133                   | 5.25<br>133          |
| 6                         | 6.625<br>168.3                                  | 6.50<br>165                   | 6.50<br>165          | 3.50<br>89                    | 3.50<br>89           |

@ Available with British Standard Pipe Threads. Specify “BSPT” clearly on order.

**NOTE:** All fittings are ductile iron unless noted otherwise with an “sw” or “s”.

SW = Segmentally Welded, S = Carbon Steel



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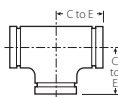
# STANDARD FITTINGS

No. 20 – Tee

No. 35 – Cross

No. 33 – True Wye

No. 29M – Tee with Threaded Branch



No. 20 – Tee



No. 35 – Cross



No. 33 – True Wye



No. 29M – Tee

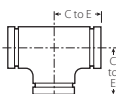
| Size                      |                                        | No. 20 Tee       | No. 35 Cross (sw) | No. 33 True Wye (sw) |                   | No. 29M Tee with Threaded Branch |                   |
|---------------------------|----------------------------------------|------------------|-------------------|----------------------|-------------------|----------------------------------|-------------------|
| Nominal Size inches or mm | Actual Pipe Outside Diameter inches/mm | C to E inches/mm | C to E inches/mm  | C to LE inches/mm    | C to SE inches/mm | C to GE inches/mm                | C to TE inches/mm |
| ¾                         | 1.050<br>26.9                          | 2.25<br>57       | 2.25<br>57        | —                    | —                 | 2.25<br>57                       | 2.25<br>57        |
| 1                         | 1.315<br>33.7                          | 2.25<br>57       | 2.25<br>57        | 2.25<br>57           | 2.25<br>57        | 2.25<br>57                       | 2.25<br>57        |
| 1 ¼                       | 1.660<br>42.4                          | 2.75<br>70       | 2.75<br>70        | 2.75<br>70           | 2.50<br>64        | 2.75<br>70                       | 2.75<br>70        |
| 1 ½                       | 1.900<br>48.3                          | 2.75<br>70       | 2.75<br>70        | 2.75<br>70           | 2.75<br>70        | 2.75<br>70                       | 2.75<br>70        |
| 2                         | 2.375<br>60.3                          | 3.25<br>83       | 3.25<br>83        | 3.25<br>83           | 2.75<br>70        | 3.25<br>83                       | 4.25<br>108       |
| 2 ½                       | 2.875<br>73.0                          | 3.75<br>95       | 3.75<br>95        | 3.75<br>95           | 3.00<br>76        | 3.75<br>95                       | 3.75<br>95        |
| 76.1 mm                   | 3.000<br>76.1                          | 3.75<br>95       | —                 | —                    | —                 | 3.75<br>95                       | 3.75<br>95        |
| 3                         | 3.500<br>88.9                          | 4.25<br>108      | 4.25<br>108       | 4.25<br>108          | 3.25<br>83        | 4.25<br>108                      | 6.00<br>152       |
| 3 ½                       | 4.000<br>101.6                         | 4.50 (sw)<br>114 | 4.50<br>114       | 4.50<br>114          | 3.50<br>89        | 4.50<br>114                      | 4.50<br>114       |
| 108.0 mm                  | 4.250<br>108.0                         | 5.00<br>127      | —                 | —                    | —                 | 5.00<br>127                      | 5.00<br>127       |
| 4                         | 4.500<br>114.3                         | 5.00<br>127      | 5.00<br>127       | 5.00<br>127          | 3.75<br>95        | 5.00<br>127                      | 7.25<br>184       |
| 4 ½                       | 5.000<br>127.0                         | 5.25 (sw)<br>133 | 5.25<br>133       | —                    | —                 | 5.25<br>133                      | 5.25<br>133       |
| 133.0 mm                  | 5.250<br>133.0                         | 5.50<br>140      | —                 | —                    | —                 | 5.50<br>140                      | 5.50<br>140       |
| 139.7 mm                  | 5.500<br>139.7                         | 5.50<br>140      | —                 | —                    | —                 | 5.50<br>140                      | 5.50<br>140       |
| 5                         | 5.563<br>141.3                         | 5.50<br>140      | 5.50<br>140       | 5.50<br>140          | 4.00<br>102       | 5.50<br>140                      | 5.50<br>140       |
| 159.0 mm                  | 6.250<br>159.0                         | 6.50<br>165      | —                 | —                    | —                 | 6.50<br>165                      | 6.50<br>165       |
| 165.1 mm                  | 6.500<br>165.1                         | 6.50<br>165      | 6.50<br>165       | —                    | —                 | 6.50<br>165                      | 6.50<br>165       |
| 6                         | 6.625<br>168.3                         | 6.50<br>165      | 6.50<br>165       | 6.50<br>165          | 4.50<br>114       | 6.50<br>165                      | 6.50<br>165       |
| 8                         | 8.625<br>219.1                         | 7.75<br>197      | 7.75<br>197       | 7.75<br>197          | 6.00<br>152       | 7.75<br>197                      | 7.75<br>197       |



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# STANDARD FITTINGS



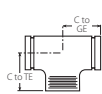
No. 20 – Tee



No. 35 – Cross



No. 33 – True Wye



No. 29M – Tee

| Size                      |                                                                            | No. 20 Tee       | No. 35 Cross (sw) | No. 33 True Wye (sw) |                   | No. 29M Tee with Threaded Branch |                   |
|---------------------------|----------------------------------------------------------------------------|------------------|-------------------|----------------------|-------------------|----------------------------------|-------------------|
| Nominal Size inches or mm | Actual Pipe Outside Diameter inches/mm                                     | C to E inches/mm | C to E inches/mm  | C to LE inches/mm    | C to SE inches/mm | C to GE inches/mm                | C to TE inches/mm |
| 10                        | 10.750<br>273.0                                                            | 9.00<br>229      | 9.00<br>229       | 9.00<br>229          | 6.50<br>155       | 9.00<br>229                      | 9.00<br>229       |
| 12                        | 12.750<br>323.9                                                            | 10.00<br>254     | 10.00<br>254      | 10.00<br>254         | 7.00<br>178       | 10.00<br>254                     | 10.00<br>254      |
| 14 #                      | 14.000<br>355.6                                                            | 11.00<br>279     | 11.00<br>279      | 11.00<br>279         | 7.50<br>191       | —                                | —                 |
| 377.0 mm                  | 14.000<br>355.6                                                            | 11.00<br>279     | —                 | —                    | —                 | —                                | —                 |
| 16 #                      | 16.000<br>406.4                                                            | 12.00<br>305     | 12.00<br>305      | 12.00<br>305         | 8.00<br>203       | —                                | —                 |
| 426.0 mm †                | 16.000<br>406.4                                                            | 12.00<br>305     | —                 | —                    | —                 | —                                | —                 |
| 18 #                      | 18.000<br>457.0                                                            | 14.00<br>356     | 15.50<br>394      | 15.50<br>394         | 8.50<br>216       | —                                | —                 |
| 480.0 mm †                | 18.000<br>457.0                                                            | 14.00<br>356     | —                 | —                    | —                 | —                                | —                 |
| 20 #                      | 20.000<br>508.0                                                            | 15.00<br>381     | 17.25<br>438      | 17.25<br>438         | 9.00<br>229       | —                                | —                 |
| 530.0 mm †                | 20.000<br>508.0                                                            | 15.00<br>381     | —                 | —                    | —                 | —                                | —                 |
| 24 #                      | 24.000<br>610.0                                                            | 17.00<br>432     | 20.00<br>508      | 20.00<br>508         | 10.00<br>254      | —                                | —                 |
| 630.0 mm †                | 24.000<br>610.0                                                            | 17.00<br>432     | —                 | —                    | —                 | —                                | —                 |
| 14 – 24                   | <b>AGS</b> For AGS fitting information, refer to the AGS fittings section. |                  |                   |                      |                   |                                  |                   |

# For use on cut grooved systems only. For roll grooved systems, Victaulic offers the Advanced Groove System (AGS).

† Chinese standard sizes

**NOTE:** All fittings are ductile iron unless noted otherwise with an “sw” or “s”.

SW = Segmentally Welded, S = Carbon Steel

Fittings in sizes 26 – 48 inches/660.0 – 1219.0 mm are available roll grooved for installation with Style 770 Large Diameter Couplings. Contact Victaulic for details.



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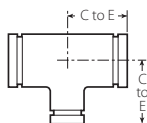


# STANDARD FITTINGS

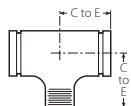
## No. 25 – Grooved Branch

## No. 29T – Threaded Branch

| Size                                  | No. 25<br>Std.      | No. 29T<br>w/ Thd. Branch |
|---------------------------------------|---------------------|---------------------------|
| Nominal Size<br>inches/Actual mm      | C to E<br>inches/mm | C to E<br>inches/mm       |
| 1<br>33.7 × 1<br>33.7 × ¾<br>26.9     | +                   | +                         |
| 1 ¼<br>42.4 × 1 ¼<br>42.4 × 1<br>33.7 | +                   | +                         |
| 1 ½<br>48.3 × 1 ½<br>48.3 × ¾<br>26.9 | +                   | +                         |
| 1<br>33.7                             | +                   | +                         |
| 1 ¼<br>42.4                           | +                   | +                         |
| 2<br>60.3 × 2<br>60.3 × ¾<br>26.9     | 3.25<br>83          | 3.25<br>83                |
| 1<br>33.7                             | 3.25<br>83          | 3.25<br>83                |
| 1 ¼<br>42.4                           | +                   | +                         |
| 1 ½<br>48.3                           | 3.25<br>83          | 3.25 (sw)<br>83           |
| 2 ½<br>73.0 × 2 ½<br>73.0 × ¾<br>26.9 | +                   | +                         |
| 1<br>33.7                             | 3.75<br>95          | 3.75 (sw)<br>95           |
| 1 ¼<br>42.4                           | +                   | +                         |
| 1 ½<br>48.3                           | 3.75<br>95          | 3.75<br>95                |
| 2<br>60.3                             | 3.75<br>95          | 3.75 (sw)<br>95           |
| 3<br>88.9 × 3<br>88.9 × ¾<br>26.9     | +                   | +                         |
| 1<br>33.7                             | 4.25<br>108         | 4.25<br>108               |
| 1 ¼<br>42.4                           | +                   | +                         |
| 1 ½<br>48.3                           | 4.25<br>108         | 4.25 (sw)<br>108          |
| 2<br>60.3                             | 4.25<br>108         | 4.25 (sw)<br>108          |
| 2 ½<br>73.0                           | 4.25<br>108         | 4.25 (sw)<br>108          |



**No. 25**



**No. 29T**

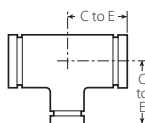


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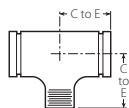


# STANDARD FITTINGS

| Size                             |   |              | No. 25 Std.         | No. 29T w/ Thd. Branch |             |                  |
|----------------------------------|---|--------------|---------------------|------------------------|-------------|------------------|
| Nominal Size<br>inches/Actual mm |   |              | C to E<br>inches/mm | C to E<br>inches/mm    |             |                  |
| 4<br>114.3                       | × | 4<br>114.3   | ×                   | ¾<br>26.9              | +           | +                |
|                                  |   | 1<br>33.7    |                     | 5.00<br>127            |             | 5.00<br>127      |
|                                  |   | 1 ¼<br>42.4  |                     | +                      |             | +                |
|                                  |   | 1 ½<br>48.3  |                     | 5.00<br>127            |             | 5.00<br>127      |
|                                  |   | 2<br>60.3    |                     | 5.00<br>127            |             | 5.00<br>127      |
|                                  |   | 2 ½<br>73.0  |                     | 5.00<br>127            |             | 5.00<br>127      |
|                                  |   | 3<br>88.9    |                     | 5.00<br>127            |             | 5.00<br>127      |
|                                  |   |              |                     |                        |             |                  |
| 5<br>141.3                       | × | 5<br>141.3   | ×                   | 1<br>33.7              | +           | +                |
|                                  |   | 1 ½<br>48.3  |                     | +                      |             | +                |
|                                  |   | 2<br>60.3    |                     | 5.50 (sw)<br>140       |             | 5.50 (sw)<br>140 |
|                                  |   | 2 ½<br>73.0  |                     | 5.50<br>140            |             | 5.50 (sw)<br>140 |
|                                  |   | 3<br>88.9    |                     | 5.50<br>140            |             | 5.50 (sw)<br>140 |
|                                  |   | 4<br>114.3   |                     | 5.50<br>140            |             | 5.50 (sw)<br>140 |
| 6<br>168.3                       | × | 6<br>168.3   | ×                   | 1<br>33.7              | +           | +                |
|                                  |   | 1 ½<br>48.3  |                     | +                      |             | +                |
|                                  |   | 2<br>60.3    |                     | 6.50<br>165            |             | 6.50<br>165      |
|                                  |   | 2 ½<br>73.0  |                     | 6.50<br>165            |             | 6.50<br>165      |
|                                  |   | 3<br>88.9    |                     | 6.50<br>165            |             | 6.50<br>165      |
|                                  |   | 4<br>114.3   |                     | 6.50<br>165            |             | 6.50<br>165      |
|                                  |   | 5<br>141.3   |                     | 6.50<br>165            |             | 6.50<br>165      |
|                                  |   |              |                     |                        |             |                  |
| 6 ½<br>165.1                     | × | 6 ½<br>165.1 | ×                   | 3<br>88.9              | 6.50<br>165 | 6.50 (sw)<br>165 |
|                                  |   |              |                     | 4<br>114.3             | 6.50<br>165 | 6.50 (sw)<br>165 |



**No. 25**



**No. 29T**

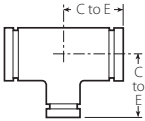


Always refer to the current Victaulic submittal publication in the G-100 General Catalog or on the website [www.victaulic.com](http://www.victaulic.com) for the most up-to-date dimensional information.

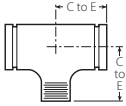


# STANDARD FITTINGS

| Size                             |               |             | No. 25<br>Std.      | No. 29T<br>w/ Thd. Branch |
|----------------------------------|---------------|-------------|---------------------|---------------------------|
| Nominal Size<br>inches/Actual mm |               |             | C to E<br>inches/mm | C to E<br>inches/mm       |
| 8<br>219.1                       | × 8<br>219.1  | 1 ½<br>48.3 | +                   | +                         |
|                                  |               | 2<br>60.3   | 7.75 (sw)<br>197    | 7.75 (sw)<br>197          |
|                                  |               | 2 ½<br>73.0 | +                   | +                         |
|                                  |               | 3<br>88.9   | 7.75 (sw)<br>197    | 7.75 (sw)<br>197          |
|                                  |               | 4<br>114.3  | 7.75<br>197         | 7.75<br>197               |
|                                  |               | 5<br>141.3  | 7.75 (sw)<br>197    | 7.75 (sw)<br>197          |
|                                  |               | 6<br>168.3  | 7.75<br>197         | 7.75<br>197               |
|                                  |               | 165.1<br>mm | 7.75 (sw)<br>197    | 7.75 (sw)<br>197          |
| 10<br>273.0                      | × 10<br>273.0 | 1 ½<br>48.3 | +                   | +                         |
|                                  |               | 2<br>60.3   | 9.00 (sw)<br>229    | 9.00 (sw)<br>229          |
|                                  |               | 2 ½<br>73.0 | +                   | +                         |
|                                  |               | 3<br>88.9   | +                   | +                         |
|                                  |               | 4<br>114.3  | 9.00 (sw)<br>229    | 9.00 (sw)<br>229          |
|                                  |               | 5<br>141.3  | 9.00 (sw)<br>229    | 9.00 (sw)<br>229          |
|                                  |               | 6<br>168.3  | 9.00 (sw)<br>229    | 9.00 (sw)<br>229          |
|                                  |               | 8<br>219.1  | 9.00 (sw)<br>229    | 9.00 (sw)<br>229          |
| 12<br>323.9                      | × 12<br>323.9 | 1<br>33.7   | +                   | +                         |
|                                  |               | 2<br>60.3   | +                   | +                         |
|                                  |               | 2 ½<br>73.0 | +                   | +                         |
|                                  |               | 3<br>88.9   | 10.00 (sw)<br>254   | 10.00 (sw)<br>254         |
|                                  |               | 4<br>114.3  | 10.00 (sw)<br>254   | 10.00 (sw)<br>254         |
|                                  |               | 5<br>141.3  | 10.00 (sw)<br>254   | 10.00 (sw)<br>254         |
|                                  |               | 6<br>168.3  | 10.00 (sw)<br>254   | 10.00 (sw)<br>254         |
|                                  |               | 8<br>219.1  | 10.00 (sw)<br>254   | 10.00 (sw)<br>254         |
|                                  |               | 10<br>273.0 | 10.00 (sw)<br>254   | 10.00 (sw)<br>254         |
|                                  |               |             |                     |                           |



No. 25



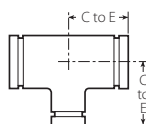
No. 29T

 Always refer to the current Victaulic submittal publication in the G-100 General Catalog or on the website [www.victaulic.com](http://www.victaulic.com) for the most up-to-date dimensional information.

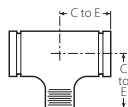


# STANDARD FITTINGS

| Size                                     | No. 25<br>Std.      | No. 29T<br>w/ Thd. Branch |
|------------------------------------------|---------------------|---------------------------|
| Nominal Size<br>inches/Actual mm         | C to E<br>inches/mm | C to E<br>inches/mm       |
| # 14<br>355.6 × 14<br>355.6 × 4<br>114.3 | +                   | +                         |
|                                          | 6<br>168.3          | +                         |
|                                          | 8<br>219.1          | 11.00<br>279              |
|                                          | 10<br>273.0         | 11.00<br>279              |
|                                          | 12<br>323.9         | 11.00<br>279              |
|                                          |                     |                           |
| # 16<br>406.4 × 16<br>406.4 × 4<br>114.3 | +                   | +                         |
|                                          | 6<br>168.3          | +                         |
|                                          | 8<br>219.1          | 12.00<br>305              |
|                                          | 10<br>273.0         | 12.00<br>305              |
|                                          | 12<br>323.9         | 12.00<br>305              |
|                                          | 14<br>355.6         | +                         |
| # 18<br>457.0 × 18<br>457.0 × 4<br>114.3 | +                   | +                         |
|                                          | 6<br>168.3          | +                         |
|                                          | 8<br>219.1          | +                         |
|                                          | 10<br>273.0         | 15.50<br>394              |
|                                          | 12<br>323.9         | 15.50<br>394              |
|                                          | 14<br>355.6         | —                         |
|                                          | 16<br>406.4         | —                         |
|                                          |                     |                           |
| # 20<br>508.0 × 20<br>508.0 × 6<br>168.3 | +                   | +                         |
|                                          | 8<br>219.1          | +                         |
|                                          | 10<br>273.0         | +                         |
|                                          | 12<br>323.9         | +                         |
|                                          | 14<br>355.6         | 17.25<br>438              |
|                                          | 16<br>406.4         | 17.25<br>438              |
|                                          | 18<br>457.0         | 17.25<br>438              |
|                                          |                     |                           |



**No. 25**



**No. 29T**

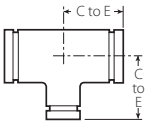


Always refer to the current Victaulic submittal publication in the G-100 General Catalog or on the website [www.victaulic.com](http://www.victaulic.com) for the most up-to-date dimensional information.

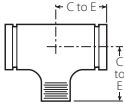


# STANDARD FITTINGS

| Size                                     | No. 25<br>Std.                                                                   | No. 29T<br>w/ Thd. Branch |
|------------------------------------------|----------------------------------------------------------------------------------|---------------------------|
| Nominal Size<br>inches/Actual mm         | C to E<br>inches/mm                                                              | C to E<br>inches/mm       |
| # 24<br>610.0 × 24<br>610.0 × 8<br>219.1 | 20.00<br>508                                                                     | 20.00<br>508              |
| 10<br>273.0                              | 20.00<br>508                                                                     | 20.00<br>508              |
| 12<br>323.9                              | 20.00<br>508                                                                     | 20.00<br>508              |
| 14 §<br>355.6                            | 20.00<br>508                                                                     | —                         |
| 16<br>406.4                              | 20.00<br>508                                                                     | —                         |
| 18 §<br>457.0                            | 20.00<br>508                                                                     | —                         |
| 20<br>508.0                              | 20.00<br>508                                                                     | —                         |
| 14 – 24<br>355.6 – 610.0                 | <b>AGS</b><br>For AGS fitting information,<br>refer to the AGS fittings section. |                           |



No. 25



No. 29T

+ Contact Victaulic for details.

**NOTE:** All fittings are ductile iron unless noted otherwise with an “sw” or “s”.  
SW = Segmentally Welded, S = Carbon Steel

No. 29T Threaded Branches are supplied standard with NPT threads. British Standard Pipe Threads are available. Specify “BSPT” clearly on order.

# For use on cut grooved systems only. For roll grooved systems, Victaulic offers the Advanced Groove System (AGS).

§ Cast fitting available. Contact Victaulic for details.

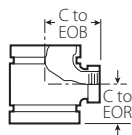
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# STANDARD FITTINGS

## No. 27 – Standpipe Tee

| Size                             |              |              | No. 27<br>Standpipe Tee |                       |
|----------------------------------|--------------|--------------|-------------------------|-----------------------|
| Nominal Size<br>inches/Actual mm |              |              | C to EOR<br>inches/mm   | C to EOB<br>inches/mm |
| 4<br>114.3                       | × 4<br>114.3 | × 2½<br>73.0 | 3.25<br>83              | 4.00<br>102           |
| 6<br>168.3                       | × 6<br>168.3 | × 2½<br>73.0 | 3.25<br>83              | 5.13<br>130           |



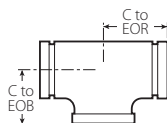
No. 27

Available with British Standard Pipe Threads. Specify “BSPT” clearly on order.

**NOTE:** All fittings are ductile iron unless noted otherwise with an “sw” or “s”. SW = Segmentally Welded, S = Carbon Steel

## No. 21 – Bullhead Tee

| Size                             |              |              | No. 21<br>Bullhead Tee |                       |
|----------------------------------|--------------|--------------|------------------------|-----------------------|
| Nominal Size<br>inches/Actual mm |              |              | C to EOR<br>inches/mm  | C to EOB<br>inches/mm |
| 5<br>141.3                       | × 5<br>141.3 | × 8<br>219.1 | 7.75<br>197            | 5.50<br>140           |
| 6<br>168.3                       | × 6<br>168.3 | × 8<br>219.1 | 7.75<br>197            | 6.50<br>165           |

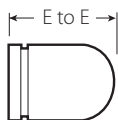


No. 21

**NOTE:** All fittings are ductile iron unless noted otherwise with an “sw” or “s”. SW = Segmentally Welded, S = Carbon Steel

## No. 61 – Bull Plug

| Size                   |                                              | No. 61<br>Bull Plug (S) |
|------------------------|----------------------------------------------|-------------------------|
| Nominal<br>Size inches | Actual Pipe<br>Outside Diameter<br>inches/mm | E to E<br>inches/mm     |
| 2                      | 2.375<br>60.3                                | 4.00<br>102             |
| 2½                     | 2.875<br>73.0                                | 5.00<br>127             |
| 3                      | 3.500<br>88.9                                | 6.00<br>152             |
| 4                      | 4.500<br>114.3                               | 7.00<br>178             |
| 5                      | 5.563<br>141.3                               | 8.00<br>203             |
| 6                      | 6.625<br>168.3                               | 10.00<br>254            |



No. 61

No. 61 Bull Plugs should be used in vacuum services with Style 72 Outlet Couplings and Style 750 Reducing Couplings

**NOTE:** All fittings are ductile iron unless noted otherwise with an “sw” or “s”. SW = Segmentally Welded, S = Carbon Steel



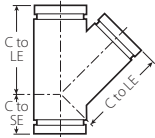
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# STANDARD FITTINGS

## No. 30 – 45° Lateral

| Size                         |                                                                                                                                                           | No. 30<br>45° Lateral (SW) |                      |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----------------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside Diameter<br>inches/mm                                                                                                              | C to LE<br>inches/mm       | C to SE<br>inches/mm |
| ¾                            | 1.050<br>26.9                                                                                                                                             | 4.50<br>114                | 2.00<br>51           |
| 1                            | 1.315<br>33.7                                                                                                                                             | 5.00<br>127                | 2.25<br>57           |
| 1 ¼                          | 1.660<br>42.4                                                                                                                                             | 5.75<br>146                | 2.50<br>64           |
| 1 ½                          | 1.900<br>48.3                                                                                                                                             | 6.25<br>159                | 2.75<br>70           |
| 2                            | 2.375<br>60.3                                                                                                                                             | 7.00<br>178                | 2.75<br>70           |
| 2 ½                          | 2.875<br>73.0                                                                                                                                             | 7.75<br>197                | 3.00<br>76           |
| 76.1 mm                      | 3.000<br>76.1                                                                                                                                             | 8.50<br>216                | 3.25<br>83           |
| 3                            | 3.500<br>88.9                                                                                                                                             | 8.50<br>216                | 3.25<br>83           |
| 3 ½                          | 4.000<br>101.6                                                                                                                                            | 10.00<br>254               | 3.50<br>89           |
| 4                            | 4.500<br>114.3                                                                                                                                            | 10.50<br>267               | 3.75<br>95           |
| 5                            | 5.563<br>141.3                                                                                                                                            | 12.50<br>318               | 4.00<br>102          |
| 165.1 mm                     | 6.500<br>165.1                                                                                                                                            | 14.00<br>356               | 4.50<br>114          |
| 6                            | 6.625<br>168.3                                                                                                                                            | 14.00<br>356               | 4.50<br>114          |
| 8                            | 8.625<br>219.1                                                                                                                                            | 18.00<br>457               | 6.00<br>152          |
| 10                           | 10.750<br>273.0                                                                                                                                           | 20.50<br>521               | 6.50<br>165          |
| 12                           | 12.750<br>323.9                                                                                                                                           | 23.00<br>584               | 7.00<br>178          |
| 14 #                         | 14.000<br>355.6                                                                                                                                           | 26.50<br>673               | 7.50<br>191          |
| 16 #                         | 16.000<br>406.4                                                                                                                                           | 29.00<br>737               | 8.00<br>203          |
| 18 #                         | 18.000<br>457.0                                                                                                                                           | 32.00<br>813               | 8.50<br>216          |
| 20 #                         | 20.000<br>508.0                                                                                                                                           | 35.00<br>889               | 9.00<br>229          |
| 24 #                         | 24.000<br>610.0                                                                                                                                           | 40.00<br>1016              | 10.00<br>254         |
| 14 – 24                      | <br>For AGS fitting information, refer to the<br>AGS fittings section. |                            |                      |



No. 30

# For use on cut grooved systems only. For roll grooved systems, Victaulic offers the Advanced Groove System (AGS).

**NOTE:** All fittings are ductile iron unless noted otherwise with an “sw” or “s”.  
SW = Segmentally Welded, S = Carbon Steel

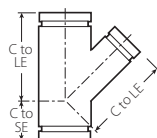
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# STANDARD FITTINGS

## No. 30-R – 45° Reducing Lateral

| Size                              |   |             | No. 30-R<br>45° Reducing Lateral (SW) |              |                      |
|-----------------------------------|---|-------------|---------------------------------------|--------------|----------------------|
| Nominal Size inches/<br>Actual mm |   |             | C to LE<br>inches/mm                  |              | C to SE<br>inches/mm |
| 3<br>88.9                         | x | 3<br>88.9   | 2<br>60.3                             | 8.50<br>216  | 3.25<br>83           |
|                                   |   | 2½<br>73.0  | 8.50<br>216                           | 3.25<br>83   |                      |
| 4<br>114.3                        | x | 4<br>114.3  | 2<br>60.3                             | 10.50<br>267 | 3.75<br>95           |
|                                   |   | 2½<br>73.0  | 10.50<br>267                          | 3.75<br>95   |                      |
|                                   |   | 3<br>88.9   | 10.50<br>267                          | 3.75<br>95   |                      |
| 5<br>141.3                        | x | 5<br>141.3  | 2<br>60.3                             | 12.50<br>318 | 4.00<br>102          |
|                                   |   | 3<br>88.9   | 12.50<br>318                          | 4.00<br>102  |                      |
|                                   |   | 4<br>114.3  | 12.50<br>318                          | 4.00<br>102  |                      |
| 6<br>168.3                        | x | 6<br>168.3  | 3<br>88.9                             | 14.00<br>356 | 4.50<br>114          |
|                                   |   | 4<br>114.3  | 14.00<br>356                          | 4.50<br>114  |                      |
|                                   |   | 5<br>141.3  | 14.00<br>356                          | 4.50<br>114  |                      |
| 8<br>219.1                        | x | 8<br>219.1  | 4<br>114.3                            | 18.00<br>457 | 6.00<br>152          |
|                                   |   | 5<br>141.3  | 18.00<br>457                          | 6.00<br>152  |                      |
|                                   |   | 6<br>168.3  | 18.00<br>457                          | 6.00<br>152  |                      |
| 10<br>273.0                       | x | 10<br>273.0 | 4<br>114.3                            | 20.50<br>521 | 6.50<br>165          |
|                                   |   | 5<br>141.3  | 20.50<br>521                          | 6.50<br>165  |                      |
|                                   |   | 6<br>168.3  | 20.50<br>521                          | 6.50<br>165  |                      |
|                                   |   | 8<br>219.1  | 20.50<br>521                          | 6.50<br>165  |                      |
| 12<br>323.9                       | x | 12<br>323.9 | 5<br>141.3                            | 23.00<br>584 | 7.00<br>178          |
|                                   |   | 6<br>168.3  | 23.00<br>584                          | 7.00<br>178  |                      |
|                                   |   | 8<br>219.1  | 23.00<br>584                          | 7.00<br>178  |                      |
|                                   |   | 10<br>273.0 | 23.00<br>584                          | 7.00<br>178  |                      |



No. 30-R

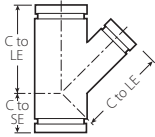


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# STANDARD FITTINGS

| Size                              |   |              | No. 30-R<br>45° Reducing Lateral (SW)                                            |                      |              |
|-----------------------------------|---|--------------|----------------------------------------------------------------------------------|----------------------|--------------|
| Nominal Size inches/<br>Actual mm |   |              | C to LE<br>inches/mm                                                             | C to SE<br>inches/mm |              |
| # 14<br>355.6                     | x | 14<br>355.6  | 4<br>114.3                                                                       | 26.50<br>673         | 7.50<br>191  |
|                                   |   | 6<br>168.3   | 8<br>219.1                                                                       | 26.50<br>673         | 7.50<br>191  |
|                                   |   | 10<br>273.0  | 12<br>323.9                                                                      | 26.50<br>673         | 7.50<br>191  |
|                                   |   | 14<br>355.6  | 16<br>406.4                                                                      | 29.00<br>737         | 8.00<br>203  |
|                                   |   | 18<br>457.0  | 20<br>508.0                                                                      | 32.00<br>813         | 8.50<br>216  |
|                                   |   | 24<br>610.0  | 30<br>762.0                                                                      | 40.00<br>1016        | 10.00<br>254 |
| # 16<br>406.4                     | x | 16<br>406.4  | 6<br>168.3                                                                       | 29.00<br>737         | 8.00<br>203  |
|                                   |   | 8<br>219.1   | 10<br>273.0                                                                      | 29.00<br>737         | 8.00<br>203  |
|                                   |   | 12<br>323.9  | 14<br>355.6                                                                      | 29.00<br>737         | 8.00<br>203  |
|                                   |   | 18<br>457.0  | 20<br>508.0                                                                      | 32.00<br>813         | 8.50<br>216  |
|                                   |   | 24<br>610.0  | 30<br>762.0                                                                      | 40.00<br>1016        | 10.00<br>254 |
|                                   |   | 36<br>914.4  | 48<br>1219.2                                                                     | 50.00<br>1270        | 12.00<br>305 |
| # 18<br>457.0                     | x | 18<br>457.0  | 6<br>168.3                                                                       | 32.00<br>813         | 8.50<br>216  |
|                                   |   | 8<br>219.1   | 10<br>273.0                                                                      | 32.00<br>813         | 8.50<br>216  |
|                                   |   | 12<br>323.9  | 14<br>355.6                                                                      | 32.00<br>813         | 8.50<br>216  |
|                                   |   | 16<br>406.4  | 20<br>508.0                                                                      | 32.00<br>813         | 8.50<br>216  |
|                                   |   | 24<br>610.0  | 30<br>762.0                                                                      | 40.00<br>1016        | 10.00<br>254 |
|                                   |   | 36<br>914.4  | 48<br>1219.2                                                                     | 50.00<br>1270        | 12.00<br>305 |
| # 20<br>508.0                     | x | 20<br>508.0  | 12<br>323.9                                                                      | 35.00<br>889         | 9.00<br>229  |
|                                   |   | 14<br>355.6  | 16<br>406.4                                                                      | 35.00<br>889         | 9.00<br>229  |
|                                   |   | 18<br>457.0  | 24<br>610.0                                                                      | 40.00<br>1016        | 10.00<br>254 |
|                                   |   | 30<br>762.0  | 36<br>914.4                                                                      | 50.00<br>1270        | 12.00<br>305 |
|                                   |   | 48<br>1219.2 | 60<br>1524.0                                                                     | 63.00<br>1601        | 15.00<br>381 |
|                                   |   | 60<br>1524.0 | 72<br>1828.8                                                                     | 75.00<br>1905        | 18.00<br>457 |
| 14 – 24<br>355.6 – 610.0          |   |              | <b>AGS</b><br>For AGS fitting information,<br>refer to the AGS fittings section. |                      |              |



No. 30-R

# For use on cut grooved systems only. For roll grooved systems, Victaulic offers the Advanced Groove System (AGS).

**NOTE:** All fittings are ductile iron unless noted otherwise with an “sw” or “s”.  
SW = Segmentally Welded, S = Carbon Steel

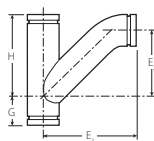
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# STANDARD FITTINGS

## No. 32 – Tee Wye

| Size                             |   |             |   | No. 32<br>Tee Wye (SW) |                    |                                 |                                 |              |
|----------------------------------|---|-------------|---|------------------------|--------------------|---------------------------------|---------------------------------|--------------|
| Nominal Size<br>inches/Actual mm |   |             |   | G<br>inches/<br>mm     | H<br>inches/<br>mm | E <sub>1</sub><br>inches/<br>mm | E <sub>2</sub><br>inches/<br>mm |              |
| 2<br>60.3                        | × | 2<br>60.3   | × | 2<br>60.3              | 2.75<br>70         | 7.00<br>178                     | 9.00<br>229                     | 4.63<br>118  |
| 2½<br>73.0                       | × | 2½<br>73.0  | × | 2½<br>73.0             | 3.00<br>76         | 7.75<br>197                     | 10.50<br>267                    | 5.75<br>146  |
| 3<br>88.9                        | × | 3<br>88.9   | × | 3<br>88.9              | 3.25<br>83         | 8.50<br>216                     | 11.50<br>292                    | 6.50<br>165  |
| 3½<br>101.6                      | × | 3½<br>101.6 | × | 3½<br>101.6            | 3.25<br>89         | 10.00<br>254                    | 13.00<br>330                    | 7.75<br>197  |
| 4<br>114.3                       | × | 4<br>114.3  | × | 4<br>114.3             | 3.75<br>95         | 10.50<br>267                    | 13.63<br>346                    | 8.13<br>207  |
| 5<br>141.3                       | × | 5<br>141.3  | × | 5<br>141.3             | 4.00<br>102        | 12.50<br>318                    | 16.13<br>410                    | 10.00<br>254 |
| 6<br>168.3                       | × | 6<br>168.3  | × | 6<br>168.3             | 4.50<br>114        | 14.00<br>356                    | 18.25<br>464                    | 11.50<br>292 |
| 8<br>219.1                       | × | 8<br>219.1  | × | 8<br>219.1             | 6.00<br>152        | 18.00<br>457                    | 23.25<br>591                    | 15.25<br>387 |
| 10<br>273.0                      | × | 10<br>273.0 | × | 10<br>273.0            | 6.50<br>165        | 20.50<br>521                    | 27.25<br>692                    | 18.00<br>457 |
| 12<br>323.9                      | × | 12<br>323.9 | × | 12<br>323.9            | 7.00<br>178        | 23.00<br>584                    | 31.00<br>787                    | 20.50<br>521 |



No. 32

**NOTE:** All fittings are ductile iron unless noted otherwise with an “sw” or “s”.  
SW = Segmentally Welded, S = Carbon Steel



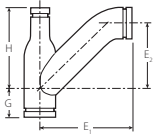
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# STANDARD FITTINGS

## No. 32-R – Reducing Tee Wye

| Size                             |   |            | No. 32-R<br>Reducing Tee Wye (SW) |                    |                                 |                                 |
|----------------------------------|---|------------|-----------------------------------|--------------------|---------------------------------|---------------------------------|
| Nominal Size<br>inches/Actual mm |   |            | G<br>inches/<br>mm                | H<br>inches/<br>mm | E <sub>1</sub><br>inches/<br>mm | E <sub>2</sub><br>inches/<br>mm |
| 4<br>114.3                       | × | 3<br>88.9  | 3.50<br>89                        | 9.50<br>241        | 10.75<br>273                    | 5.75<br>146                     |
|                                  |   | 4<br>114.3 | 3.75<br>95                        | 10.50<br>267       | 13.63<br>346                    | 8.13<br>206                     |
| 4<br>114.3                       | × | 4<br>114.3 | 3.75<br>95                        | 10.50<br>267       | 12.88<br>327                    | 7.88<br>200                     |
| 5<br>141.3                       | × | 3<br>88.9  | 1.25<br>32                        | 9.75<br>248        | 11.50<br>292                    | 7.63<br>194                     |
|                                  |   | 5<br>141.3 | 4.00<br>102                       | 12.50<br>318       | 16.13<br>410                    | 11.13<br>283                    |
| 5<br>141.3                       | × | 4<br>114.3 | 1.88<br>48                        | 9.13<br>232        | 11.88<br>302                    | 6.88<br>175                     |
|                                  |   | 4<br>114.3 | 1.88<br>48                        | 9.13<br>232        | 12.75<br>324                    | 7.25<br>184                     |
| 5<br>141.3                       | × | 5<br>141.3 | 4.00<br>102                       | 12.50<br>318       | 14.25<br>362                    | 9.25<br>235                     |
|                                  |   | 4<br>114.3 | 4.00<br>102                       | 12.50<br>318       | 15.13<br>384                    | 9.63<br>245                     |
| 6<br>168.3                       | × | 4<br>114.3 | 4.50<br>114                       | 14.00<br>356       | 18.25<br>464                    | 11.50<br>292                    |
| 6<br>168.3                       | × | 5<br>141.3 | 1.25<br>32                        | 10.75<br>273       | 13.00<br>330                    | 8.00<br>203                     |
|                                  |   | 4<br>114.3 | 1.25<br>32                        | 10.75<br>273       | 13.88<br>352                    | 8.38<br>213                     |
| 6<br>168.3                       | × | 6<br>168.3 | 4.50<br>114                       | 14.00<br>356       | 15.31<br>389                    | 10.31<br>262                    |
|                                  |   | 4<br>114.3 | 4.50<br>114                       | 14.00<br>356       | 16.25<br>413                    | 10.75<br>273                    |
|                                  |   | 5<br>141.3 | 4.50<br>114                       | 14.00<br>356       | 17.25<br>438                    | 11.13<br>283                    |
| 8<br>219.1                       | × | 6<br>168.3 | 1.00<br>25                        | 12.00<br>304       | 14.75<br>375                    | 9.25<br>235                     |
|                                  |   | 8<br>219.1 | 6.00<br>152                       | 18.00<br>457       | 23.25<br>591                    | 15.25<br>387                    |



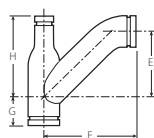
No. 32-R

⚠ Always refer to the current Victaulic submittal publication in the G-100 General Catalog or on the website [www.victaulic.com](http://www.victaulic.com) for the most up-to-date dimensional information.



# STANDARD FITTINGS

| Size                             |   |             | No. 32-R<br>Reducing Tee Wye (SW) |                    |                                 |                                 |              |              |
|----------------------------------|---|-------------|-----------------------------------|--------------------|---------------------------------|---------------------------------|--------------|--------------|
| Nominal Size<br>inches/Actual mm |   |             | G<br>inches/<br>mm                | H<br>inches/<br>mm | E <sub>1</sub><br>inches/<br>mm | E <sub>2</sub><br>inches/<br>mm |              |              |
| 8<br>219.1                       | × | 8<br>219.1  | ×                                 | 3<br>88.9          | 6.00<br>152                     | 18.00<br>457                    | 18.19<br>462 | 13.19<br>335 |
|                                  |   | 4<br>114.3  |                                   | 6.00<br>152        | 18.00<br>457                    | 19.00<br>483                    | 13.50<br>343 |              |
|                                  |   | 5<br>141.3  |                                   | 6.00<br>152        | 18.00<br>457                    | 20.00<br>508                    | 13.88<br>352 |              |
|                                  |   | 6<br>168.3  |                                   | 6.00<br>152        | 18.00<br>457                    | 21.13<br>537                    | 14.38<br>365 |              |
| 10<br>273.0                      | × | 10<br>273.0 | ×                                 | 3<br>88.9          | 6.50<br>165                     | 20.50<br>521                    | 19.88<br>505 | 14.88<br>378 |
|                                  |   | 4<br>114.3  |                                   | 6.50<br>165        | 20.50<br>521                    | 20.75<br>527                    | 15.25<br>387 |              |
|                                  |   | 5<br>141.3  |                                   | 6.50<br>165        | 20.50<br>521                    | 21.88<br>556                    | 15.75<br>400 |              |
| 10<br>273.0                      | × | 10<br>273.0 | ×                                 | 6<br>168.3         | 6.50<br>165                     | 20.50<br>521                    | 22.88<br>581 | 16.13<br>410 |
|                                  |   | 8<br>219.1  |                                   | 6.50<br>165        | 20.50<br>521                    | 27.25<br>692                    | 19.25<br>489 |              |



**No. 32-R**

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# STANDARD FITTINGS

**No. 40 – Grooved x Threaded Adapter Nipple**

**No. 42 – Grooved x Beveled Adapter Nipple**

**No. 43 – Grooved x Grooved Adapter Nipple**

| Size                   |                                              | No. 40, 42, 43<br>Adapter Nipple (s) |
|------------------------|----------------------------------------------|--------------------------------------|
| Nominal<br>Size inches | Actual Pipe<br>Outside Diameter<br>inches/mm | E to E<br>inches/mm                  |
| ¾                      | 1.050<br>26.9                                | 3.00<br>76                           |
| 1                      | 1.315<br>33.7                                | 3.00<br>76                           |
| 1¼                     | 1.660<br>42.4                                | 4.00<br>102                          |
| 1½                     | 1.900<br>48.3                                | 4.00<br>102                          |
| 2                      | 2.375<br>60.3                                | 4.00<br>102                          |
| 2½                     | 2.875<br>73.0                                | 4.00<br>102                          |
| 3                      | 3.500<br>88.9                                | 4.00<br>102                          |
| 3½                     | 4.000<br>101.6                               | 4.00<br>102                          |
| 4                      | 4.500<br>114.3                               | 6.00<br>152                          |
| 5                      | 5.563<br>141.3                               | 6.00<br>152                          |
| 6                      | 6.625<br>168.3                               | 6.00<br>152                          |
| 8                      | 8.625<br>219.1                               | 6.00<br>152                          |
| 10                     | 10.750<br>273.0                              | 8.00<br>203                          |
| 12                     | 12.750<br>323.9                              | 8.00<br>203                          |



**No. 40**



**No. 42**



**No. 43**

Available with British Standard Pipe Threads. Specify "BSPT" clearly on order.

For pump package nipples with a 1 ½-inch/38-mm hole cut to receive Style 923 Vic-Let Strapless Outlets or Style 924 Vic-O-Well Strapless Thermometer Outlets, special No. 40, No. 42, or No. 43 Adapter Nipples must be used. Specify No. 40-H, 42-H, or 43-H clearly on order. NOTE: An 8-inch/203-mm minimum length is required for 4 – 12-inch/114.3 – 323.9-mm sizes.

# For use on cut grooved systems only. For roll grooved systems, Victaulic offers the Advanced Groove System (AGS).

**NOTE:** All fittings are ductile iron unless noted otherwise with an "sw" or "s".

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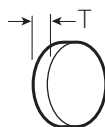
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# STANDARD FITTINGS

## No. 60 – Cap

| Size                         |                                              | No. 60<br>Cap               |
|------------------------------|----------------------------------------------|-----------------------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside Diameter<br>inches/mm | T<br>Thickness<br>inches/mm |
| ¾                            | 1.050<br>26.9                                | 0.88<br>22                  |
| 1                            | 1.315<br>33.7                                | 0.88<br>22                  |
| 1 ¼                          | 1.660<br>42.4                                | 0.88<br>22                  |
| 1 ½                          | 1.900<br>48.3                                | 0.88<br>22                  |
| 2                            | 2.375<br>60.3                                | 0.88<br>22                  |
| 2 ½                          | 2.875<br>73.0                                | 0.88<br>22                  |
| 76.1 mm                      | 3.000<br>76.1                                | 0.88<br>22                  |
| 3                            | 3.500<br>88.9                                | 0.88<br>22                  |
| 3 ½                          | 4.000<br>101.6                               | 0.88<br>22                  |
| 108.0 mm                     | 4.250<br>108.0                               | 1.00<br>25                  |
| 4                            | 4.500<br>114.3                               | 1.00<br>25                  |
| 133.0 mm                     | 5.250<br>133.0                               | 1.00<br>25                  |
| 139.7 mm                     | 5.500<br>139.7                               | 1.00<br>25                  |
| 5                            | 5.563<br>141.3                               | 1.00<br>25                  |
| 159.0 mm                     | 6.250<br>159.0                               | 1.00<br>25                  |
| 165.1 mm                     | 6.500<br>165.1                               | 1.00<br>25                  |
| 6                            | 6.625<br>168.3                               | 1.00<br>25                  |
| 8                            | 8.625<br>219.1                               | 1.19<br>30                  |
| 10                           | 10.750<br>273.0                              | 1.25<br>32                  |
| 12                           | 12.750<br>323.9                              | 1.25<br>32                  |



No. 60

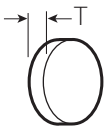


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# STANDARD FITTINGS

| Size                         |                                                                                                                                                         | No. 60 Cap                  |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside Diameter<br>inches/mm                                                                                                            | T<br>Thickness<br>inches/mm |
| 14 # (s)                     | 14.000<br>355.6                                                                                                                                         | 9.50<br>241                 |
| 16 # (s)                     | 16.000<br>406.4                                                                                                                                         | 10.00<br>254                |
| 18 # (s)                     | 18.000<br>457.0                                                                                                                                         | 11.00<br>279                |
| 20 # (s)                     | 20.000<br>508.0                                                                                                                                         | 12.00<br>305                |
| 24 # (s)                     | 24.000<br>610.0                                                                                                                                         | 13.50<br>343                |
| 14 – 24                      | <br>For AGS fitting information, refer to<br>the AGS fittings section. |                             |



No. 60

\* Steel dish caps are available through 24 inches/610.0 mm. Contact Victaulic for details.

No. 60 Caps are not suitable for use in vacuum services with Style 72 Outlet Couplings or Style 750 Reducing Couplings. No. 61 Bull Plugs should be used for this application.

# For use on cut grooved systems only. For roll grooved systems, Victaulic offers the Advanced Groove System (AGS).

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# STANDARD FITTINGS

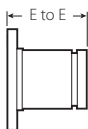
**No. 41 – ANSI Class 125 Flanged Adapter Nipple (Cast Iron)**

**No. 45F – ANSI Class 150 Flat-Face Flanged Adapter Nipple**

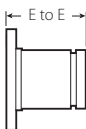
**No. 45R – ANSI Class 150 Raised-Face Flanged Adapter Nipple**

**No. 46F – ANSI Class 300 Flat-Face Flanged Adapter Nipple**

**No. 46R – ANSI Class 300 Raised-Face Flanged Adapter Nipple**



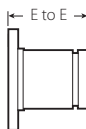
**No. 41**



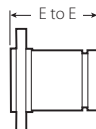
**No. 45F**



**No. 45R**



**No. 46F**



**No. 46R**

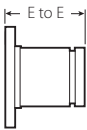
| Size                   |                                              | No. 41<br>ANSI 125<br>Flanged Adapter<br>Nipple | No. 45F and No. 45R<br>ANSI 150 Flanged<br>Adapter Nipple (S) | No. 46F and No. 46R<br>ANSI 300 Flanged<br>Adapter Nipple (S) |
|------------------------|----------------------------------------------|-------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside Diameter<br>inches/mm | E to E<br>inches/mm                             | E to E<br>inches/mm                                           | E to E<br>inches/mm                                           |
| ¾                      | 1.050<br>26.9                                | 3<br>76                                         | 3<br>76                                                       | 3<br>76                                                       |
| 1                      | 1.315<br>33.7                                | 3<br>76                                         | 3<br>76                                                       | 3<br>76                                                       |
| 1¼                     | 1.660<br>42.4                                | 4<br>102                                        | 4<br>102                                                      | 4<br>102                                                      |
| 1½                     | 1.900<br>48.3                                | 4<br>102                                        | 4<br>102                                                      | 4<br>102                                                      |
| 2                      | 2.375<br>60.3                                | 4<br>102                                        | 4<br>102                                                      | 4<br>102                                                      |
| 2½                     | 2.875<br>73.0                                | 4<br>102                                        | 4<br>102                                                      | 4<br>102                                                      |
| 3                      | 3.500<br>88.9                                | 4<br>102                                        | 4<br>102                                                      | 4<br>102                                                      |
| 3½                     | 4.00<br>101.6                                | 4<br>102                                        | 4<br>102                                                      | 4<br>102                                                      |
| 4                      | 4.500<br>114.3                               | 6<br>152                                        | 6<br>152                                                      | 6<br>152                                                      |
| 5                      | 5.563<br>141.3                               | 6<br>152                                        | 6<br>152                                                      | 6<br>152                                                      |
| 6                      | 6.625<br>168.3                               | 6<br>152                                        | 6<br>152                                                      | 6<br>152                                                      |
| 8                      | 8.625<br>219.1                               | 6<br>152                                        | 6<br>152                                                      | 6<br>152                                                      |
| 10                     | 10.750<br>273.0                              | 8<br>203                                        | 8<br>203                                                      | 8<br>203                                                      |
| 12                     | 12.750<br>323.9                              | 8<br>203                                        | 8<br>203                                                      | 8<br>203                                                      |



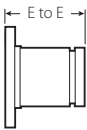
Always refer to the current Victaulic submittal publication in the G-100 General Catalog or on the website [www.victaulic.com](http://www.victaulic.com) for the most up-to-date dimensional information.



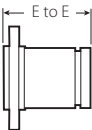
# STANDARD FITTINGS



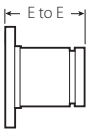
No. 41



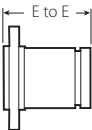
No. 45F



No. 45R



No. 46F



No. 46R

| Size                   |                                                                            | No. 41<br>ANSI 125<br>Flanged Adapter<br>Nipple | No. 45F and No. 45R<br>ANSI 150 Flanged<br>Adapter Nipple (S) | No. 46F and No. 46R<br>ANSI 300 Flanged<br>Adapter Nipple (S) |
|------------------------|----------------------------------------------------------------------------|-------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside Diameter<br>inches/mm                               | E to E<br>inches/mm                             | E to E<br>inches/mm                                           | E to E<br>inches/mm                                           |
| 14 #                   | 14.000<br>355.6                                                            | 8<br>203                                        | 8<br>203                                                      | 8<br>203                                                      |
| 16 #                   | 16.000<br>406.4                                                            | 8<br>203                                        | 8<br>203                                                      | 8<br>203                                                      |
| 18 #                   | 18.000<br>457.0                                                            | 8<br>203                                        | 8<br>203                                                      | 8<br>203                                                      |
| 20 #                   | 20.000<br>508.0                                                            | 8<br>203                                        | 8<br>203                                                      | 8<br>203                                                      |
| 24 #                   | 24.000<br>610.0                                                            | 8<br>203                                        | 8<br>203                                                      | 8<br>203                                                      |
| 14 – 24                | <b>AGS</b> For AGS fitting information, refer to the AGS fittings section. |                                                 |                                                               |                                                               |

+ Contact Victaulic for details.  
Flanged adapter nipples are supplied with original groove system roll grooves. Standard cut grooves or machining for rubber lining are available as options. Contact Victaulic for details.  
# For use on cut grooved systems only. For roll grooved systems, Victaulic offers the Advanced Groove System (AGS).  
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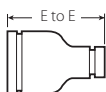


# STANDARD FITTINGS

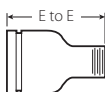
**No. 53 – Grooved x Grooved Swaged Nipple**

**No. 54 – Grooved x Threaded Swaged Nipple**

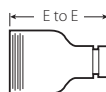
**No. 55 – Threaded x Grooved Swaged Nipple**



**No. 53**



**No. 54**



**No. 55**

| Size                             | No. 53, 54, and 55 Swaged Nipples (S) |             |
|----------------------------------|---------------------------------------|-------------|
| Nominal Size<br>inches/Actual mm | E to E<br>inches/mm                   |             |
| 2<br>60.3 × 1                    | 33.7                                  | 6.50<br>165 |
|                                  | 1 ¼<br>42.4                           | 6.50<br>165 |
|                                  | 1 ½<br>48.3                           | 6.50<br>165 |
| 2 ½<br>73.0 × 1                  | 33.7                                  | 7.00<br>178 |
|                                  | 1 ¼<br>42.4                           | 7.00<br>178 |
|                                  | 1 ½<br>48.3                           | 7.00<br>178 |
| 2<br>60.3 × 2                    | 60.3                                  | 7.00<br>178 |
|                                  | 1 ¼<br>42.4                           | 8.00<br>203 |
|                                  | 1 ½<br>48.3                           | 8.00<br>203 |
| 3<br>88.9 × 1                    | 33.7                                  | 8.00<br>203 |
|                                  | 1 ¼<br>42.4                           | 8.00<br>203 |
|                                  | 1 ½<br>48.3                           | 8.00<br>203 |
| 2<br>60.3 × 2                    | 60.3                                  | 8.00<br>203 |
|                                  | 2 ½<br>73.0                           | 8.00<br>203 |
| 3 ½<br>101.6 × 3                 | 88.9                                  | 8.00<br>203 |
| 4<br>114.3 × 1                   | 33.7                                  | 9.00<br>229 |
|                                  | 1 ¼<br>42.4                           | 9.00<br>229 |
|                                  | 1 ½<br>48.3                           | 9.00<br>229 |
| 2<br>60.3 × 2                    | 60.3                                  | 9.00<br>229 |

| Size                             | No. 53, 54, and 55 Swaged Nipples (S) |              |
|----------------------------------|---------------------------------------|--------------|
| Nominal Size<br>inches/Actual mm | E to E<br>inches/mm                   |              |
| 4<br>114.3 × 2 ½                 | 73.0                                  | 9.00<br>229  |
|                                  | 3<br>88.9                             | 9.00<br>229  |
|                                  | 3 ½<br>101.6                          | 9.00<br>229  |
| 5<br>141.3 × 2                   | 60.3                                  | 11.00<br>279 |
|                                  | 3<br>88.9                             | 11.00<br>279 |
|                                  | 4<br>114.3                            | 11.00<br>279 |
| 6<br>168.3 × 1                   | 33.7                                  | 12.00<br>305 |
|                                  | 1 ¼<br>42.4                           | 12.00<br>305 |
|                                  | 1 ½<br>48.3                           | 12.00<br>305 |
| 2<br>60.3 × 2                    | 60.3                                  | 12.00<br>305 |
|                                  | 2 ½<br>73.0                           | 12.00<br>305 |
|                                  | 3<br>88.9                             | 12.00<br>305 |
| 3 ½<br>101.6 × 4                 | 114.3                                 | 12.00<br>305 |
|                                  | 4 ½<br>127.0                          | 12.00<br>305 |
|                                  | 5<br>141.3                            | 12.00<br>305 |
| 8<br>219.1 × 6                   | 168.3                                 | +            |

+ Contact Victaulic for details.

**NOTE:** All fittings are ductile iron unless noted otherwise with an “sw” or “s”.  
SW = Segmentally Welded, S = Carbon Steel



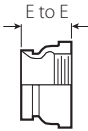
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# STANDARD FITTINGS

## No. 80 – Female Threaded Adapter

| Size                   |                                              | No. 80<br>Female Threaded<br>Adapter |
|------------------------|----------------------------------------------|--------------------------------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside Diameter<br>inches/mm | E to E<br>inches/mm                  |
| ¾                      | 1.050<br>26.9                                | 2.00<br>51                           |
| 1                      | 1.315<br>33.7                                | 2.06<br>52                           |
| 1 ¼                    | 1.660<br>42.4                                | 2.31 (sw)<br>59                      |
| 1 ½                    | 1.900<br>48.3                                | 2.31 (sw)<br>59                      |
| 2                      | 2.375<br>60.3                                | 2.50<br>64                           |
| 2 ½                    | 2.875<br>73.0                                | 2.75<br>70                           |
| 3                      | 3.500<br>88.9                                | 2.75<br>70                           |
| 4                      | 4.500<br>114.3                               | 3.25<br>83                           |



No. 80

Available with British Standard Pipe Threads. Specify “BSPT” clearly on order.  
**NOTE:** All fittings are ductile iron unless noted otherwise with an “sw” or “s”.  
SW = Segmentally Welded, S = Carbon Steel

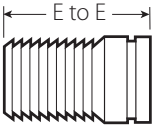
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# STANDARD FITTINGS

## No. 48 – Hose Nipple

| Size                   |                                              | No. 48<br>Hose Nipple (s) |
|------------------------|----------------------------------------------|---------------------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside Diameter<br>inches/mm | E to E<br>inches/mm       |
| ¾                      | 1.050<br>26.9                                | 3.12<br>79                |
| 1                      | 1.315<br>33.7                                | 3.38<br>86                |
| 1 ¼                    | 1.660<br>42.4                                | 3.88<br>98                |
| 1 ½                    | 1.900<br>48.3                                | 3.88<br>98                |
| 2                      | 2.375<br>60.3                                | 4.50<br>114               |
| 2 ½                    | 2.875<br>73.0                                | 5.38<br>137               |
| 3                      | 3.500<br>88.9                                | 5.75<br>146               |
| 4                      | 4.500<br>114.3                               | 7.00<br>178               |
| 5                      | 5.563<br>141.3                               | 8.75<br>222               |
| 6                      | 6.625<br>168.3                               | 10.12<br>257              |
| 8                      | 8.625<br>219.1                               | 11.88<br>302              |
| 10                     | 10.750<br>273.0                              | 12.50<br>318              |
| 12                     | 12.750<br>323.9                              | 14.50<br>368              |



No. 48

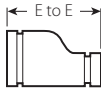
**NOTE:** All fittings are ductile iron unless noted otherwise with an “sw” or “s”.  
SW = Segmentally Welded, S = Carbon Steel

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# STANDARD FITTINGS

## No. 50 – Concentric Reducer No. 51 – Eccentric Reducer



No. 50

No. 51

| Size                             | No. 50<br>Concentric<br>Reducer | No. 51<br>Eccentric<br>Reducer |
|----------------------------------|---------------------------------|--------------------------------|
| Nominal Size<br>inches/Actual mm | E to E<br>inches/mm             | E to E<br>inches/mm            |
| 1 ¼ × ¾<br>42.4 × 26.9           | +                               | —                              |
| 1 × 1<br>33.7 × 33.7             | +                               | —                              |
| 1 ½ × ¾<br>48.3 × 26.9           | +                               | —                              |
| 1 × 1*<br>33.7 × 33.7            | 2.50<br>64                      | 8.50 (SW)<br>216               |
| 1 ¼* × 1 ¼*<br>42.4 × 42.4       | 2.50<br>64                      | —                              |
| 2 × ¾<br>60.3 × 26.9             | 2.50<br>64                      | 9.00 (SW)<br>229               |
| 1 × 1*<br>33.7 × 33.7            | 2.50<br>64                      | 9.00 (SW)<br>229               |
| 1 ¼* × 1 ¼*<br>42.4 × 42.4       | 2.50<br>64                      | 9.00 (SW)<br>229               |
| 1 ½* × 1 ½*<br>48.3 × 48.3       | 3.50<br>89                      | 3.50<br>89                     |
| 2 ½ × ¾<br>73.0 × 26.9           | +                               | +                              |
| 1 × 1*<br>33.7 × 33.7            | 2.50<br>64                      | 9.50<br>241                    |
| 1 ¼* × 1 ¼*<br>42.4 × 42.4       | 3.50<br>89                      | 3.50<br>89                     |
| 1 ½* × 1 ½*<br>48.3 × 48.3       | 2.50<br>64                      | 9.50 (SW)<br>241               |
| 2* × 2*<br>60.3 × 60.3           | 2.50<br>64                      | 9.50 (SW)<br>241               |
| 3 × ¾*<br>88.9 × 26.9            | +                               | +                              |
| 1 × 1*<br>33.7 × 33.7            | 2.50<br>241                     | 9.50 (SW)<br>241               |
| 1 ¼* × 1 ¼*<br>42.4 × 42.4       | 2.50<br>64                      | +                              |
| 1 ½* × 1 ½*<br>48.3 × 48.3       | 2.50<br>64                      | 9.50 (SW)<br>241               |
| 2* × 2*<br>60.3 × 60.3           | 2.50<br>64                      | 3.50<br>89                     |
| 2 ½* × 2 ½*<br>73.0 × 73.0       | 2.50<br>64                      | 3.50<br>89                     |
| 76.1 mm × 76.1 mm                | 2.50<br>64                      | —                              |

| Size                             | No. 50<br>Concentric<br>Reducer | No. 51<br>Eccentric<br>Reducer |
|----------------------------------|---------------------------------|--------------------------------|
| Nominal Size<br>inches/Actual mm | E to E<br>inches/mm             | E to E<br>inches/mm            |
| 3 ½ × 3<br>101.6 × 88.9          | 2.50<br>64                      | 9.50 (SW)<br>241               |
| 4 × 1*<br>114.3 × 33.7           | 3.00<br>76                      | 13.00 (SW)<br>330              |
| 1 ¼ × 1 ¼<br>42.4 × 42.4         | +                               | —                              |
| 1 ½* × 1 ½*<br>48.3 × 48.3       | 3.00 (SW)<br>76                 | 10.00 (SW)<br>254              |
| 2* × 2*<br>60.3 × 60.3           | 3.00<br>76                      | 4.00<br>102                    |
| 2 ½* × 2 ½*<br>73.0 × 73.0       | 3.00<br>76                      | 4.00<br>102                    |
| 3* × 3*<br>88.9 × 88.9           | 3.00<br>76                      | 4.00<br>102                    |
| 3 ½ × 3 ½<br>101.6 × 101.6       | 3.00<br>76                      | 10.00 (SW)<br>254              |
| 5 × 2<br>141.3 × 60.3            | 11.00 (SW)<br>279               | 11.00 (SW)<br>279              |
| 2 ½ × 2 ½<br>73.0 × 73.0         | 4.00<br>102                     | 11.00 (SW)<br>279              |
| 3 × 3<br>88.9 × 88.9             | 4.00<br>102                     | 11.00 (SW)<br>279              |
| 4* × 4*<br>114.3 × 114.3         | 3.50<br>89                      | 5.00<br>127                    |
| 6 × 1*<br>168.3 × 33.7           | 4.00<br>102                     | 11.50 (SW)<br>292              |
| 1 ½ × 1 ½<br>48.3 × 48.3         | +                               | +                              |
| 2* × 2*<br>60.3 × 60.3           | 4.00<br>102                     | 11.50 (SW)<br>292              |
| 2 ½* × 2 ½*<br>73.0 × 73.0       | 4.00<br>102                     | 11.50 (SW)<br>292              |
| 3* × 3*<br>88.9 × 88.9           | 4.00<br>102                     | 5.50<br>140                    |
| 4* × 4*<br>114.3 × 114.3         | 4.00<br>102                     | 5.50<br>140                    |
| 5* × 5*<br>141.3 × 141.3         | 4.00<br>102                     | 5.50<br>140                    |
| 8 × 2 ½*<br>219.1 × 73.0         | 16.00<br>406                    | 12.00 (SW)<br>305              |
| 3 × 3<br>88.9 × 88.9             | 5.00<br>127                     | 12.00 (SW)<br>305              |

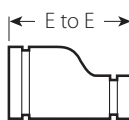
⚠ Always refer to the current Victaulic submittal publication in the G-100 General Catalog or on the website [www.victaulic.com](http://www.victaulic.com) for the most up-to-date dimensional information.



# STANDARD FITTINGS



No. 50



No. 51

| Size                             | No. 50 Concentric Reducer | No. 51 Eccentric Reducer |
|----------------------------------|---------------------------|--------------------------|
| Nominal Size<br>inches/Actual mm | E to E<br>inches/mm       | E to E<br>inches/mm      |
| 8 × 4<br>219.1 × 114.3           | 5.00<br>127               | 12.00 (SW)<br>305        |
| 5<br>141.3                       | 5.00<br>127               | 12.00 (SW)<br>305        |
| 6<br>168.3                       | 5.00<br>127               | 6.00<br>152              |
| 10 × 4<br>273.0 × 114.3          | 6.00<br>152               | 13.00 (SW)<br>330        |
| 5<br>141.3                       | +                         | +                        |
| 6<br>168.3                       | 6.00<br>152               | 13.00 (SW)<br>330        |
| 8<br>219.1                       | 6.00<br>152               | 7.00<br>178              |
| 12 × 4<br>323.9 × 114.3          | +                         | 14.00 (SW)<br>356        |
| 6<br>168.3                       | 7.00<br>178               | 14.00 (SW)<br>356        |
| 8<br>219.1                       | 7.00<br>178               | 14.00 (SW)<br>356        |
| 10<br>273.0                      | 7.00<br>178               | 14.00 (SW)<br>356        |
| # 14 × 6<br>355.6 × 168.3        | 13.00<br>330              | 13.00<br>330             |
| 8<br>219.1                       | 13.00<br>330              | 13.00<br>330             |
| 10<br>273.0                      | 13.00<br>330              | 13.00<br>330             |
| 12<br>323.9                      | 13.00<br>330              | 13.00<br>330             |
| # 16 × 8<br>406.4 × 219.1        | 14.00<br>356              | 14.00<br>355             |
| 10 §<br>273.0                    | 14.00<br>356              | 14.00<br>355             |
| 12<br>323.9                      | 14.00<br>356              | 14.00<br>355             |
| 14<br>355.6                      | 14.00<br>356              | 14.00<br>355             |

| Size                             | No. 50 Concentric Reducer                                                     | No. 51 Eccentric Reducer |
|----------------------------------|-------------------------------------------------------------------------------|--------------------------|
| Nominal Size<br>inches/Actual mm | E to E<br>inches/mm                                                           | E to E<br>inches/mm      |
| # 18 × 10<br>457.0 × 273.0       | 15.00<br>381                                                                  | 15.00<br>381             |
| 12<br>323.9                      | 15.00<br>381                                                                  | 15.00<br>381             |
| 14<br>355.6                      | 15.00<br>381                                                                  | 15.00<br>381             |
| 16<br>406.4                      | 15.00<br>381                                                                  | 15.00<br>381             |
| # 20 × 10<br>508.0 × 273.0       | 20.00<br>508                                                                  | 20.00<br>508             |
| 12<br>323.9                      | 20.00<br>508                                                                  | 20.00<br>508             |
| 14<br>355.6                      | 20.00<br>508                                                                  | 20.00<br>508             |
| 16<br>406.4                      | 20.00<br>508                                                                  | 20.00<br>508             |
| 18<br>457.0                      | 20.00<br>508                                                                  | 20.00<br>508             |
| # 24 × 10<br>610.0 × 273.0       | 20.00<br>508                                                                  | 20.00<br>508             |
| 12<br>323.9                      | 20.00<br>508                                                                  | 20.00<br>508             |
| 14<br>355.6                      | 20.00<br>508                                                                  | 20.00<br>508             |
| 16<br>406.4                      | 20.00<br>508                                                                  | 20.00<br>508             |
| 18<br>457.0                      | 20.00<br>508                                                                  | 20.00<br>508             |
| 20<br>508.0                      | 20.00<br>508                                                                  | 20.00<br>508             |
| 14 – 24<br>350 – 600             | <b>AGS</b><br>For AGS fitting information, refer to the AGS fittings section. |                          |

**NOTE:** All fittings are ductile iron unless noted otherwise with an “sw” or “s”.  
SW = Segmentally Welded, S = Carbon Steel

+ Contact Victaulic for details.

\* Available as a small male threaded reducer. Refer to the No. 52 section.

Steel eccentric reducers are available through 30 inches/762.0 mm. Contact Victaulic for dimensions.  
# For use on cut grooved systems only. For roll grooved systems, Victaulic offers the Advanced Groove System (AGS).

§ Cast fitting available for JIS size. Contact Victaulic for details.



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# STANDARD FITTINGS

## No. 52 – Concentric Reducer with Threaded End

## No. 52F – Concentric Reducer with BSPT Female Threaded End



No. 52



No. 52F

| Size                             | No. 52              | No. 52F             |
|----------------------------------|---------------------|---------------------|
| Nominal Size<br>inches/Actual mm | E to E<br>inches/mm | E to E<br>inches/mm |
| 1 1/2 × 1                        | 2.50<br>64          | —                   |
| 48.3 × 33.7                      | —                   | —                   |
| 1 1/4                            | 2.50<br>64          | —                   |
| 42.4                             | —                   | —                   |
| 2 × 3/4                          | 2.50<br>64          | —                   |
| 60.3 × 26.9                      | —                   | —                   |
| 1                                | 2.50<br>64          | —                   |
| 33.7                             | —                   | —                   |
| 1 1/4                            | 2.50<br>64          | —                   |
| 42.4                             | —                   | —                   |
| 1 1/2                            | 2.50<br>64          | —                   |
| 48.3                             | —                   | —                   |
| 2 1/2 × 1                        | 2.50<br>64          | —                   |
| 73.0 × 33.7                      | —                   | —                   |
| 1 1/4                            | 2.50 (sw)<br>64     | —                   |
| 42.4                             | —                   | —                   |
| 1 1/2                            | 2.50 (sw)<br>64     | —                   |
| 48.3                             | —                   | —                   |
| 2                                | 3.00<br>76          | —                   |
| 60.3                             | —                   | —                   |
| 76.1 mm × 48.3                   | 63.5                | 63.5                |
| 60                               | —                   | 63.5                |
| 3 × 3/4                          | + (sw)              | —                   |
| 88.9 × 26.9                      | —                   | —                   |
| 1                                | 2.50<br>64          | —                   |
| 33.7                             | —                   | —                   |
| 1 1/4                            | 2.50<br>64          | —                   |
| 42.4                             | —                   | —                   |
| 1 1/2                            | 2.50 (sw)<br>64     | —                   |
| 48.3                             | —                   | —                   |
| 2                                | 2.50<br>64          | —                   |
| 60.3                             | —                   | —                   |
| 2 1/2                            | 2.50<br>64          | —                   |
| 73.0                             | —                   | —                   |
| 88.9 mm × 42.4                   | 63.5                | 63.5                |
| 48.3                             | 63.5                | 63.5                |
| 60                               | —                   | 63.5                |
| 4 × 1                            | 3.00<br>76          | —                   |
| 114.3 × 33.7                     | —                   | —                   |
| 1 1/2                            | 3.00<br>76          | —                   |
| 48.3                             | —                   | —                   |
| 2                                | 3.00<br>76          | —                   |
| 60.3                             | —                   | —                   |

| Size                             | No. 52              | No. 52F             |
|----------------------------------|---------------------|---------------------|
| Nominal Size<br>inches/Actual mm | E to E<br>inches/mm | E to E<br>inches/mm |
| 4 × 2 1/2                        | 3.00<br>76          | —                   |
| 114.3 × 73.0                     | —                   | —                   |
| 3                                | 3.00<br>76          | —                   |
| 88.9                             | —                   | —                   |
| 108.0 mm × 42.4                  | 76.2                | 76.2                |
| 48.3                             | 76.2                | 76.2                |
| 60                               | —                   | 76.2                |
| 114.3 mm × 42.4                  | 76.2                | 76.2                |
| 48.3                             | 76.2                | 76.2                |
| 60                               | —                   | 76.2                |
| 5 × 4                            | +                   | —                   |
| 141.3 × 100                      | —                   | —                   |
| 133.0 mm × 60                    | —                   | 114.3               |
| 139.7 mm × 60                    | —                   | 114.3               |
| 6 × 1                            | 4.00<br>102         | —                   |
| 168.3 × 33.7                     | —                   | —                   |
| 2                                | 4.00<br>102         | —                   |
| 60.3                             | —                   | —                   |
| 2 1/2                            | 4.00<br>102         | —                   |
| 73.0                             | —                   | —                   |
| 3                                | 4.00<br>102         | —                   |
| 88.9                             | —                   | —                   |
| 4                                | + (sw)              | —                   |
| 114.3                            | —                   | —                   |
| 5                                | + (sw)              | —                   |
| 141.3                            | —                   | —                   |
| 159.0 mm × 42.4                  | 114.3               | 114.3               |
| 48.3                             | 114.3               | 114.3               |
| 60                               | —                   | 114.3               |
| 165.1 mm × 42.4                  | 101.6               | 101.6               |
| 48.3                             | 101.6               | 101.6               |
| 60                               | —                   | 101.6               |
| 8 × 2                            | 16.00<br>406        | —                   |
| 219.1 × 60.3                     | —                   | —                   |
| 2 1/2                            | 16.00<br>406        | —                   |
| 73.0                             | —                   | —                   |

+ Contact Victaulic for details.

**NOTE:** All fittings are ductile iron unless noted otherwise with an “sw” or “s”.

SW = Segmentally Welded, S = Carbon Steel



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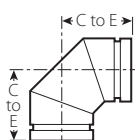
# EXTRA HEAVY “ES” ENDSEAL FITTINGS

No. 62-ES – 90° Elbow

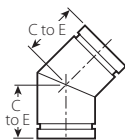
No. 63-ES – 45° Elbow

No. 64-ES – Tee

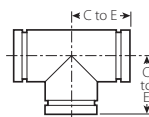
No. 35-ES – Cross



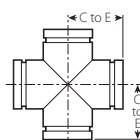
No. 62-ES



No. 63-ES



No. 64-ES



No. 35-ES

| Size                   |                                              | No. 62-ES           | No. 63-ES           | No. 64-ES *         | No. 35-ES *         |
|------------------------|----------------------------------------------|---------------------|---------------------|---------------------|---------------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside Diameter<br>inches/mm | C to E<br>inches/mm | C to E<br>inches/mm | C to E<br>inches/mm | C to E<br>inches/mm |
| 2                      | 2.375<br>60.3                                | 3.25<br>83          | 2.00<br>51          | 3.25<br>83          | 3.25<br>83          |
| 2½                     | 2.875<br>73.0                                | 3.75<br>95          | 2.25<br>57          | 3.75<br>95          | 3.75<br>95          |
| 3                      | 3.500<br>88.9                                | 4.25<br>108         | 2.50<br>64          | 4.25<br>108         | 4.25<br>108         |
| 4                      | 4.500<br>114.3                               | 5.00<br>127         | 3.00<br>76          | 5.00<br>127         | 5.00<br>127         |
| 6 †                    | 6.625<br>168.3                               | 6.50<br>165         | 3.50<br>89          | 6.50<br>165         | 6.50<br>165         |

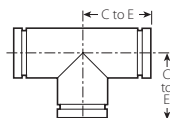
\*Steel Fabricated – Cast Full Flow

† For sizes to 12 inches/323.9 mm, contact Victaulic.

Steel full-flow elbows are available with longer center-to-end dimensions. Contact Victaulic for details.

## No. 22 – Header Tee

| Fitting Size<br>Mated C to E |                                              | No. 22<br>Header Tee |
|------------------------------|----------------------------------------------|----------------------|
| Nominal Size<br>inches       | Actual Pipe<br>Outside Diameter<br>inches/mm | C to E<br>inches/mm  |
| 2 – 3                        | 2.375<br>60.3                                | 4.25<br>108          |
| 2 – 4                        | 2.375<br>60.3                                | 5.00<br>127          |



No. 22



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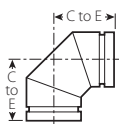
# FABRICATED STEEL FITTINGS

90° Elbow

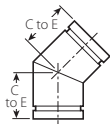
45° Elbow

22 1/2° Elbow

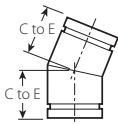
11 1/4° Elbow



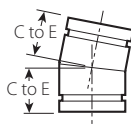
90° Elbow



45° Elbow



22 1/2° Elbow



11 1/4° Elbow

| Size                   |                                              | 90° Elbow           | 45° Elbow           | 22 1/2° Elbow       | 11 1/4° Elbow       |
|------------------------|----------------------------------------------|---------------------|---------------------|---------------------|---------------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside Diameter<br>inches/mm | C to E<br>inches/mm | C to E<br>inches/mm | C to E<br>inches/mm | C to E<br>inches/mm |
| 3/4                    | 1.050<br>26.9                                | 2.25 *<br>57        | 1.50 *<br>38        | 1.63<br>41          | 1.38<br>35          |
| 1                      | 1.315<br>33.4                                | 2.25 *<br>57        | 1.75 *<br>44        | 1.63<br>41          | 1.38<br>35          |
| 1 1/4                  | 1.660<br>42.4                                | 2.75 *<br>70        | 1.75 *<br>44        | 1.75<br>44          | 1.38<br>35          |
| 1 1/2                  | 1.900<br>48.3                                | 2.75 *<br>70        | 1.75 *<br>44        | 1.75<br>44          | 1.38<br>35          |
| 2                      | 2.375<br>60.3                                | 3.25 *<br>83        | 2.00 *<br>51        | 1.88<br>48          | 1.38 *<br>35        |
| 2 1/2                  | 2.875<br>73.0                                | 3.75 *<br>95        | 2.25 *<br>57        | 2.00 *<br>51        | 1.50<br>38          |
| 3                      | 3.500<br>88.9                                | 4.25 *<br>108       | 2.50 *<br>64        | 2.25 *<br>57        | 1.50 *<br>38        |
| 3 1/2                  | 4.000<br>101.6                               | 4.50 *<br>114       | 2.75 *<br>70        | 2.50<br>64          | 1.75<br>44          |
| 4                      | 4.500<br>114.3                               | 5.00 *<br>127       | 3.00 *<br>76        | 2.88<br>73          | 1.75 *<br>44        |
| 5                      | 5.563<br>141.3                               | 5.50 *<br>140       | 3.25 *<br>83        | 2.88<br>73          | 2.00<br>51          |
| 6                      | 6.625<br>168.3                               | 6.50 *<br>165       | 3.50 *<br>89        | 3.13<br>80          | 2.00 *<br>51        |
| 8                      | 8.625<br>219.1                               | 7.75 *<br>197       | 4.25 *<br>108       | 3.88<br>99          | 2.00<br>51          |
| 10                     | 10.750<br>273.0                              | 9.00 *<br>229       | 4.75 *<br>121       | 4.38<br>111         | 2.13<br>54          |
| 12                     | 12.750<br>323.9                              | 10.00 *<br>254      | 5.25 *<br>133       | 4.88<br>124         | 2.25<br>57          |
| 14                     | 14.000<br>355.6                              | 11.00 *<br>279      | 6.00 *<br>152       | 5.00<br>127         | 3.50<br>89          |
| 16                     | 16.000<br>406.4                              | 12.00 *<br>305      | 7.25 *<br>184       | 5.00<br>127         | 4.00<br>102         |
| 18                     | 18.000<br>457.2                              | 15.50<br>394        | 8.00<br>203         | 5.50<br>140         | 4.50<br>114         |
| 20                     | 20.000<br>508.0                              | 17.25<br>438        | 9.00<br>229         | 6.00<br>152         | 5.00<br>127         |
| 24                     | 24.000<br>609.6                              | 20.00<br>508        | 11.00<br>279        | 7.00<br>178         | 6.00<br>152         |

\* Available in Victaulic full flow cast design

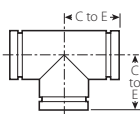


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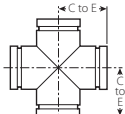


# FABRICATED STEEL FITTINGS

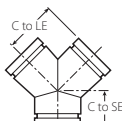
Tee  
Cross  
True Wye  
45° Lateral



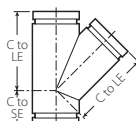
Tee



Cross



True Wye



45° Lateral

| Size                |                                        | Tee              | Cross             | True Wye         |                   | 45° Lateral       |                   |
|---------------------|----------------------------------------|------------------|-------------------|------------------|-------------------|-------------------|-------------------|
| Nominal Size inches | Actual Pipe Outside Diameter inches/mm | C to E inches/mm | C to LE inches/mm | C to E inches/mm | C to SE inches/mm | C to LE inches/mm | C to SE inches/mm |
| ¾                   | 1.050<br>26.9                          | 2.25 *<br>57     | 2.25<br>57        | 2.25<br>57       | 2.00<br>51        | 4.50<br>114       | 2.00<br>51        |
| 1                   | 1.315<br>33.4                          | 2.25 *<br>57     | 2.25<br>57        | 2.25 *<br>57     | 2.25 *<br>57      | 5.00<br>127       | 2.25<br>57        |
| 1 ¼                 | 1.660<br>42.4                          | 2.75 *<br>70     | 2.75<br>70        | 2.75<br>70       | 2.50<br>64        | 5.75<br>146       | 2.50<br>64        |
| 1 ½                 | 1.900<br>48.3                          | 2.75 *<br>70     | 2.75<br>70        | 2.75<br>70       | 2.75<br>70        | 6.25<br>159       | 2.75<br>70        |
| 2                   | 2.375<br>60.3                          | 3.25 *<br>83     | 3.25 *<br>83      | 3.25<br>83       | 2.75<br>70        | 7.00<br>178       | 2.75<br>70        |
| 2 ½                 | 2.875<br>73.0                          | 3.75 *<br>95     | 3.75<br>95        | 3.75<br>95       | 3.00<br>76        | 7.75<br>197       | 3.00<br>76        |
| 3                   | 3.500<br>88.9                          | 4.25 *<br>108    | 4.25 *<br>108     | 4.25<br>108      | 3.25<br>83        | 8.50 *<br>216     | 3.25 *<br>83      |
| 3 ½                 | 4.000<br>101.6                         | 4.50*<br>114     | 4.50<br>114       | 4.50<br>114      | 3.50<br>89        | 10.00<br>254      | 3.50<br>89        |
| 4                   | 4.500<br>114.3                         | 5.00 *<br>127    | 5.00 *<br>127     | 5.00<br>127      | 3.75<br>95        | 10.50 *<br>267    | 3.75 *<br>95      |
| 5                   | 5.563<br>141.3                         | 5.50 *<br>140    | 5.50<br>140       | 5.50<br>140      | 4.00<br>102       | 12.50<br>318      | 4.00<br>102       |
| 6                   | 6.625<br>168.3                         | 6.50 *<br>165    | 6.50<br>165       | 6.50<br>165      | 4.50<br>114       | 14.00<br>356      | 4.50<br>114       |
| 8                   | 8.625<br>219.1                         | 7.75 *<br>197    | 7.75<br>197       | 7.75<br>197      | 6.00<br>152       | 18.00<br>457      | 6.00<br>152       |
| 10                  | 10.750<br>273.0                        | 9.00 *<br>229    | 9.00<br>229       | 9.00<br>229      | 6.50<br>165       | 20.50<br>521      | 6.50<br>165       |
| 12                  | 12.750<br>323.9                        | 10.00 *<br>254   | 10.00<br>254      | 10.00<br>254     | 7.00<br>178       | 23.00<br>584      | 7.00<br>178       |
| 14                  | 14.000<br>355.6                        | 11.00<br>279     | 11.00<br>279      | 11.00<br>279     | 7.50<br>191       | 26.50<br>673      | 7.50<br>191       |
| 16                  | 16.000<br>406.4                        | 12.00<br>305     | 12.00<br>305      | 12.00<br>305     | 8.00<br>203       | 29.00<br>737      | 8.00<br>203       |
| 18                  | 18.000<br>457.2                        | 15.50<br>394     | 15.50<br>394      | 15.50<br>394     | 8.50<br>216       | 32.00<br>813      | 8.50<br>216       |
| 20                  | 20.000<br>508.0                        | 17.25<br>438     | 17.25<br>438      | 17.25<br>438     | 9.00<br>229       | 35.00<br>889      | 9.00<br>229       |
| 24                  | 24.000<br>609.6                        | 20.00<br>508     | 20.00<br>508      | 20.00<br>508     | 10.00<br>254      | 40.00<br>1016     | 10.00<br>254      |

\* Available in Victaulic full flow cast design



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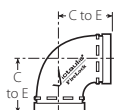
# FIRELOCK FITTINGS

No. 001 – 90° Elbow

No. 003 – 45° Elbow

No. 002 – Straight Tee

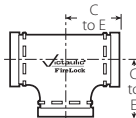
No. 006 – Cap



No. 001



No. 003



No. 002



No. 006

| Size                         |                                                 | No. 001<br>90° Elbow | No. 003<br>45° Elbow | No. 002<br>Straight Tee | No. 006<br>Cap             |
|------------------------------|-------------------------------------------------|----------------------|----------------------|-------------------------|----------------------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | C to E<br>inches/mm  | C to E<br>inches/mm  | C to E<br>inches/mm     | Thickness "T"<br>inches/mm |
| 1 ¼                          | 1.660<br>42.4                                   | —                    | —                    | —                       | 0.8<br>21                  |
| 1 ½                          | 1.900<br>48.3                                   | —                    | —                    | —                       | 0.82<br>21                 |
| 2                            | 2.375<br>60.3                                   | 2.75<br>70           | 2.00<br>51           | 2.75<br>70              | 0.88<br>22                 |
| 2 ½                          | 2.875<br>73.0                                   | 3.00<br>76           | 2.25<br>57           | 3.00<br>76              | 0.88<br>22                 |
| 76.1 mm                      | 3.000<br>76.1                                   | 3.00<br>76           | 2.25<br>57           | —                       | —                          |
| 3                            | 3.500<br>88.9                                   | 3.38<br>86           | 2.50<br>64           | 3.38<br>86              | 0.88<br>22                 |
| 108 mm                       | 4.250<br>108.0                                  | 4.00<br>102          | 3.00<br>76           | 4.00<br>102             | —                          |
| 4                            | 4.500<br>114.3                                  | 4.00<br>102          | 3.00<br>76           | 4.00<br>102             | 1.00<br>25                 |
| 5                            | 5.563<br>141.3                                  | 4.88<br>124          | 3.25<br>83           | 4.88<br>124             | 1.00<br>25                 |
| 159 mm                       | 6.250<br>158.8                                  | 5.50<br>140          | 3.50<br>89           | 5.50<br>140             | —                          |
| 6                            | 6.625<br>168.3                                  | 5.50<br>140          | 3.50<br>89           | 5.50<br>140             | 1.00<br>25                 |
| 8                            | 8.625<br>219.1                                  | 6.81<br>173          | 4.25<br>108          | 6.94<br>176             | 1.13<br>29                 |



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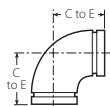
# ALUMINUM FITTINGS

No. 10-A – 90° Elbow

No. 11-A – 45° Elbow

No. 20-A – Tee

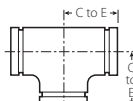
No. 60-A – Cap



No. 10-A



No. 11-A



No. 20-A



No. 60-A

| Size                   |                                                 | No. 10-A<br>90° Elbow | No. 11-A<br>45° Elbow | No. 20-A<br>Tee     | No. 60-A<br>Cap †             |
|------------------------|-------------------------------------------------|-----------------------|-----------------------|---------------------|-------------------------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | C to E<br>inches/mm   | C to E<br>inches/mm   | C to E<br>inches/mm | Thickness<br>“T”<br>inches/mm |
| 1                      | 1.315<br>33.7                                   | 2.25<br>57            | 1.75<br>45            | 2.25<br>57          | 0.88<br>22                    |
| 1½                     | 1.900<br>48.3                                   | 2.75<br>70            | 1.75<br>45            | 2.75<br>70          | 0.88<br>22                    |
| 2                      | 2.375<br>60.3                                   | 3.25<br>83            | 2.00<br>51            | 3.25<br>83          | 0.88<br>22                    |
| 2½                     | 2.875<br>73.0                                   | 3.75<br>95            | 2.25<br>57            | 3.75<br>95          | 0.88<br>22                    |
| 3                      | 3.500<br>88.9                                   | 4.25<br>108           | 2.50<br>64            | 4.25<br>108         | 0.88<br>22                    |
| 4                      | 4.500<br>114.3                                  | 5.00<br>127           | 3.00<br>76            | 5.00<br>127         | 1.00<br>25                    |
| 5                      | 5.563<br>141.3                                  | 5.50<br>140           | 3.25<br>83            | 5.50<br>140         | 1.00<br>25                    |
| 6                      | 6.625<br>168.3                                  | 6.50<br>165           | 3.50<br>89            | 6.50<br>165         | 1.00<br>25                    |
| 8                      | 8.625<br>219.1                                  | 7.75<br>197           | 4.25<br>108           | 7.75<br>197         | 1.19<br>30                    |

† Cap does not extend beyond coupling when assembled.



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# ALUMINUM FITTINGS

No. 40-A – Grooved X Threaded Adapter Nipple\*

No. 42-A – Grooved X Beveled Adapter Nipple\*

No. 43-A – Grooved X Grooved Adapter Nipple\*

| Size                   |                                              | E to E †    |
|------------------------|----------------------------------------------|-------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside Diameter<br>inches/mm | inches/mm   |
| 1                      | 1.315<br>33.7                                | 3.00<br>76  |
| 1 ½                    | 1.900<br>48.3                                | 4.00<br>102 |
| 2                      | 2.375<br>60.3                                | 4.00<br>102 |
| 2 ½                    | 2.875<br>73.0                                | 4.00<br>102 |
| 3                      | 3.500<br>88.9                                | 4.00<br>102 |
| 4                      | 4.500<br>114.3                               | 6.00<br>152 |
| 5                      | 5.563<br>141.3                               | 6.00<br>152 |
| 6                      | 6.625<br>168.3                               | 6.00<br>152 |
| 8                      | 8.625<br>219.1                               | 6.00<br>152 |



No. 40-A  
Grooved X Threaded



No. 42-A  
Grooved X Beveled



No. 43-A  
Grooved X Grooved

\* Made of standard-weight aluminum pipe.

† Other lengths available. Contact Victaulic for details.

No. 40-A Grooved X Threaded Adapter Nipples are supplied NPT and are available with British Standard Pipe Threads (BSPT). For British Standard Pipe Threads, specify “BSPT” clearly on order.

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# ALUMINUM FITTINGS

## No. 50-A – Reducer

| Size                             |              | E to E      |
|----------------------------------|--------------|-------------|
| Nominal Size<br>inches/Actual mm |              | inches/mm   |
| 1½<br>48.3                       | x 1<br>33.7  | 2.50<br>64  |
|                                  | x 1<br>33.7  | 2.50<br>64  |
| 2<br>60.3                        | x 1<br>33.7  | 2.50<br>64  |
|                                  | x 1½<br>48.3 | 2.50<br>64  |
|                                  | x 2<br>60.3  | 2.50<br>64  |
| 3<br>88.9                        | x 1<br>33.7  | 2.50<br>64  |
|                                  | x 2<br>60.3  | 2.50<br>64  |
|                                  | x 2½<br>73.0 | 2.50<br>64  |
| 4<br>114.3                       | x 2<br>60.3  | 3.00<br>76  |
|                                  | x 2½<br>73.0 | 3.00<br>76  |
|                                  | x 3<br>88.9  | 3.00<br>76  |
| 6<br>168.3                       | x 3<br>88.9  | 4.00<br>102 |
|                                  | x 4<br>114.3 | 4.00<br>102 |
| 8<br>219.1                       | x 4<br>114.3 | 5.00<br>127 |
|                                  | x 6<br>168.3 | 5.00<br>127 |



No. 50-A



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# AGS® GROOVED-END FITTINGS

No. W10 – 90° Elbow

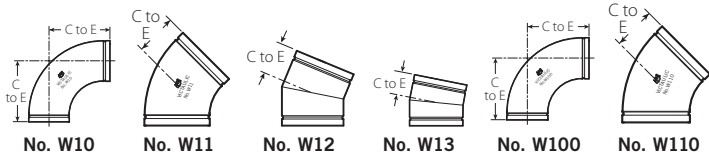
No. W11 – 45° Elbow

No. W12 – 22 ½° Elbow

No. W13 – 11 ¼° Elbow

No. W100 – 90° Long Radius Elbow

No. W110 – 45° Long Radius Elbow



| Size                |                                        | No. W10          | No. W11          | No. W12 (sw)     | No. W13 (sw)     | No. W100         | No. W110         |
|---------------------|----------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Nominal Size inches | Actual Pipe Outside Diameter inches/mm | C to E inches/mm | C to E inches/mm | C to E inches/mm | C to E inches/mm | C to E inches/mm | C to E inches/mm |
| 14                  | 14.000<br>355.6                        | 14.00<br>356     | 5.80<br>147      | 5.00<br>127      | 3.50<br>89       | 21.00<br>533     | 8.75<br>222      |
| 16                  | 16.000<br>406.4                        | 16.00<br>406     | 6.63<br>168      | 5.00<br>127      | 4.00<br>102      | 24.00<br>610     | 10.00<br>254     |
| 18                  | 18.000<br>457.0                        | 18.00<br>457     | 7.46<br>189      | 5.50<br>140      | 4.50<br>114      | 27.00<br>686     | 11.25<br>286     |
| 20                  | 20.000<br>508.0                        | 20.00<br>508     | 8.28<br>210      | 6.00<br>152      | 5.00<br>127      | 30.00<br>762     | 12.50<br>318     |
| 24                  | 24.000<br>610.0                        | 24.00<br>610     | 9.94<br>252      | 7.00<br>178      | 6.00<br>152      | 36.00<br>914     | 15.00<br>381     |

**NOTE:** All fittings are ductile iron unless noted otherwise with an "sw".

SW = Segmentally Welded



Always refer to the current Victaulic submittal publication in the G-100 General Catalog or on the website [www.victaulic.com](http://www.victaulic.com) for the most up-to-date dimensional information.

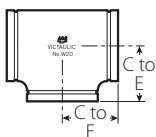


# AGS® GROOVED-END FITTINGS

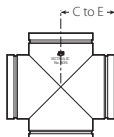
No. W20 – Tee

No. W35 – Cross

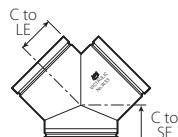
No. W33 – True Wye



No. W20



No. W35



No. W33

| Size                   |                                                 | No. W20             | No. W35 (sw)        | No. W33 (sw)         |                      |
|------------------------|-------------------------------------------------|---------------------|---------------------|----------------------|----------------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | C to E<br>inches/mm | C to E<br>inches/mm | C to LE<br>inches/mm | C to SE<br>inches/mm |
| 14                     | 14.000<br>355.6                                 | 11.00<br>279        | 11.00<br>279        | 11.00<br>279         | 7.50<br>191          |
| 16                     | 16.000<br>406.4                                 | 12.00<br>305        | 12.00<br>305        | 12.00<br>305         | 8.00<br>203          |
| 18                     | 18.000<br>457.0                                 | 13.50<br>343        | 13.50<br>343        | 13.50<br>343         | 8.50<br>216          |
| 20                     | 20.000<br>508.0                                 | 15.00<br>381        | 15.00<br>381        | 15.00<br>381         | 9.00<br>229          |
| 24                     | 24.000<br>610.0                                 | 17.00<br>432        | 17.00<br>432        | 17.00<br>432         | 10.00<br>254         |

**NOTE:** All fittings are ductile iron unless noted otherwise with an "sw".  
SW = Segmentally Welded



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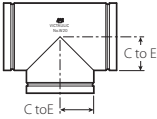


# AGS® GROOVED-END FITTINGS

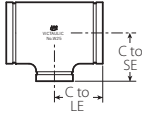
## No. W20 – Tee No. W25 – Reducing Tee

Segmentally-Welded Steel

| Size                             |   |             | No. W20             | No. W25              |                      |
|----------------------------------|---|-------------|---------------------|----------------------|----------------------|
| Nominal Size<br>inches/Actual mm |   |             | C to E<br>inches/mm | C to LE<br>inches/mm | C to SE<br>inches/mm |
| 14<br>355.6                      | × | 14<br>355.6 | —                   | 11.00<br>279         | 9.38<br>238          |
|                                  |   | 6<br>168.3  |                     | 11.00<br>279         | 9.75<br>248          |
|                                  |   | 8<br>219.1  |                     | 11.00<br>279         | 10.12<br>257         |
|                                  |   | 10<br>273.0 |                     | 11.00<br>279         | 10.62<br>270         |
|                                  |   | 12<br>323.9 |                     | 11.00<br>279         | —                    |
|                                  |   | 14<br>355.6 | 11.00<br>279        | —                    | —                    |
| 16<br>406.4                      | × | 16<br>406.4 | —                   | 12.00<br>305         | 10.38<br>264         |
|                                  |   | 6<br>168.3  |                     | 12.00<br>305         | 10.75<br>273         |
|                                  |   | 8<br>219.1  |                     | 12.00<br>305         | 11.12<br>282         |
|                                  |   | 10<br>273.0 |                     | 12.00<br>305         | 11.62<br>295         |
|                                  |   | 12<br>323.9 |                     | 12.00<br>305         | 12.00<br>305         |
|                                  |   | 14<br>355.6 | 12.00<br>305        | —                    | —                    |
| 18<br>457.0                      | × | 18<br>457.0 | —                   | 13.50<br>343         | 11.38<br>289         |
|                                  |   | 6<br>168.3  |                     | 13.50<br>343         | 11.75<br>298         |
|                                  |   | 8<br>219.1  |                     | 13.50<br>343         | 12.12<br>308         |
|                                  |   | 10<br>273.0 |                     | 13.50<br>343         | 12.62<br>321         |
|                                  |   | 12<br>323.9 |                     | 13.50<br>343         | 13.00<br>330         |
|                                  |   | 14<br>355.6 | 13.50<br>343        | —                    | —                    |



No. W20



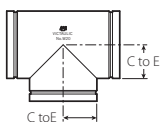
No. W25

⚠ Always refer to the current Victaulic submittal publication in the G-100 General Catalog or on the website [www.victaulic.com](http://www.victaulic.com) for the most up-to-date dimensional information.

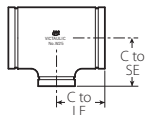


# AGS® GROOVED-END FITTINGS

| Size                             |              |               | No. W20             | No. W25              |                      |              |              |
|----------------------------------|--------------|---------------|---------------------|----------------------|----------------------|--------------|--------------|
| Nominal Size<br>inches/Actual mm |              |               | C to E<br>inches/mm | C to LE<br>inches/mm | C to SE<br>inches/mm |              |              |
| 20<br>508.0                      | ×            | 20<br>508.0   | ×                   | 6<br>168.3           | —                    | 15.00<br>381 | 12.38<br>314 |
|                                  |              | 8<br>219.1    |                     | —                    | 15.00<br>381         | 12.75<br>324 |              |
|                                  |              | 10<br>273.0   |                     | —                    | 15.00<br>381         | 13.12<br>333 |              |
|                                  |              | 12<br>323.9   |                     | —                    | 15.00<br>381         | 13.62<br>346 |              |
|                                  |              | 14 *<br>355.6 |                     | —                    | 15.00<br>381         | 14.00<br>356 |              |
|                                  |              | 16 *<br>406.4 |                     | —                    | 15.00<br>381         | 14.00<br>356 |              |
|                                  |              | 18<br>457.0   |                     | —                    | 15.00<br>381         | 14.50<br>368 |              |
|                                  |              | 20<br>508.0   |                     | 15.00<br>381         | —                    | —            |              |
|                                  |              | 24<br>610.0   |                     | ×                    | 24<br>610.0          | ×            | 6<br>168.3   |
| 8<br>219.1                       | —            |               | 17.00<br>432        |                      | 14.75<br>375         |              |              |
| 10<br>273.0                      | —            |               | 17.00<br>432        |                      | 15.12<br>384         |              |              |
| 12<br>323.9                      | —            |               | 17.00<br>432        |                      | 15.62<br>397         |              |              |
| 14<br>355.6                      | —            |               | 17.00<br>432        |                      | 16.00<br>406         |              |              |
| 16<br>406.4                      | —            |               | 17.00<br>432        |                      | 16.00<br>406         |              |              |
| 18<br>457.0                      | —            |               | 17.00<br>432        |                      | 16.50<br>419         |              |              |
| 20<br>508.0                      | —            |               | 17.00<br>432        |                      | 17.00<br>432         |              |              |
| 24<br>610.0                      | 17.00<br>432 |               | —                   |                      | —                    |              |              |



No. W20



No. W25

**IMPORTANT NOTE:** Outlets in sizes 12 inch/323.9 mm and smaller are provided with original groove system roll or cut grooves that are suitable for use with standard Victaulic grooved pipe couplings in that size range.



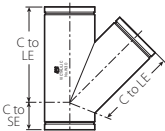
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**No. W30 – 45° Lateral**

*Segmentally-Welded Steel*

| Size                   |                                              | No. W30              |                      |
|------------------------|----------------------------------------------|----------------------|----------------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside Diameter<br>inches/mm | C to LE<br>inches/mm | C to SE<br>inches/mm |
| 14                     | 14.000<br>355.6                              | 26.50<br>673         | 7.50<br>191          |
| 16                     | 16.000<br>406.4                              | 29.00<br>737         | 8.00<br>203          |
| 18                     | 18.000<br>457.0                              | 32.00<br>813         | 8.50<br>216          |
| 20                     | 20.000<br>508.0                              | 35.00<br>889         | 9.00<br>229          |
| 24                     | 24.000<br>610.0                              | 40.00<br>1016        | 10.00<br>254         |



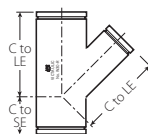
**No. W30**

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## No. W30-R – 45° Reducing Lateral

Segmentally-Welded Steel

| Size                             |               |             | No. W30-R            |                      |
|----------------------------------|---------------|-------------|----------------------|----------------------|
| Nominal Size<br>inches/Actual mm |               |             | C to LE<br>inches/mm | C to SE<br>inches/mm |
| 14<br>355.6                      | × 14<br>355.6 | 4<br>114.3  | 26.50<br>673         | 7.50<br>191          |
|                                  |               | 6<br>152.4  | 26.50<br>673         | 7.50<br>191          |
|                                  |               | 8<br>219.1  | 26.50<br>673         | 7.50<br>191          |
|                                  |               | 10<br>273.0 | 26.50<br>673         | 7.50<br>191          |
|                                  |               | 12<br>323.9 | 26.50<br>673         | 7.50<br>191          |
|                                  |               |             |                      |                      |
| 16<br>406.4                      | × 16<br>406.4 | 6<br>152.4  | 29.00<br>737         | 8.00<br>203          |
|                                  |               | 8<br>219.1  | 29.00<br>737         | 8.00<br>203          |
|                                  |               | 10<br>273.0 | 29.00<br>737         | 8.00<br>203          |
|                                  |               | 12<br>323.9 | 29.00<br>737         | 8.00<br>203          |
|                                  |               | 14<br>355.6 | 29.00<br>737         | 8.00<br>203          |
|                                  |               |             |                      |                      |
| 18<br>457.0                      | × 18<br>457.0 | 6<br>152.4  | 32.00<br>813         | 8.50<br>216          |
|                                  |               | 8<br>219.1  | 32.00<br>813         | 8.50<br>216          |
|                                  |               | 12<br>323.9 | 32.00<br>813         | 8.50<br>216          |
|                                  |               | 14<br>355.6 | 32.00<br>813         | 8.50<br>216          |
|                                  |               | 16<br>406.4 | 32.00<br>813         | 8.50<br>216          |
|                                  |               |             |                      |                      |
| 20<br>508.0                      | × 20<br>508.0 | 12<br>323.9 | 35.00<br>889         | 9.00<br>229          |
|                                  |               | 14<br>355.6 | 35.00<br>889         | 9.00<br>229          |
|                                  |               | 16<br>406.4 | 35.00<br>889         | 9.00<br>229          |
| 24<br>610.0                      | × 24<br>610.0 | 16<br>406.4 | 40.00<br>1016        | 10.00<br>254         |
|                                  |               | 20<br>508.0 | 40.00<br>1016        | 10.00<br>254         |



No. W30-R

**IMPORTANT NOTE:** Outlets in sizes 12 inch/323.9 mm and smaller are provided with original groove system roll or cut grooves that are suitable for use with standard Victaulic grooved pipe couplings in that size range.



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# AGS<sup>®</sup> GROOVED-END FITTINGS

**No. W42 – AGS Grooved x Beveled Adapter Nipple**

**No. W43 – AGS Grooved x AGS Grooved Adapter Nipple**

**No. W49 – AGS Grooved x Non-AGS Grooved Adapter Nipple**

*Steel*

| Size                   |                                              | No. W42, W43, W49   |
|------------------------|----------------------------------------------|---------------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside Diameter<br>inches/mm | E to E<br>inches/mm |
| 14                     | 14.000<br>355.6                              | 8.00<br>203         |
| 16                     | 16.000<br>406.4                              | 8.00<br>203         |
| 18                     | 18.000<br>457.0                              | 8.00<br>203         |
| 20                     | 20.000<br>508.0                              | 8.00<br>203         |
| 24                     | 24.000<br>610.0                              | 8.00<br>203         |



**No. W42**



**No. W43**

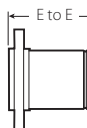


**No. W49**

**No. W45R – ANSI Class 150 Raised-Face Flanged Adapter Nipple**

*Steel*

| Size                   |                                              | No. W45R            |
|------------------------|----------------------------------------------|---------------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside Diameter<br>inches/mm | E to E<br>inches/mm |
| 14                     | 14.000<br>355.6                              | 8.00<br>203         |
| 16                     | 16.000<br>406.4                              | 8.00<br>203         |
| 18                     | 18.000<br>457.0                              | 8.00<br>203         |
| 20                     | 20.000<br>508.0                              | 8.00<br>203         |
| 24                     | 24.000<br>610.0                              | 8.00<br>203         |

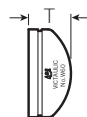


**No. W45R**

**No. W60 – Cap**

*Steel*

| Size                   |                                              | No. W60                     |
|------------------------|----------------------------------------------|-----------------------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside Diameter<br>inches/mm | T<br>Thickness<br>inches/mm |
| 14                     | 14.000<br>355.6                              | 6.50<br>165                 |
| 16                     | 16.000<br>406.4                              | 7.00<br>178                 |
| 18                     | 18.000<br>457.0                              | 8.00<br>203                 |
| 20                     | 20.000<br>508.0                              | 9.00<br>229                 |
| 24                     | 24.000<br>610.0                              | 10.50<br>267                |



**No. W60**



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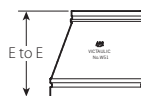
## No. W50 – Concentric Reducer

## No. W51 – Eccentric Reducer

| Size                             |               | No. W50             | No. W51             |
|----------------------------------|---------------|---------------------|---------------------|
| Nominal Size<br>inches/Actual mm |               | E to E<br>inches/mm | E to E<br>inches/mm |
| 14<br>355.6                      | × 6<br>168.3  | 13.00<br>330        | 13.00<br>330        |
|                                  | 8<br>219.1    | 13.00<br>330        | 13.00<br>330        |
|                                  | 10 †<br>273.0 | 13.00<br>330        | 13.00<br>330        |
|                                  | 12 †<br>323.9 | 13.00<br>330        | 13.00<br>330        |
| 16<br>406.4                      | × 8<br>219.1  | 14.00<br>356        | 14.00<br>356        |
|                                  | 10<br>273.0   | 14.00<br>356        | 14.00<br>356        |
|                                  | 12 †<br>323.9 | 14.00<br>356        | 14.00<br>356        |
|                                  | 14 †<br>355.6 | 14.00<br>356        | 14.00<br>356        |
| 18<br>457.0                      | × 10<br>273.0 | 15.00<br>381        | 15.00<br>381        |
|                                  | 12<br>323.9   | 15.00<br>381        | 15.00<br>381        |
|                                  | 14 †<br>350   | 15.00<br>381        | 15.00<br>381        |
|                                  | 16 †<br>400   | 15.00<br>381        | 15.00<br>381        |
| 20<br>500                        | × 12<br>300   | 20.00<br>508        | 20.00<br>508        |
|                                  | 14<br>350     | 20.00<br>508        | 20.00<br>508        |
|                                  | 16 †<br>400   | 20.00<br>508        | 20.00<br>508        |
|                                  | 18 †<br>450   | 20.00<br>508        | 20.00<br>508        |
| 24<br>600                        | × 16<br>400   | 20.00<br>508        | 20.00<br>508        |
|                                  | 18 †<br>450   | 20.00<br>508        | 20.00<br>508        |
|                                  | 20 †<br>500   | 20.00<br>508        | 20.00<br>508        |



No. W50



No. W51

† Standard as cast ductile iron. Contact Victaulic for details.

**IMPORTANT NOTE:** Outlets in sizes 12 inch/323.9 mm and smaller are provided with original groove system roll or cut grooves that are suitable for use with standard Victaulic grooved pipe couplings in that size range.

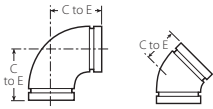


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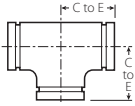
# FITTINGS FOR JIS PIPE

- No. 10 – JIS 90 Elbow
- No. 11 – JIS 45 Elbow
- No. 20 – JIS Tee

| Size                      |                     | No. 10<br>90° Elbow | No. 11<br>45° Elbow | No. 20<br>Tee       |
|---------------------------|---------------------|---------------------|---------------------|---------------------|
| Nominal Size<br>mm/inches | JIS OD<br>mm/inches | C to E<br>mm/inches | C to E<br>mm/inches | C to E<br>mm/inches |
| 200A<br>8                 | 216.3<br>8.515      | 197<br>7.75         | 108<br>4.25         | 197<br>7.75         |
| 250A<br>10                | 267.4<br>10.528     | 229<br>9.00         | 121<br>4.75         | 229<br>9.00         |
| 300A<br>12                | 318.5<br>12.539     | 254<br>10.00        | 133<br>5.25         | 254<br>10.00        |



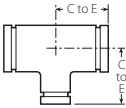
No. 10                      No. 11



No. 20

Fittings made to US standard sizes are available from 200A – 600A, which are compatible with JIS standards. Contact Victaulic for details.

## No. 25 – JIS Reducing Tee



No. 25

| Size                      |   |            |                     |            |                 | C to E Run    | C to E Branch |
|---------------------------|---|------------|---------------------|------------|-----------------|---------------|---------------|
| Nominal Size<br>mm/inches |   |            | JIS OD<br>mm/inches |            |                 | mm/<br>inches | mm/<br>inches |
| 200A<br>8                 | x | 200A<br>8  | x                   | 165<br>6½  | 216.3<br>8.515  | 198.1<br>7.8  | 198.1<br>7.8  |
| 250A<br>10                | x | 250A<br>10 | x                   | 200A<br>8  | 267.4<br>10.528 | 228.6<br>9.0  | 228.6<br>9.0  |
| 300A<br>12                | x | 300A<br>12 | x                   | 250A<br>10 | 318.5<br>12.539 | 254.0<br>10.0 | 254.0<br>10.0 |

Fittings made to US standard sizes are available from 200A – 600A, which are compatible with JIS standards. Contact Victaulic for details.

## No. 50 – JIS Concentric Reducer

| Size                      |   |                     |                 | E to E        |
|---------------------------|---|---------------------|-----------------|---------------|
| Nominal Size<br>mm/inches |   | JIS OD<br>mm/inches |                 | mm/<br>inches |
| 200A<br>8                 | x | 165<br>6½           | 216.3<br>8.515  | 127.0<br>5.00 |
| 250A<br>10                | x | 200A<br>8           | 267.4<br>10.528 | 152.4<br>6.00 |
| 300A<br>12                | x | 250A<br>10          | 318.5<br>12.539 | 177.8<br>7.00 |



No. 50

Fittings made to US standard sizes are available from 200A – 600A, which are compatible with JIS standards. Contact Victaulic for details.

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# INSTALLATION-READY COUPLINGS FOR GROOVED-END PIPE

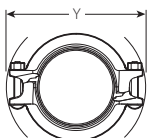
## NOTICE

- The “Y” dimension is the maximum dimension across the coupling.
- Bolt pads can be positioned in any orientation to provide adequate clearance if the orientation shown cause interference with other system components.

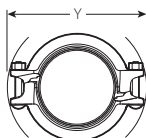
**Style 009H – FireLock EZ Rigid Coupling**

**Style 107H – QuickVic Rigid Coupling**

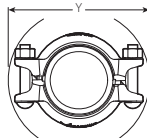
**Style 177 – QuickVic Flexible Coupling**



**Style 009H**



**Style 107H**



**Style 177**

| Size                         |                                              | “Y” Dimension – inches/mm |              |              |
|------------------------------|----------------------------------------------|---------------------------|--------------|--------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside Diameter<br>inches/mm | Style 009H                | Style 107H   | Style 177    |
| 1¼                           | 1.660<br>42.4                                | 4.77<br>121               | –<br>–       | –<br>–       |
| 1½                           | 1.900<br>48.3                                | 4.97<br>126               | –<br>–       | –<br>–       |
| 2                            | 2.375<br>60.3                                | 5.53<br>140               | 5.75<br>146  | 5.59<br>142  |
| 2½                           | 2.875<br>73.0                                | 6.09<br>155               | 6.26<br>159  | 6.13<br>156  |
| 76.1 mm                      | 3.000<br>76.1                                | 6.31<br>160               | 6.39<br>162  | 6.31<br>160  |
| 3                            | 3.500<br>88.9                                | 6.70<br>170               | 7.36<br>187  | 7.05<br>179  |
| 4                            | 4.500<br>114.3                               | 7.82<br>199               | 8.39<br>213  | 8.24<br>209  |
| 139.7 mm                     | 5.500<br>139.7                               | –<br>–                    | 9.60<br>244  | 9.52<br>242  |
| 5                            | 5.563<br>141.3                               | –<br>–                    | 9.72<br>247  | 9.66<br>245  |
| 165.1 mm                     | 6.500<br>165.1                               | –<br>–                    | 11.32<br>288 | –<br>–       |
| 6                            | 6.625<br>168.3                               | –<br>–                    | 11.32<br>288 | 11.14<br>283 |
| 8                            | 8.625<br>219.1                               | –<br>–                    | 13.56<br>344 | 13.56<br>344 |

**NOTE:** The “Y” dimensions, listed above, apply to the pre-assembled, installation-ready condition.



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# STANDARD COUPLINGS FOR GROOVED-END PIPE

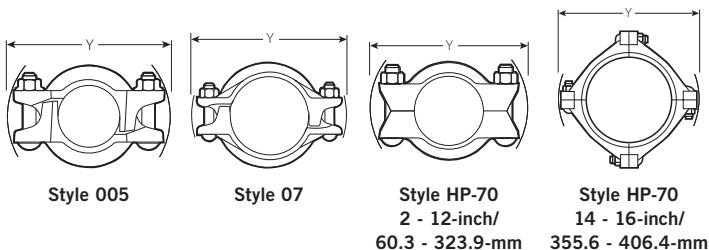
## NOTICE

- The “Y” dimension is the maximum dimension across the coupling.
- Bolt pads can be positioned in any orientation to provide adequate clearance if the orientation shown cause interference with other system components.

**Style 005 – FireLock Rigid Coupling**

**Style 07 – Zero-Flex Rigid Coupling**

**Styles HP-70 and HP-70ES – Rigid Couplings**



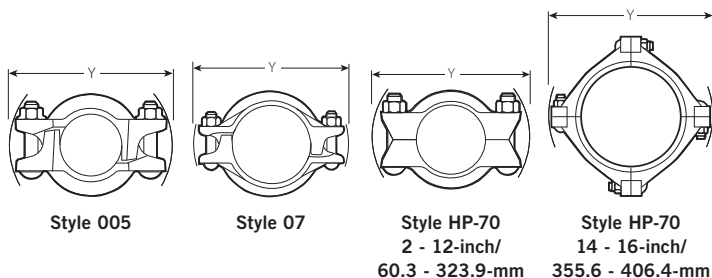
| Size                         |                                                 | “Y” Dimension – inches/mm |              |                             |
|------------------------------|-------------------------------------------------|---------------------------|--------------|-----------------------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | Style 005                 | Style 07     | Styles HP-70 and<br>HP-70ES |
| 1                            | 1.315<br>33.7                                   | –<br>–                    | 4.22<br>107  | –<br>–                      |
| 1 ¼                          | 1.660<br>42.4                                   | 4.50<br>114               | 4.62<br>117  | –<br>–                      |
| 1 ½                          | 1.900<br>48.3                                   | 4.75<br>121               | 5.81<br>148  | –<br>–                      |
| 2                            | 2.375<br>60.3                                   | 5.25<br>133               | 5.78<br>147  | 6.68<br>168                 |
| 2 ½                          | 2.875<br>73.0                                   | 5.75<br>146               | 6.38<br>162  | 7.13<br>181                 |
| 76.1 mm                      | 3.000<br>76.1                                   | 5.75<br>146               | 6.61<br>168  | –<br>–                      |
| 3                            | 3.500<br>88.9                                   | 6.13<br>156               | 6.81<br>173  | 7.75<br>197                 |
| 4                            | 4.500<br>114.3                                  | 7.25<br>184               | 8.21<br>209  | 9.63<br>245                 |
| 108.0 mm                     | 4.250<br>108.0                                  | 7.25<br>184               | 7.98<br>203  | –<br>–                      |
| 5                            | 5.563<br>141.3                                  | 9.00<br>229               | 9.89<br>251  | –<br>–                      |
| 133.0 mm                     | 5.250<br>133.0                                  | 9.00<br>229               | 9.60<br>244  | –<br>–                      |
| 139.7 mm                     | 5.500<br>139.7                                  | 9.00<br>229               | 9.82<br>249  | –<br>–                      |
| 6                            | 6.625<br>168.3                                  | 10.00<br>254              | 10.83<br>275 | 12.68<br>321                |



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# STANDARD COUPLINGS FOR GROOVED-END PIPE



| Size                         |                                                 | "Y" Dimension – inches/mm |              |                             |
|------------------------------|-------------------------------------------------|---------------------------|--------------|-----------------------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | Style 005                 | Style 07     | Styles HP-70 and<br>HP-70ES |
| 159.0mm                      | 6.250<br>159.0                                  | 10.00<br>254              | 10.54<br>268 | –<br>–                      |
| 165.1 mm                     | 6.500<br>165.1                                  | 10.00<br>254              | 10.84<br>275 | –<br>–                      |
| 8                            | 8.625<br>219.1                                  | 13.14<br>334              | 13.74<br>349 | 15.00<br>381                |
| 10 S                         | 10.750<br>273.0                                 | –<br>–                    | 16.98<br>431 | 17.25<br>438                |
| 12 S                         | 12.750<br>323.9                                 | –<br>–                    | 18.88<br>480 | 19.13<br>486                |
| 14 †                         | 14.000<br>323.9                                 | –<br>–                    | –<br>–       | 22.00<br>559                |
| 16 †                         | 16.000<br>406.4                                 | –<br>–                    | –<br>–       | 24.13<br>613                |



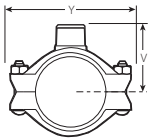
Always refer to the current Victaulic submittal publication in the G-100 General Catalog or on the website [www.victaulic.com](http://www.victaulic.com) for the most up-to-date dimensional information.



# STANDARD COUPLINGS FOR GROOVED-END PIPE

## Style 72 – Outlet Coupling

| Size                                                      |   | Style 72         |                |
|-----------------------------------------------------------|---|------------------|----------------|
| Run × Reducing Outlet<br>Nominal Size<br>inches/Actual mm |   | V §<br>inches/mm | Y<br>inches/mm |
| 1 ½<br>48.3                                               | × | ½<br>21.3        | 2.63<br>67     |
|                                                           |   | ¾<br>26.9        | 4.50<br>114    |
|                                                           |   | 1<br>33.7        | 2.63<br>67     |
|                                                           |   | 1<br>33.7        | 4.50<br>114    |
| 2<br>60.3                                                 | × | ½<br>21.3        | 3.03<br>77     |
|                                                           |   | ¾<br>26.9        | 5.00<br>127    |
|                                                           |   | 1<br>33.7        | 3.03<br>77     |
|                                                           |   | 1<br>33.7        | 5.00<br>127    |
| 2 ½<br>73.0                                               | × | ½<br>21.3        | 3.13<br>79     |
|                                                           |   | ¾<br>26.9        | 6.00<br>152    |
|                                                           |   | 1<br>33.7        | 3.13<br>79     |
|                                                           |   | 1<br>33.7        | 6.00<br>152    |
|                                                           | × | 1 ¼<br>42.4      | 3.69<br>94     |
|                                                           |   | 1 ½<br>48.3      | 6.88<br>175    |
|                                                           |   | 1 ½<br>48.3      | 3.69<br>94     |
|                                                           |   | 1 ½<br>48.3      | 6.88<br>175    |
| 3<br>88.9                                                 | × | ¾<br>20          | 3.31<br>84     |
|                                                           |   | 1<br>33.7        | 7.00<br>178    |
|                                                           |   | 1<br>33.7        | 4.75<br>121    |
|                                                           |   | 1<br>33.7        | 8.00<br>203    |
|                                                           | × | 1 ¼<br>42.4      | 4.75<br>121    |
|                                                           |   | 1 ½<br>48.3      | 8.00<br>203    |
|                                                           |   | 1 ½<br>48.3      | 4.25<br>108    |
|                                                           |   | 1 ½<br>48.3      | 8.00<br>203    |
| 4<br>114.3                                                | × | ¾<br>20          | 3.81<br>97     |
|                                                           |   | 1<br>33.7        | 8.38<br>213    |
|                                                           |   | 1<br>33.7        | 3.81<br>97     |
|                                                           |   | 1<br>33.7        | 8.38<br>213    |
|                                                           | × | 1 ½<br>48.3      | 4.59<br>117    |
|                                                           |   | 2<br>60.3        | 9.00<br>229    |
|                                                           |   | 2<br>60.3        | 4.59<br>117    |
|                                                           |   | 2<br>60.3        | 9.00<br>229    |
| 6<br>168.3                                                | × | 1<br>33.7        | 6.88<br>175    |
|                                                           |   | 1<br>33.7        | 12.00<br>305   |
|                                                           |   | 1 ½<br>48.3      | 6.88<br>175    |
|                                                           |   | 1 ½<br>48.3      | 12.00<br>305   |
|                                                           | × | 2<br>60.3        | 6.06<br>154    |
|                                                           |   | 2<br>60.3        | 12.00<br>305   |



Style 72

§ Center of run to end of fitting

**NOTE:** The No. 60 Cap is not suitable for use in vacuum services with Style 72 Outlet Couplings. For this type of service, No. 60 Bull Plugs should be used.

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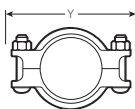
# STANDARD COUPLINGS FOR GROOVED-END PIPE

Style 75 – Coupling

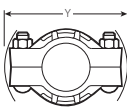
Style 77 – Standard Flexible Coupling

Style 77A – Flexible Aluminum Coupling

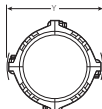
Styles 77S and 77DX – Flexible Stainless Steel Couplings



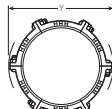
Style 75



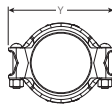
Style 77  
¾ – 12-inch/  
26.9 – 323.9-  
mm



Style 77  
14 – 22-inch/  
355.6 –  
559.0-mm



Style 77  
24-inch/  
610.0-mm



Style 77DX

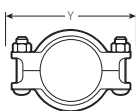
| Size                         |                                              | “Y” Dimension – inches/mm |              |              |              |              |
|------------------------------|----------------------------------------------|---------------------------|--------------|--------------|--------------|--------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside Diameter<br>inches/mm | Style 75                  | Style 77     | Style 77A    | Style 77S    | Style 77DX   |
| ¾                            | 1.050<br>26.9                                | –<br>–                    | 4.00<br>102  | –<br>–       | 3.89<br>99   | 3.31<br>84   |
| 1                            | 1.315<br>33.7                                | 4.27<br>108               | 4.12<br>105  | 4.12<br>105  | 4.50<br>114  | 4.04<br>103  |
| 1¼                           | 1.660<br>42.4                                | 4.61<br>117               | 5.00<br>127  | 4.91<br>125  | 4.79<br>122  | 4.37<br>111  |
| 1½                           | 1.900<br>48.3                                | 4.82<br>122               | 5.38<br>137  | 5.23<br>133  | 4.80<br>122  | 4.43<br>113  |
| 2                            | 2.375<br>60.3                                | 5.22<br>133               | 5.88<br>149  | 5.77<br>147  | 5.33<br>135  | 5.00<br>127  |
| 57.0 mm                      | 2.664<br>57.0                                | –<br>–                    | 5.73<br>146  | –<br>–       | –<br>–       | –<br>–       |
| 2½                           | 2.875<br>73.0                                | 5.68<br>144               | 6.50<br>165  | 6.38<br>162  | 5.79<br>147  | 5.50<br>140  |
| 76.1 mm                      | 3.000<br>76.1                                | 5.90<br>150               | 6.63<br>168  | –<br>–       | –<br>–       | –<br>–       |
| 3                            | 3.500<br>88.9                                | 7.00<br>178               | 7.13<br>181  | 7.04<br>179  | 6.99<br>178  | 6.38<br>162  |
| 3½                           | 4.000<br>101.6                               | 7.50<br>191               | 8.25<br>210  | –<br>–       | –<br>–       | –<br>–       |
| 4                            | 4.500<br>114.3                               | 8.03<br>204               | 8.88<br>226  | 8.78<br>223  | 9.00<br>229  | 8.50<br>216  |
| 108.0 mm                     | 4.250<br>108.0                               | 7.79<br>198               | 8.63<br>219  | –<br>–       | –<br>–       | –<br>–       |
| 4½                           | 5.000<br>127.0                               | 9.43<br>240               | –<br>–       | –<br>–       | –<br>–       | –<br>–       |
| 5                            | 5.563<br>141.3                               | 10.07<br>256              | 10.65<br>270 | 10.47<br>266 | –<br>–       | –<br>–       |
| 133.0 mm                     | 5.250<br>133.0                               | 9.37<br>238               | 10.38<br>264 | –<br>–       | –<br>–       | –<br>–       |
| 139.7 mm                     | 5.500<br>139.7                               | 9.59<br>244               | 10.65<br>270 | –<br>–       | –<br>–       | –<br>–       |
| 152.4 mm                     | 6.000<br>152.4                               | 10.48<br>266              | –<br>–       | –<br>–       | –<br>–       | –<br>–       |
| 6                            | 6.625<br>168.3                               | 11.07<br>281              | 11.88<br>302 | 11.77<br>299 | 11.06<br>281 | 11.04<br>280 |
| 159.0 mm                     | 6.250<br>159.0                               | 10.49<br>266              | 11.50<br>292 | –<br>–       | –<br>–       | –<br>–       |



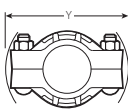
Always refer to the current Victaulic submittal publication in the G-100 General Catalog or on the website [www.victaulic.com](http://www.victaulic.com) for the most up-to-date dimensional information.



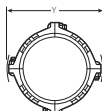
# STANDARD COUPLINGS FOR GROOVED-END PIPE



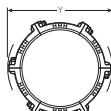
**Style 75**



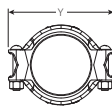
**Style 77**  
¾ – 12-inch/  
26.9 – 323.9-  
mm



**Style 77**  
14 – 22-inch/  
355.6 –  
559.0-mm



**Style 77**  
24-inch/  
610.0-mm



**Style 77DX**

| Size                         |                                              | “Y” Dimension – inches/mm |              |              |              |            |
|------------------------------|----------------------------------------------|---------------------------|--------------|--------------|--------------|------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside Diameter<br>inches/mm | Style 75                  | Style 77     | Style 77A    | Style 77S    | Style 77DX |
| 165.1 mm                     | 6.500<br>165.1                               | –                         | 11.63<br>295 | –            | –            | –          |
| 203.2 mm                     | 8.000<br>203.2                               | 13.33<br>339              | –            | –            | –            | –          |
| 8 §                          | 8.625<br>219.1                               | 13.97<br>355              | 14.75<br>375 | 14.73<br>374 | 14.74<br>374 | –          |
| 254.0 mm                     | 10.000<br>254.0                              | 15.81<br>402              | –            | –            | –            | –          |
| 10 §                         | 10.750<br>273.0                              | –                         | 17.13<br>435 | –            | 17.33<br>440 | –          |
| 304.8 mm                     | 12.000<br>304.8                              | 17.69<br>449              | –            | –            | –            | –          |
| 12 §                         | 12.750<br>323.9                              | –                         | 19.25<br>489 | 19.15<br>486 | 19.15<br>486 | –          |
| 14 ‡                         | 14.000<br>355.6                              | –                         | 19.88<br>505 | –            | 20.44<br>519 | –          |
| 377.0 mm #                   | 14.842<br>377.0                              | –                         | 20.96<br>531 | –            | –            | –          |
| 16 ‡                         | 16.000<br>406.4                              | –                         | 22.13<br>562 | –            | 22.52<br>572 | –          |
| 426.0 mm #                   | 16.772<br>426.0                              | –                         | 22.92<br>581 | –            | –            | –          |
| 18 ‡                         | 18.000<br>457.0                              | –                         | 24.50<br>622 | –            | 24.62<br>625 | –          |
| 480.0 mm #                   | 18.898<br>480.0                              | –                         | 25.86<br>655 | –            | –            | –          |
| 20 ‡                         | 20.000<br>508.0                              | –                         | 27.25<br>692 | –            | –            | –          |
| 530.0 mm #                   | 20.866<br>530.0                              | –                         | 27.80<br>704 | –            | –            | –          |
| 22 ‡                         | 22.000<br>559.0                              | –                         | 29.50<br>749 | –            | –            | –          |
| 580.0 mm #                   | 22.835<br>580.0                              | –                         | 30.01<br>762 | –            | –            | –          |
| 24 ‡                         | 24.000<br>609.6                              | –                         | 31.25<br>794 | –            | –            | –          |
| 630.0 mm #                   | 24.803<br>630.0                              | –                         | 32.16<br>817 | –            | –            | –          |

## NOTES FOR STYLE 77 STANDARD FLEXIBLE COUPLINGS:

§ Style 77 Standard Flexible Couplings in 8, 10, 12-inch/219.1, 273.0, 323.9-mm sizes are available to JIS standards.

‡ For use on cut grooved systems only. For roll grooved systems, Victaulic offers the Advanced Groove System (AGS).

# CIS size product is designed with two housings.



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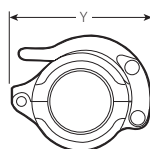


# STANDARD COUPLINGS FOR GROOVED-END PIPE

## Style 78 – Snap-Joint Coupling

## Style 78A – Aluminum Snap-Joint Coupling

| Size                |                                        | “Y” Dimension – inches/mm |              |
|---------------------|----------------------------------------|---------------------------|--------------|
| Nominal Size inches | Actual Pipe Outside Diameter inches/mm | Style 78                  | Style 78A    |
| 1                   | 1.315<br>33.7                          | 3.25<br>83                | –<br>–       |
| 1 ¼                 | 1.660<br>42.2                          | 3.75<br>95                | –<br>–       |
| 1 ½                 | 1.900<br>48.3                          | 4.50<br>114               | –<br>–       |
| 2                   | 2.375<br>60.3                          | 4.75<br>121               | 4.88<br>124  |
| 2 ½                 | 2.875<br>73.0                          | 5.88<br>149               | –<br>–       |
| 3                   | 3.500<br>88.9                          | 6.25<br>159               | –<br>–       |
| 4                   | 4.500<br>114.3                         | 7.75<br>197               | –<br>–       |
| 5                   | 5.563<br>141.3                         | 9.50<br>241               | –<br>–       |
| 6                   | 6.625<br>168.3                         | 10.63<br>270              | –<br>–       |
| 8                   | 8.625<br>219.1                         | 13.00<br>330              | –<br>–       |
| 10                  | 10.750<br>273.0                        | –<br>–                    | 15.60<br>396 |



Styles 78 and 78A

**NOTE:** Refer to the installation instructions in this manual for locking handle clearance dimensions.



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# STANDARD COUPLINGS FOR GROOVED-END PIPE

**Style 89 – Rigid Coupling for Stainless Steel Pipe**

**Styles 475 and 475DX – Flexible Stainless Steel Couplings**

**Styles 489 and 489DX - Rigid Stainless Steel Couplings**



**Style 89**



**Styles  
475/475DX**



**Style 489  
1 ½ – 4-inch/  
48.3 – 114.3-mm**



**Style 489  
6 – 12-inch/  
168.3 – 323.9-mm and  
165.1 – 318.5-mm JIS**



**Style  
489DX**

| Size                         |                                              | “Y” Dimension – inches/mm |              |                |              |                |
|------------------------------|----------------------------------------------|---------------------------|--------------|----------------|--------------|----------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside Diameter<br>inches/mm | Style<br>89               | Style<br>475 | Style<br>475DX | Style<br>489 | Style<br>489DX |
| 1                            | 1.315<br>33.7                                | –<br>–                    | 4.36<br>111  | 3.98<br>101    | –<br>–       | –<br>–         |
| 1 ¼                          | 1.660<br>42.4                                | –<br>–                    | 4.67<br>119  | 4.45<br>113    | –<br>–       | –<br>–         |
| 1 ½                          | 1.900<br>48.3                                | –<br>–                    | 4.74<br>120  | 4.52<br>115    | 4.42<br>118  | –<br>–         |
| 2                            | 2.375<br>60.3                                | 6.68<br>168               | 5.03<br>128  | 5.03<br>128    | 5.19<br>132  | 6.68<br>168    |
| 2 ½                          | 2.875<br>73.0                                | 7.13<br>181               | 5.59<br>142  | 5.59<br>142    | 5.62<br>143  | 7.13<br>181    |
| 76.1 mm                      | 3.000<br>76.1                                | 7.25<br>184               | 5.73<br>146  | 5.73<br>146    | 5.72<br>145  | 7.25<br>184    |
| 3                            | 3.500<br>88.9                                | 7.75<br>197               | 6.67<br>169  | 6.67<br>169    | 6.78<br>172  | 7.75<br>197    |
| 4                            | 4.500<br>114.3                               | 9.63<br>245               | 7.96<br>202  | 7.96<br>202    | 7.90<br>201  | 9.63<br>245    |
| 139.7 mm                     | 5.500<br>139.7                               | 10.63<br>270              | 8.97<br>228  | –<br>–         | 11.13<br>283 | 10.63<br>270   |
| 5                            | 5.563<br>141.3                               | 10.63<br>270              | –<br>–       | –<br>–         | –<br>–       | –<br>–         |
| 165.1 mm                     | 6.500<br>165.1                               | 12.38<br>314              | 10.53<br>268 | –<br>–         | 12.68<br>321 | 12.38<br>314   |
| 6                            | 6.625<br>168.3                               | 12.68<br>321              | –<br>–       | –<br>–         | 12.68<br>321 | 12.68<br>321   |
| 216.3 mm                     | 8.515<br>216.3                               | 15.25<br>387              | –<br>–       | –<br>–         | 15.00<br>381 | –<br>–         |
| 8                            | 8.625<br>219.1                               | 15.25<br>387              | –<br>–       | –<br>–         | 15.00<br>381 | 15.25<br>387   |
| 267.4 mm                     | 10.528<br>267.4                              | 17.00<br>432              | –<br>–       | –<br>–         | 17.25<br>438 | –<br>–         |
| 10                           | 10.750<br>273.0                              | 17.25<br>438              | –<br>–       | –<br>–         | 17.25<br>438 | 17.25<br>438   |
| 318.5 mm                     | 12.539<br>318.5                              | 19.63<br>499              | –<br>–       | –<br>–         | 19.13<br>486 | –<br>–         |
| 12                           | 12.750<br>323.9                              | 19.63<br>499              | –<br>–       | –<br>–         | 19.13<br>486 | 19.63<br>499   |



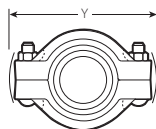
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# STANDARD COUPLINGS FOR GROOVED-END PIPE

## Style 750 – Reducing Coupling

| Size                             |   |            | Style 750                  |
|----------------------------------|---|------------|----------------------------|
| Nominal Size<br>inches/Actual mm |   |            | "Y" Dimension<br>inches/mm |
| 2<br>60.3                        | × | 1<br>33.7  | 5.28<br>134                |
|                                  |   | 1½<br>48.3 | 5.28<br>134                |
| 2½<br>73.0                       | × | 2<br>60.3  | 5.93<br>151                |
| 76.1 mm                          | × | 2<br>60.3  | 6.63<br>168                |
| 3<br>88.9                        | × | 2<br>60.3  | 7.13<br>181                |
|                                  |   | 2½<br>73.0 | 7.13<br>181                |
| 88.9 mm                          | × | 76.1 mm    | 7.13<br>181                |
| 4<br>114.3                       | × | 2<br>60.3  | 8.90<br>226                |
|                                  |   | 2½<br>73.0 | 8.90<br>226                |
|                                  |   | 3<br>88.9  | 8.90<br>226                |
| 114.3 mm                         | × | 76.1 mm    | 8.90<br>226                |
| 5<br>141.3                       | × | 4<br>114.3 | 10.70<br>272               |
| 6<br>168.3                       | × | 4<br>114.3 | 11.90<br>302               |
|                                  |   | 5<br>141.3 | 11.90<br>302               |
| 165.1 mm                         | × | 4<br>114.3 | 11.90<br>302               |
| 8<br>219.1                       | × | 6<br>168.3 | 14.88<br>378               |
| 219.1 mm                         | × | 165.1 mm   | 14.88<br>378               |
| 10<br>273.0                      | × | 8<br>219.1 | 17.26<br>438               |



Style 750

**NOTE:** The No. 60 Cap is not suitable for use in vacuum services with Style 750 Reducing Couplings. For this type of service, No. 61 Bull Plugs should be used.



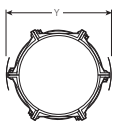
Always refer to the current Victaulic submittal publication in the G-100 General Catalog or on the website [www.victaulic.com](http://www.victaulic.com) for the most up-to-date dimensional information.



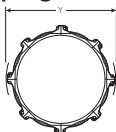
# STANDARD COUPLINGS FOR GROOVED-END PIPE

## Style 770 – Large Diameter Coupling

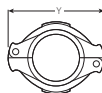
## Style 791 – Vic-Boltless Coupling



**Style 770**  
26 – 36-inch/  
660.0 – 914.0-mm



**Style 770**  
42-inch/  
1067.0-mm



**Style 791**

| Size                   |                                              | “Y” Dimension – inches/mm |              |
|------------------------|----------------------------------------------|---------------------------|--------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside Diameter<br>inches/mm | Style 770                 | Style 791    |
| 2                      | 2.375<br>60.3                                | –<br>–                    | 4.71<br>120  |
| 2½                     | 2.875<br>73.0                                | –<br>–                    | 5.48<br>139  |
| 3                      | 3.500<br>88.9                                | –<br>–                    | 6.15<br>156  |
| 4                      | 4.500<br>114.3                               | –<br>–                    | 7.62<br>194  |
| 6                      | 6.625<br>168.3                               | –<br>–                    | 10.18<br>259 |
| 8                      | 8.625<br>219.1                               | –<br>–                    | 12.50<br>318 |
| 26                     | 26.000<br>660.4                              | 34.25<br>870              | –<br>–       |
| 28                     | 28.000<br>711.0                              | 36.33<br>923              | –<br>–       |
| 30                     | 30.000<br>762.0                              | 38.32<br>973              | –<br>–       |
| 32                     | 32.000<br>813.0                              | 40.43<br>1027             | –<br>–       |
| 36                     | 36.000<br>914.0                              | 44.33<br>1126             | –<br>–       |
| 42                     | 42.000<br>1067.0                             | 51.56<br>1310             | –<br>–       |

**NOTE:** For Style 791 Vic-Boltless Couplings, refer to the installation instructions in this manual for Style 792 Assembly Tool clearance dimensions.



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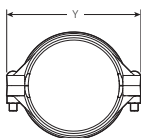
# AGS® COUPLINGS FOR GROOVED-END PIPE

Style W07 – AGS Rigid Coupling

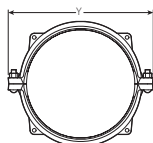
Style W77 – AGS Flexible Coupling

Style W89 – AGS Rigid Coupling for Stainless Steel Pipe

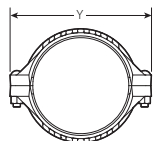
| Size                   |                                              | “Y” Dimension – inches/mm |              |
|------------------------|----------------------------------------------|---------------------------|--------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside Diameter<br>inches/mm | Styles W07<br>and W77     | Style W89    |
| 14                     | 14.000<br>355.6                              | 20.59<br>523              | 21.38<br>543 |
| 16                     | 16.000<br>406.4                              | 23.51<br>597              | 23.50<br>597 |
| 18                     | 18.000<br>457.0                              | 25.53<br>648              | 25.63<br>651 |
| 20                     | 20.000<br>508.0                              | 27.13<br>689              | 27.63<br>702 |
| 24                     | 24.000<br>610.0                              | 32.31<br>821              | 32.00<br>813 |
| 26                     | 26.000<br>660.4                              | 35.23<br>895              | –<br>–       |
| 28                     | 28.000<br>711.2                              | 37.22<br>945              | –<br>–       |
| 30                     | 30.000<br>762.0                              | 39.64<br>1007             | –<br>–       |
| 32                     | 32.000<br>812.8                              | 41.74<br>1060             | –<br>–       |
| 36                     | 36.000<br>914.4                              | 45.72<br>1161             | –<br>–       |
| 40                     | 40.000<br>1016.0                             | 50.51<br>1283             | –<br>–       |
| 42                     | 42.000<br>1066.8                             | 52.50<br>1334             | –<br>–       |
| 46                     | 46.000<br>1168.4                             | 56.48<br>1435             | –<br>–       |
| 48                     | 48.000<br>1219.2                             | 58.47<br>1485             | –<br>–       |
| 54                     | 54.000<br>1371.6                             | 65.16<br>1655             | –<br>–       |
| 56                     | 56.000<br>1422.2                             | 67.65<br>1718             | –<br>–       |
| 60                     | 60.000<br>1524.0                             | 72.13<br>1832             | –<br>–       |



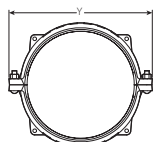
**Style W07**  
14 – 24-inch/  
355.6 – 610.0-mm



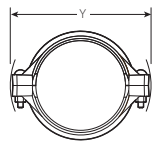
**Style W07**  
26 – 60-inch/  
660.0 – 1524.0-mm



**Style W77**  
14 – 24-inch/  
355.6 – 610.0-mm



**Style W77**  
26 – 60-inch/  
660.0 – 1524.0-mm



**Style W89**

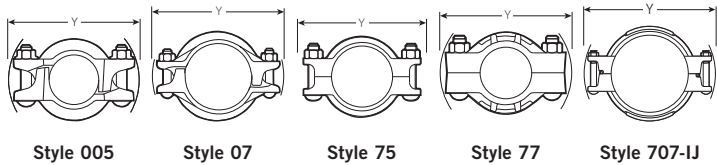


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# COUPLINGS FOR GROOVED-END JIS STEEL PIPE

- Style 005 FireLock Rigid Coupling
- Style 07 Zero-Flex Rigid Coupling
- Style 75 Coupling
- Style 77 Standard Flexible Coupling



| Size – mm/inches |                 | “Y” Dimension – mm/inches |              |              |              |              |
|------------------|-----------------|---------------------------|--------------|--------------|--------------|--------------|
| Nominal Size     | JIS OD          | Style 005                 | Style 07     | Style 75     | Style 77     | Style 707-IJ |
| 200A<br>8        | 216.3<br>8.515  | 337<br>13.25              | 346<br>13.62 | 349<br>13.75 | 374<br>14.72 | 356<br>14.02 |
| 250A<br>10       | 267.4<br>10.528 | –                         | 431<br>16.97 | –            | 433<br>17.05 | 422<br>16.61 |
| 300A<br>12       | 318.5<br>12.539 | –                         | 480<br>18.90 | –            | 486<br>19.13 | 475<br>18.70 |

Couplings made to US standard sizes are available from 200A – 600A, which are compatible with JIS standards. Contact Victaulic for details.

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# STANDARD VIC-FLANGE ADAPTERS FOR GROOVED-END PIPE

**Style 441 – Stainless Steel Vic-Flange Adapter (ANSI Class 150)**

**Style 741 – Vic-Flange Adapter (ANSI Class 125 and 150)**

**Style 743 – Vic-Flange Adapter (ANSI Class 300)**

**Style 744 – FireLock Flange Adapter (ANSI Class 125 and 150)**



**Style 441**



**Style 741**  
**2 – 12-inch/  
60.3 –  
323.9-mm**



**Style 741**  
**14 – 24-inch/  
355.6 –  
610.0-mm**



**Style 743**



**Style 744**

| Size                         |                                                 | “W” Dimension – inches/mm |              |              |              |
|------------------------------|-------------------------------------------------|---------------------------|--------------|--------------|--------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | Style 441                 | Style 741    | Style 743    | Style 744    |
| 2                            | 2.375<br>60.3                                   | 6.84<br>174               | 6.75<br>172  | 7.70<br>196  | 6.75<br>172  |
| 2½                           | 2.875<br>73.0                                   | 7.72<br>196               | 7.87<br>200  | 8.61<br>219  | 7.88<br>200  |
| 3                            | 3.500<br>88.9                                   | 8.22<br>209               | 8.29<br>211  | 9.48<br>241  | 8.44<br>214  |
| 4                            | 4.500<br>114.3                                  | 9.72<br>247               | 9.87<br>251  | 11.35<br>288 | 9.94<br>252  |
| 5                            | 5.563<br>141.3                                  | –                         | 10.90<br>277 | 12.31<br>313 | 11.00<br>279 |
| 6                            | 6.625<br>168.3                                  | 11.78<br>299              | 11.90<br>302 | 13.77<br>350 | 12.00<br>305 |
| 165.1 mm                     | 6.500<br>165.1                                  | –                         | 11.92<br>303 | –            | –            |
| 8                            | 8.625<br>219.1                                  | –                         | 14.50<br>368 | 16.68<br>424 | 14.63<br>372 |
| 10                           | 10.750<br>273.0                                 | –                         | 17.24<br>438 | 19.25<br>489 | –            |
| 12                           | 12.750<br>323.9                                 | –                         | 20.25<br>514 | 22.25<br>565 | –            |
| 14 #                         | 14.000<br>355.6                                 | –                         | 24.50<br>622 | –            | –            |
| 16 #                         | 16.000<br>406.4                                 | –                         | 27.12<br>689 | –            | –            |
| 18 #                         | 18.000<br>457.0                                 | –                         | 29.00<br>737 | –            | –            |
| 20 #                         | 20.000<br>508.0                                 | –                         | 31.50<br>800 | –            | –            |
| 24 #                         | 24.000<br>610.0                                 | –                         | 36.00<br>914 | –            | –            |

# For cut-grooved systems only. For 14 - 24-inch/355.6 - 610.0-mm roll-grooved systems, the Style W741 AGS Vic-Flange Adapter is used. The Style 741 is not compatible with the AGS system.



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# STANDARD VIC-FLANGE ADAPTERS FOR GROOVED-END PIPE

## Style 741 – Vic-Flange Adapter (PN10 and PN16)

## Style 741 – Vic-Flange Adapter (Australian Standard Table “E”)

| Size            |                                        | “W” Dimensions – mm/inches |                                         |
|-----------------|----------------------------------------|----------------------------|-----------------------------------------|
| Nominal Size mm | Actual Pipe Outside Diameter mm/inches | Style 741 PN10 and PN16    | Style 741 Australian Standard Table “E” |
| 50              | 60.3<br>2.375                          | 177<br>6.97                | 165<br>6.50                             |
| 76.1            | 76.1<br>3.000                          | 208<br>8.19                | –<br>–                                  |
| 80              | 88.9<br>3.500                          | 218<br>8.58                | 200<br>7.87                             |
| 100             | 114.3<br>4.500                         | 251<br>9.88                | 251<br>9.87                             |
| 139.7           | 139.7<br>5.500                         | 274<br>10.79               | –<br>–                                  |
| 159.0           | 159.0<br>6.250                         | 307<br>12.09               | –<br>–                                  |
| 165.1           | 165.1<br>6.500                         | 303<br>11.93               | 303<br>11.92                            |
| 150             | 168.3<br>6.625                         | 302<br>11.89               | 286<br>11.25                            |
| 200             | 219.1<br>8.625                         | 368 #<br>14.49             | 368<br>14.50                            |
| 250             | 273.0<br>10.750                        | 437 §<br>17.20             | –<br>–                                  |
| 300             | 323.9<br>12.750                        | 478 ‡<br>18.82             | –<br>–                                  |



Style 741

# PN16 dimensions (mm/inches): W = 360/14.17

§ PN16 dimensions (mm/inches): W = 438/17.24

‡ PN 16 dimensions (mm/inches): W = 478/18.82

## Style 741 – Metric Vic-Flange Adapter (JIS 10K)

| Size            |                                        | “W” Dimensions – mm/inches |
|-----------------|----------------------------------------|----------------------------|
| Nominal Size mm | Actual Pipe Outside Diameter mm/inches | Style 741 (JIS 10K)        |
| 65              | 76.3<br>3.000                          | 208<br>8.20                |
| 73              | 73.0<br>2.880                          | 200<br>7.87                |
| 80              | 89.1<br>3.500                          | 211<br>8.29                |
| 100             | 114.3<br>4.500                         | 251<br>9.87                |
| 141.3           | 141.3<br>5.560                         | 277<br>10.90               |
| 165.1           | 165.1<br>6.500                         | 302<br>11.90               |
| 150             | 165.2<br>6.625                         | 302<br>11.90               |



Style 741



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# AGS<sup>®</sup> VIC-FLANGE ADAPTER FOR GROOVED-END PIPE

## Style W741 – AGS Vic-Flange Adapter (PN10 and PN16)

| Size                   |                                              | "W" Dimension – inches/mm |
|------------------------|----------------------------------------------|---------------------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside Diameter<br>inches/mm | Style W741                |
| 14                     | 14.000<br>355.6                              | 24.50<br>622              |
| 16                     | 16.000<br>406.4                              | 27.12<br>688              |
| 18                     | 18.000<br>457.0                              | 29.00<br>737              |
| 20                     | 20.000<br>508.0                              | 31.50<br>800              |
| 24                     | 24.000<br>610.0                              | 36.00<br>914              |



Style W741



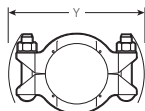
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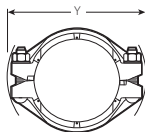
# COUPLINGS FOR PLAIN-END PIPE

## Style 99 – Roust-A-Bout Coupling

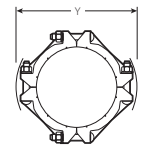
| Size                         |                                              | "Y" Dimension – inches/mm |
|------------------------------|----------------------------------------------|---------------------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside Diameter<br>inches/mm | Style 99                  |
| 1                            | 1.315<br>33.7                                | 4.25<br>108               |
| 1 ½                          | 1.900<br>48.3                                | 5.50<br>140               |
| 2                            | 2.375<br>60.3                                | 6.75<br>171               |
| 2 ½                          | 2.875<br>73.0                                | 7.13<br>181               |
| 76.1 mm                      | 3.000<br>76.1                                | 6.25<br>159               |
| 3                            | 3.500<br>88.9                                | 8.50<br>216               |
| 3 ½                          | 4.000<br>101.6                               | 9.25<br>235               |
| 4                            | 4.500<br>114.3                               | 10.00<br>254              |
| 139.7 mm                     | 5.500<br>139.7                               | 10.75<br>260              |
| 5                            | 5.563<br>141.3                               | 11.38<br>289              |
| 6                            | 6.625<br>168.3                               | 13.38<br>340              |
| 165.1 mm                     | 6.500<br>165.1                               | 13.25<br>337              |
| 8                            | 8.625<br>219.1                               | 14.38<br>365              |
| 10                           | 10.750<br>273.0                              | 16.38<br>416              |
| 12                           | 12.750<br>323.9                              | 19.63<br>499              |
| 14                           | 14.000<br>355.6                              | 20.75<br>527              |
| 16                           | 16.000<br>406.4                              | 22.63<br>575              |
| 18                           | 18.000<br>457.0                              | 23.50<br>597              |



**Style 99**  
**1 – 6-inch/  
33.7 – 168.3-mm**



**Style 99**  
**8 – 12-inch/  
219.1 – 323.9-mm**



**Style 99**  
**14 – 18-inch/  
355.6 – 457.0-mm**



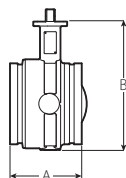
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# STANDARD VALVES FOR GROOVED-END PIPE

## Series 761 – Vic-300 MasterSeal Butterfly Valve

| Size                         |                                                 | Dimensions – inches/millimeters |                      |
|------------------------------|-------------------------------------------------|---------------------------------|----------------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | A<br>End-to-End                 | B<br>Overall Height* |
| 2                            | 2.375<br>60.3                                   | 3.21<br>82                      | 5.62<br>143          |
| 2½                           | 2.875<br>73.0                                   | 3.77<br>96                      | 6.35<br>161          |
| 76.1 mm                      | 3.000<br>76.1                                   | 3.77<br>96                      | 6.35<br>161          |
| 3                            | 3.500<br>88.9                                   | 3.77<br>96                      | 6.85<br>174          |
| 4                            | 4.500<br>114.3                                  | 4.63<br>118                     | 8.13<br>207          |
| 108.0 mm †                   | 4.250<br>108.0                                  | 4.63<br>118                     | 8.13<br>207          |
| 5                            | 5.563<br>141.3                                  | 5.88<br>149                     | 9.59<br>244          |
| 133.0 mm †                   | 5.250<br>133.0                                  | 5.88<br>149                     | 9.59<br>244          |
| 139.7 mm                     | 5.500<br>139.7                                  | 5.88<br>149                     | 9.59<br>244          |
| 6                            | 6.625<br>168.3                                  | 5.88<br>149                     | 10.58<br>269         |
| 159.0 mm †                   | 6.250<br>159.0                                  | 5.88<br>149                     | 10.58<br>269         |
| 165.1 mm                     | 6.500<br>165.1                                  | 5.88<br>149                     | 10.58<br>269         |
| 8                            | 8.625<br>219.1                                  | 5.33<br>135                     | 13.00<br>330         |
| 10                           | 10.750<br>273.0                                 | 6.40<br>163                     | 15.88<br>403         |
| 12                           | 12.750<br>323.9                                 | 6.50<br>165                     | 17.88<br>454         |



**Series 761 Vic-300  
MasterSeal (Bare)**

† Contact Victaulic for availability

\* The “B” Overall Height dimension is given for a bare valve and is for reference only. Refer to Victaulic publication 08.20 for dimensions with gear operator and handle options. DO NOT attempt to operate the valve without a gear operator or handle installed.

**NOTE:** 2 – 8-inch/60.3 – 219.1-mm sizes are ISO Flange Designation F07;  
10 – 12-inch/273.0 – 323.9-mm sizes are ISO Flange Designation F10



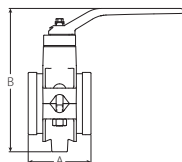
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# STANDARD VALVES FOR GROOVED-END PIPE

## Series 700 – Butterfly Valve

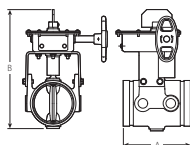
| Size                         |                                                 | Dimensions – inches/millimeters |                     |
|------------------------------|-------------------------------------------------|---------------------------------|---------------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | A<br>End-to-End                 | B<br>Overall Height |
| 1 ½                          | 1.900<br>48.3                                   | 3.38<br>86                      | 6.07<br>154         |
| 2                            | 2.375<br>60.3                                   | 3.19<br>81                      | 6.58<br>167         |
| 2 ½                          | 2.875<br>73.0                                   | 3.81<br>97                      | 7.81<br>198         |
| 3                            | 3.500<br>88.9                                   | 3.81<br>97                      | 8.37<br>213         |
| 4                            | 4.500<br>114.3                                  | 4.56<br>116                     | 10.19<br>259        |
| 5                            | 5.563<br>141.3                                  | 5.81<br>148                     | 12.25<br>311        |
| 6                            | 6.625<br>168.3                                  | 5.81<br>148                     | 13.28<br>337        |
| 165.1 mm                     | 6.500<br>165.1                                  | 5.81<br>148                     | 13.28<br>337        |



Series 700

## Series 702 – Butterfly Valve

| Size                         |                                                 | Dimensions – inches/millimeters |                     |
|------------------------------|-------------------------------------------------|---------------------------------|---------------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | A<br>End-to-End                 | B<br>Overall Height |
| 2 ½                          | 2.875<br>73.0                                   | 6.00<br>152                     | 9.80<br>249         |
| 76.1 mm                      | 3.000<br>76.1                                   | 6.00<br>152                     | 9.80<br>249         |
| 3                            | 3.500<br>88.9                                   | 6.25<br>159                     | 10.48<br>266        |
| 4                            | 4.500<br>114.3                                  | 6.63<br>168                     | 11.89<br>302        |
| 6                            | 6.625<br>168.3                                  | 7.00<br>178                     | 13.74<br>349        |
| 8                            | 8.625<br>219.1                                  | 8.00<br>203                     | 16.92<br>430        |
| 10                           | 10.750<br>273.0                                 | 8.00<br>203                     | 19.18<br>487        |



Series 702

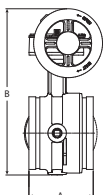


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# STANDARD VALVES FOR GROOVED-END PIPE

Series 705 – FireLock Butterfly Valve with Weatherproof Actuator  
 Series 765 – FireLock Butterfly Valve with Weatherproof Actuator  
 Series 707C – FireLock Butterfly Valve with Weatherproof Actuator and Supervised-Closed Switches  
 Series 766 – FireLock Butterfly Valve with Weatherproof Actuator and Supervised-Closed Switches



Series 705, 765, 707C, and 766

| Size                         |                                              | Dimensions – inches/millimeters |                     |
|------------------------------|----------------------------------------------|---------------------------------|---------------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside Diameter<br>inches/mm | A<br>End-to-End                 | B<br>Overall Height |
| 2                            | 2.375<br>60.3                                | 4.25<br>108                     | 8.69<br>221         |
| 2½                           | 2.875<br>73.0                                | 3.77<br>96                      | 9.82<br>249         |
| 76.1 mm                      | 3.000<br>76.1                                | 3.77<br>96                      | 9.82<br>249         |
| 3                            | 3.500<br>88.9                                | 3.77<br>96                      | 10.32<br>262        |
| 108.0 mm                     | 4.250<br>108.0                               | 4.63<br>118                     | 11.69<br>297        |
| 4                            | 4.500<br>114.3                               | 4.63<br>118                     | 11.69<br>297        |
| 133.0 mm                     | 5.250<br>133.0                               | 5.88<br>149                     | 14.23<br>361        |
| 139.7 mm                     | 5.500<br>139.7                               | 5.88<br>149                     | 14.23<br>361        |
| 5                            | 5.563<br>141.3                               | 5.88<br>149                     | 14.23<br>361        |
| 159.0 mm                     | 6.250<br>159.0                               | 5.88<br>149                     | 15.22<br>387        |
| 165.1 mm                     | 6.500<br>165.1                               | 5.88<br>149                     | 15.22<br>387        |
| 6                            | 6.625<br>168.3                               | 5.88<br>149                     | 15.22<br>387        |
| 8                            | 8.625<br>219.1                               | 5.33<br>135                     | 18.60<br>472        |
| 10 *                         | 10.750<br>273.0                              | 6.40<br>163                     | 22.01<br>559        |
| 12 *                         | 12.750<br>323.9                              | 6.50<br>165                     | 24.00<br>610        |

\* Series 707C and Series 766 Butterfly Valves are not available in 10-inch/273.0-mm and 12-inch/323.9-mm sizes.



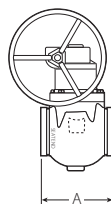
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# STANDARD VALVES FOR GROOVED-END PIPE

## Series 377 – Vic-Plug Balancing Valve

| Size                     |                                             | Dimensions – inches/mm |
|--------------------------|---------------------------------------------|------------------------|
| Nominal AWWA Size inches | Actual AWWA Pipe Outside Diameter inches/mm | A End-To-End           |
| 3                        | 3.960<br>100.6                              | 8.00<br>203            |
| 4                        | 4.800<br>121.9                              | 9.00<br>229            |
| 6                        | 6.900<br>175.3                              | 10.50<br>267           |
| 8                        | 9.050<br>229.9                              | 11.50<br>292           |
| 10                       | 11.100<br>281.9                             | 13.00<br>330           |
| 12                       | 13.200<br>335.3                             | 14.00<br>356           |

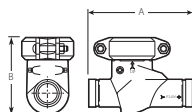


**Series 377**

Refer to Victaulic publication 08.12 for additional dimensions with gear operator and handle options.

## Series 712/712S/713 – Swinger Swing Check Valves

| Size                |                                        | Dimensions – inches/mm |                  |
|---------------------|----------------------------------------|------------------------|------------------|
| Nominal Size inches | Actual Pipe Outside Diameter inches/mm | A End-To-End           | B Overall Height |
| 2 §                 | 2.375<br>60.3                          | 9.00<br>229            | 6.69<br>170      |
| 2½                  | 2.875<br>73.0                          | 9.25<br>235            | 7.75<br>197      |
| 3                   | 3.500<br>88.9                          | 10.75<br>273           | 8.25<br>210      |
| 4                   | 4.500<br>114.3                         | 12.00<br>305           | 11.01<br>280     |



**Series 712, 712S,  
and 713**

§ The Series 712S and Series 731 are available only in the 2-inch/60.3-mm size.



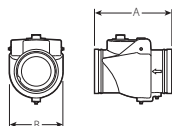
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# STANDARD VALVES FOR GROOVED-END PIPE

## Series 716H/716 – Vic-Check Valves

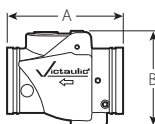
| Size                   |                                                 | Dimensions – inches/mm |                    |
|------------------------|-------------------------------------------------|------------------------|--------------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | A<br>End-To-End        | B<br>Overall Width |
| 2                      | 2.375<br>50.8                                   | 8.66<br>220            | 6.46<br>164        |
| 2½                     | 2.875<br>73.0                                   | 9.37<br>238            | 6.94<br>176        |
| 76.1 mm                | 3.000<br>76.1                                   | 9.37<br>238            | 6.94<br>176        |
| 3                      | 3.500<br>88.9                                   | 9.62<br>244            | 7.44<br>189        |
| 4                      | 4.500<br>114.3                                  | 9.63<br>245            | 6.00<br>152        |
| 139.7 mm               | 5.500<br>139.7                                  | 10.50<br>267           | 6.80<br>173        |
| 5                      | 5.563<br>141.3                                  | 10.50<br>267           | 6.80<br>173        |
| 165.1 mm               | 6.500<br>165.1                                  | 11.50<br>292           | 8.00<br>203        |
| 6                      | 6.625<br>168.3                                  | 11.50<br>292           | 8.00<br>203        |
| 8                      | 8.625<br>219.1                                  | 14.00<br>356           | 9.88<br>251        |
| 10                     | 10.750<br>273.0                                 | 17.00<br>432           | 12.00<br>305       |
| 12                     | 12.750<br>323.9                                 | 19.50<br>495           | 14.00<br>356       |



**Series 716H/716**

## Series 779 – Venturi Check Valve

| Size                   |                                                 | Dimensions – inches/mm |                     |
|------------------------|-------------------------------------------------|------------------------|---------------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | A<br>End-To-End        | B<br>Overall Height |
| 4                      | 4.500<br>114.3                                  | 9.63<br>245            | 7.38<br>187         |
| 139.7 mm               | 5.500<br>139.7                                  | 10.50<br>267           | 8.75<br>222         |
| 5                      | 5.563<br>141.3                                  | 10.50<br>267           | 8.75<br>222         |
| 165.1 mm               | 6.500<br>165.1                                  | 11.50<br>292           | 9.50<br>241         |
| 6                      | 6.625<br>168.3                                  | 11.50<br>292           | 9.50<br>241         |
| 8                      | 8.625<br>219.1                                  | 14.00<br>356           | 11.74<br>298        |
| 10                     | 10.750<br>273.0                                 | 17.00<br>432           | 13.80<br>351        |
| 12                     | 12.750<br>323.9                                 | 19.50<br>495           | 15.74<br>400        |



**Series 779**



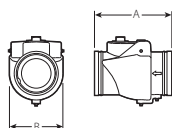
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# STANDARD VALVES FOR GROOVED-END PIPE

## Series 717H/717 – FireLock Check Valves

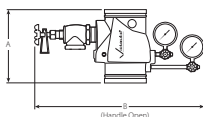
| Size                   |                                                 | Dimensions – inches/mm |                    |
|------------------------|-------------------------------------------------|------------------------|--------------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | A<br>End-To-End        | B<br>Overall Width |
| 2½                     | 2.875<br>73.0                                   | 3.88<br>99             | 4.26<br>108        |
| 76.1 mm                | 3.000<br>76.1                                   | 3.88<br>99             | 4.26<br>108        |
| 3                      | 3.500<br>88.9                                   | 4.25<br>108            | 5.06<br>129        |
| 4                      | 4.500<br>114.3                                  | 9.63<br>245            | 6.00<br>152        |
| 139.7 mm               | 5.500<br>139.7                                  | 10.50<br>267           | 6.80<br>173        |
| 5                      | 5.563<br>141.3                                  | 10.50<br>267           | 6.80<br>173        |
| 165.1 mm               | 6.500<br>165.1                                  | 11.50<br>292           | 8.00<br>203        |
| 6                      | 6.625<br>168.3                                  | 11.50<br>292           | 8.00<br>203        |
| 8                      | 8.625<br>219.1                                  | 14.00<br>356           | 9.88<br>251        |
| 10                     | 10.750<br>273.0                                 | 17.00<br>432           | 12.00<br>305       |
| 12                     | 12.750<br>323.9                                 | 19.50<br>495           | 14.00<br>356       |



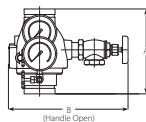
Series 717H/717

## Series 717R/717HR – FireLock Check Valves

| Size                   |                                                 | Dimensions – inches/mm |                      |
|------------------------|-------------------------------------------------|------------------------|----------------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | A<br>End-To-End        | B *<br>Overall Width |
| 2 †                    | 2.375<br>60.3                                   | 8.66<br>220            | 11.73<br>298         |
| 2½ †                   | 2.875<br>73.0                                   | 9.37<br>238            | 13.81<br>351         |
| 76.1 mm †              | 3.000<br>76.1                                   | 9.37<br>238            | 13.81<br>351         |
| 3 †                    | 3.500<br>88.9                                   | 9.62<br>244            | 14.31<br>363         |
| 4 #                    | 4.500<br>114.3                                  | 9.63<br>245            | 25.50<br>648         |
| 139.7 mm #             | 5.500<br>139.7                                  | 10.50<br>267           | 27.50<br>699         |
| 5 #                    | 5.563<br>141.3                                  | 10.50<br>267           | 27.50<br>699         |
| 165.1 mm #             | 6.500<br>165.1                                  | 11.50<br>292           | 28.50<br>724         |
| 6 #                    | 6.625<br>168.3                                  | 11.50<br>292           | 28.50<br>724         |
| 8 #                    | 8.625<br>219.1                                  | 14.00<br>356           | 29.88<br>759         |



Series 717R



Series 717HR

† The Series 717HR is available only in 2 – 3-inch/60.3 – 88.9-mm sizes.

# The Series 717R is available only in 4 – 8-inch/114.3 – 219.1-mm sizes.

\* The “B” dimension includes the Victaulic Riser Check Kit



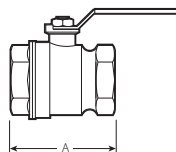
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# STANDARD VALVES FOR GROOVED-END PIPE

## Series 722 – Threaded Brass Body Ball Valve

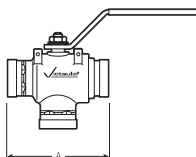
| Size                   |                                                 | Dimensions – inches/millimeters |
|------------------------|-------------------------------------------------|---------------------------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | A<br>End-to-End                 |
| ¼                      | 0.540<br>13.7                                   | 1.54<br>39                      |
| ⅜                      | 0.675<br>17.1                                   | 1.77<br>45                      |
| ½                      | 0.084<br>21.3                                   | 2.13<br>54                      |
| ¾                      | 1.050<br>26.7                                   | 2.44<br>62                      |
| 1                      | 1.315<br>33.4                                   | 2.95<br>75                      |
| 1 ¼                    | 1.660<br>42.2                                   | 3.31<br>84                      |
| 1 ½                    | 1.900<br>48.3                                   | 3.66<br>93                      |
| 2                      | 2.375<br>60.3                                   | 4.21<br>107                     |



Series 722

## Series 723 – Three-Port Diverter Valve

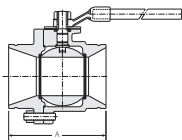
| Size                   |                                                 | Dimensions – inches/millimeters |
|------------------------|-------------------------------------------------|---------------------------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | A<br>End-to-End                 |
| 2                      | 2.375<br>60.3                                   | 6.50<br>165                     |



Series 723

## Series 726 – Vic-Ball Valve

| Size                         |                                                 | Dimensions – Inches/mm |
|------------------------------|-------------------------------------------------|------------------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | A<br>End-to-End        |
| 1 ½                          | 1.900<br>48.3                                   | 5.12<br>130            |
| 2                            | 2.375<br>60.3                                   | 5.50<br>140            |
| 2 ½                          | 2.875<br>73.0                                   | 6.25<br>159            |
| 76.1 mm                      | 3.000<br>76.1                                   | 6.25<br>159            |
| 3                            | 3.500<br>88.9                                   | 6.56<br>167            |
| 4                            | 4.500<br>114.3                                  | 8.25<br>210            |
| 6                            | 6.625<br>168.3                                  | 10.10<br>257           |



Series 726



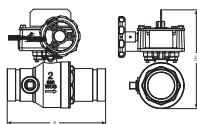
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# STANDARD VALVES FOR GROOVED-END PIPE

## Series 728 – FireLock Ball Valve

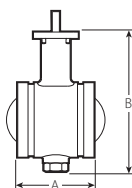
| Size                                   |  | Dimensions – inches/millimeters |                     |
|----------------------------------------|--|---------------------------------|---------------------|
| Nominal Size<br>inches/Actual mm       |  | A<br>End-to-End                 | B<br>Overall Height |
| 1 Thd. x Thd.<br>33.7 Thd. x Thd.      |  | 2.84<br>72                      | 4.74<br>120         |
| 1¼ Thd. x Thd.<br>42.4 Thd. x Thd.     |  | 3.31<br>84                      | 4.95<br>126         |
| 1½ Thd. x Thd.<br>48.3 Thd. x Thd.     |  | 3.66<br>93                      | 5.13<br>130         |
| 2 Thd. x Thd.<br>60.3 Thd. x Thd.      |  | 4.33<br>110                     | 5.49<br>139         |
| 1¼ Grv. x Grv.<br>42.4 Grv. x Grv.     |  | 7.25<br>184                     | 4.95<br>126         |
| 1½ Grv. x Grv. *<br>48.3 Grv. x Grv. * |  | 7.25<br>184                     | 5.17<br>131         |
| 2 Grv. x Grv. *<br>60.3 Grv. x Grv. *  |  | 7.25<br>184                     | 5.47<br>139         |



Series 728

## Series 763 – Stainless Steel Butterfly Valve

| Size                         |                                                 | Dimensions – inches/millimeters |                      |
|------------------------------|-------------------------------------------------|---------------------------------|----------------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | A<br>End-to-End                 | B<br>Overall Height* |
| 2                            | 2.375<br>60.3                                   | 3.20<br>81                      | 6.26<br>159          |
| 2½                           | 2.875<br>73.0                                   | 3.77<br>96                      | 6.85<br>174          |
| 76.1 mm                      | 3.000<br>76.1                                   | 3.77<br>96                      | 6.85<br>174          |
| 3                            | 3.500<br>88.9                                   | 3.77<br>96                      | 7.57<br>192          |
| 4                            | 4.500<br>114.3                                  | 4.64<br>118                     | 8.47<br>215          |
| 165.1 mm                     | 6.500<br>165.1                                  | 5.88<br>149                     | 12.01<br>305         |
| 6                            | 6.625<br>168.3                                  | 5.88<br>149                     | 12.01<br>305         |
| 8                            | 8.625<br>219.1                                  | 5.32<br>135                     | 14.30<br>363         |
| 10                           | 10.750<br>273.0                                 | 6.40<br>163                     | 17.14<br>435         |



Series 763

\* The “B” Overall Height dimension is given for a bare valve and is for reference only. Refer to Victaulic publication 17.23 for dimensions with gear operator and handle options. DO NOT attempt to operate the valve without a gear operator or handle installed.

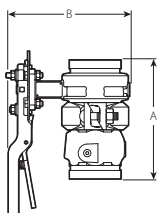


Always refer to the current Victaulic submittal publication in the G-100 General Catalog or on the website [www.victaulic.com](http://www.victaulic.com) for the most up-to-date dimensional information.

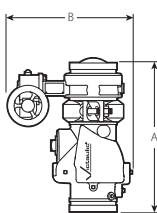


# STANDARD VALVES FOR GROOVED-END PIPE

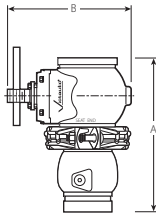
## Triple Service Valve Assemblies



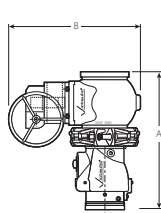
**2 ½ – 3-inch/  
73.0 – 88.9-mm  
with Vic-300  
MasterSeal  
Handle-Operated  
Butterfly Valve  
and Series 716  
Vic-Check Valve**



**4 – 12-inch/  
114.3 – 323.9-  
mm with Vic-300  
MasterSeal Gear-  
Operated Butterfly  
Valve and Series  
716 or 779  
Vic-Check Valve**



**3-inch/88.9-  
mm Series 377  
Vic-Plug Valve  
(Handle Operated),  
Series 716  
Vic-Check Valve,  
and Series 307  
Coupling**



**4 – 12-inch/  
114.3 – 323.9-  
mm Series 377  
Vic-Plug Valve  
(Gear Operated),  
Series 716  
Vic-Check Valve,  
and Series 307  
Coupling**

| Size                            |                                                 | Dimensions – inches/millimeters   |                   |                  |                              |                   |                  |
|---------------------------------|-------------------------------------------------|-----------------------------------|-------------------|------------------|------------------------------|-------------------|------------------|
| Nominal<br>Size inches<br>or mm | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | Butterfly/Check Valve Combination |                   |                  | Plug/Check Valve Combination |                   |                  |
|                                 |                                                 | A<br>End-to-End                   | B – Overall Width |                  | A<br>End-to-End              | B – Overall Width |                  |
|                                 |                                                 |                                   | Handle            | Gear<br>Operator |                              | Handle            | Gear<br>Operator |
| 2 ½                             | 2.875<br>73.0                                   | 7.75<br>197                       | 8.01<br>203       | 9.41<br>239      | —                            | —                 | —                |
| 76.1 mm                         | 76.1<br>3.000                                   | 7.75<br>197                       | 8.01<br>203       | 9.41<br>239      | —                            | —                 | —                |
| 3                               | 3.500<br>88.9                                   | 8.12<br>206                       | 8.63<br>219       | 10.03<br>255     | 12.25<br>311                 | 12.00<br>305      | 16.13<br>410     |
| 4                               | 4.500<br>114.3                                  | 14.38<br>365                      | 10.88<br>276      | 12.28<br>312     | 18.62<br>473                 | 13.19<br>335      | 17.31<br>440     |
| 5                               | 5.536<br>141.3                                  | 16.50<br>419                      | 12.50<br>318      | 14.43<br>367     | —                            | —                 | —                |
| 139.7 mm                        | 139.7<br>5.500                                  | 16.50<br>419                      | 12.50<br>318      | 14.43<br>367     | —                            | —                 | —                |
| 6                               | 6.625<br>168.3                                  | 17.50<br>444                      | 13.38<br>340      | 15.31<br>389     | 22.00<br>559                 | 15.56<br>395      | 19.31<br>490     |
| 165.1 mm                        | 165.1<br>6.500                                  | 17.50<br>444                      | 13.38<br>340      | 15.31<br>389     | —                            | —                 | —                |
| 8                               | 8.625<br>219.1                                  | 19.50<br>495                      | 15.63<br>397      | 17.68<br>449     | 25.50<br>648                 | —                 | 23.97<br>609     |
| 10                              | 10.750<br>273.0                                 | 23.50<br>597                      | —                 | 22.31<br>567     | 30.00<br>762                 | —                 | 30.63<br>778     |
| 12                              | 12.750<br>323.9                                 | 26.12<br>663                      | —                 | 24.25<br>616     | 33.50<br>851                 | —                 | 34.00<br>864     |



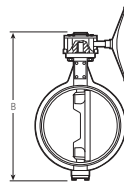
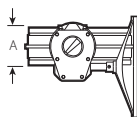
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# AGS® VALVES FOR GROOVED-END PIPE

## Series W761 – AGS Vic-300 Butterfly Valve

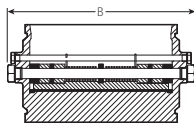
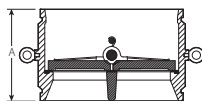
| Size                   |                                                 | Dimensions – inches/mm |                     |
|------------------------|-------------------------------------------------|------------------------|---------------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | A<br>End-to-End        | B<br>Overall Height |
| 14                     | 14.000<br>355.6                                 | 10.00<br>254           | 24.45<br>621        |
| 16                     | 16.000<br>406.4                                 | 10.50<br>267           | 27.14<br>689        |
| 18                     | 18.000<br>457.0                                 | 11.00<br>279           | 29.56<br>751        |
| 20                     | 20.000<br>508.0                                 | 11.50<br>292           | 32.64<br>829        |
| 24                     | 24.000<br>610.0                                 | 12.00<br>305           | 38.89<br>988        |



**Series W761 AGS  
Vic-300**

## Series W715 – AGS Double Disc Vic-Check Valve

| Size                   |                                                 | Dimensions – inches/mm |                    |
|------------------------|-------------------------------------------------|------------------------|--------------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | A<br>End-to-End        | B<br>Overall Width |
| 14                     | 14.000<br>355.6                                 | 10.75<br>273           | 16.93<br>430       |
| 16                     | 16.000<br>406.4                                 | 12.00<br>305           | 19.88<br>505       |
| 18                     | 18.000<br>457.0                                 | 14.25<br>362           | 21.54<br>547       |
| 20                     | 20.000<br>508.0                                 | 14.50<br>368           | 24.75<br>628       |
| 24                     | 24.000<br>610.0                                 | 15.50<br>394           | 28.81<br>732       |



**Series W715**

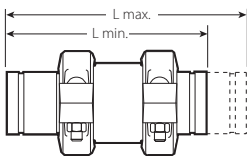


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# EXPANSION JOINTS FOR GROOVED-END PIPE

## Style 150 – Mover Expansion Joint

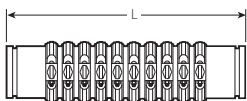
| Size                         |                                                 | Dimensions – inches/mm          |                                 |
|------------------------------|-------------------------------------------------|---------------------------------|---------------------------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | L - Length<br>(Ref.)<br>Minimum | L - Length<br>(Ref.)<br>Maximum |
| 2                            | 2.375<br>60.3                                   | 11.88<br>302                    | 14.88<br>378                    |
| 76.1 mm                      | 3.000<br>76.1                                   | 12.13<br>308                    | 15.13<br>384                    |
| 3                            | 3.500<br>88.9                                   | 12.13<br>308                    | 15.13<br>384                    |
| 4                            | 4.500<br>114.3                                  | 14.13<br>359                    | 17.13<br>435                    |
| 139.7 mm                     | 5.50<br>139.7                                   | 14.13<br>359                    | 17.13<br>435                    |
| 5                            | 5.563<br>141.3                                  | 14.13<br>359                    | 17.13<br>435                    |
| 165.1 mm                     | 6.50<br>165.1                                   | 16.00<br>406                    | 19.00<br>483                    |
| 6                            | 6.625<br>168.3                                  | 16.00<br>406                    | 19.00<br>483                    |



Style 150

## Style 155 – Expansion Joint

| Size                      |                                                 | Coupling<br>Style | Dimensions – inches/mm             |                                  |
|---------------------------|-------------------------------------------------|-------------------|------------------------------------|----------------------------------|
| Nominal<br>Size<br>inches | Actual Pipe<br>Outside<br>Diameter<br>inches/mm |                   | L - Length<br>(Ref.)<br>Compressed | L - Length<br>(Ref.)<br>Expanded |
| ¾                         | 1.050<br>26.7                                   | 77                | 26.25<br>667                       | 28.13<br>715                     |
| 1                         | 1.315<br>33.7                                   | 77                | 26.25<br>667                       | 28.13<br>715                     |
| 1 ¼                       | 1.660<br>42.4                                   | 77                | 28.25<br>718                       | 30.13<br>765                     |
| 1 ½                       | 1.900<br>48.3                                   | 77                | 28.25<br>718                       | 30.13<br>765                     |
| 2                         | 2.375<br>60.3                                   | 75                | 28.25<br>718                       | 30.13<br>765                     |
| 2 ½                       | 2.875<br>73.0                                   | 75                | 28.25<br>718                       | 30.13<br>765                     |
| 3                         | 3.500<br>88.9                                   | 75                | 28.25<br>718                       | 30.13<br>765                     |
| 3 ½                       | 4.000<br>101.6                                  | 75                | 28.25<br>718                       | 30.13<br>765                     |
| 4                         | 4.500<br>114.3                                  | 75                | 26.25<br>667                       | 28.00<br>711                     |
| 5                         | 5.563<br>141.3                                  | 75                | 26.25<br>667                       | 28.00<br>711                     |
| 6                         | 6.625<br>168.3                                  | 75                | 26.25<br>667                       | 28.00<br>711                     |
| 8                         | 8.625<br>219.1                                  | 75                | 28.50<br>724                       | 30.25<br>768                     |
| 10                        | 10.750<br>273.0                                 | 77                | 32.50<br>826                       | 34.25<br>870                     |
| 12                        | 12.750<br>323.9                                 | 77                | 32.50<br>826                       | 34.25<br>870                     |



Style 155



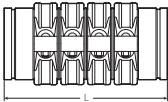
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# AGS® EXPANSION JOINT FOR GROOVED-END PIPE

## Style W155 – AGS Expansion Joint

| Size                   |                                                 | Dimensions – inches/mm             |                                  |
|------------------------|-------------------------------------------------|------------------------------------|----------------------------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | L - Length<br>(Ref.)<br>Compressed | L - Length<br>(Ref.)<br>Expanded |
| 14                     | 14.000<br>355.6                                 | 30.00<br>762                       | 31.75<br>806                     |
| 16                     | 16.000<br>406.4                                 | 30.00<br>762                       | 31.75<br>806                     |
| 18                     | 18.000<br>457.0                                 | 30.00<br>762                       | 31.75<br>806                     |
| 20                     | 20.000<br>508.0                                 | 30.00<br>762                       | 31.75<br>806                     |
| 24                     | 24.000<br>610.0                                 | 30.00<br>762                       | 31.75<br>806                     |



Style W155

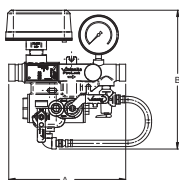
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# STANDARD ACCESSORIES FOR GROOVED-END PIPE

## Series 247 – FireLock Residential Zone Control Riser Module Assembly

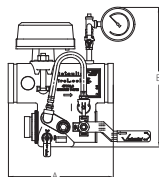
| Size                |                                        | Dimensions – inches/mm |              |                  |
|---------------------|----------------------------------------|------------------------|--------------|------------------|
| Nominal Size inches | Actual Pipe Outside Diameter inches/mm | Drain Size             | A End-to-End | B Overall Height |
| 1                   | 1.315<br>33.4                          | 1<br>33                | 11.45<br>291 | 13.48<br>342     |
| 1 ¼                 | 1.660<br>42.2                          | 1<br>33                | 11.45<br>291 | 13.48<br>342     |
| 1 ½                 | 1.900<br>48.3                          | 1<br>33                | 11.45<br>291 | 13.61<br>346     |
| 2                   | 2.375<br>60.3                          | 1<br>33                | 11.45<br>291 | 13.91<br>353     |



Series 247

## Series 747M – FireLock Zone Control Riser Module Assembly

| Size                |                                        | Dimensions – inches/mm |              |                  |
|---------------------|----------------------------------------|------------------------|--------------|------------------|
| Nominal Size inches | Actual Pipe Outside Diameter inches/mm | Drain Size             | A End-to-End | B Overall Height |
| 1 ¼                 | 1.660<br>42.2                          | 1<br>33                | 11.45<br>291 | 12.97<br>329     |
| 1 ½                 | 1.900<br>48.3                          | 1<br>33                | 11.45<br>291 | 13.09<br>332     |
| 2                   | 2.375<br>60.3                          | 1<br>33                | 11.45<br>291 | 13.32<br>338     |
| 2 ½                 | 2.875<br>73.0                          | 1 ¼<br>42              | 12.00<br>305 | 14.59<br>371     |
| 3                   | 3.500<br>88.9                          | 1 ¼<br>42              | 12.00<br>305 | 15.60<br>396     |
| 4                   | 4.500<br>114.3                         | 2<br>60                | 12.00<br>305 | 17.15<br>436     |
| 6                   | 6.625<br>168.3                         | 2<br>60                | 12.00<br>305 | 19.16<br>487     |



Series 747M

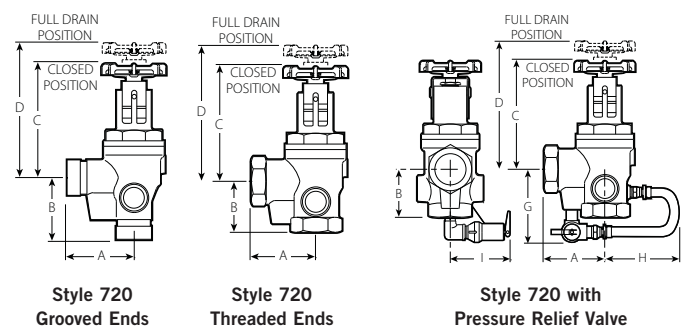


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# STANDARD ACCESSORIES FOR GROOVED-END PIPE

## Style 720 – TestMaster™ II Alarm Test Module



| Size                                 |                                        | Dimensions – inches/mm |            |             |             |             |             |             |
|--------------------------------------|----------------------------------------|------------------------|------------|-------------|-------------|-------------|-------------|-------------|
| Nominal Size inches                  | Actual Pipe Outside Diameter inches/mm | A                      | B          | C           | D           | G           | H           | I           |
| STYLE 720 GROOVED ENDS               |                                        |                        |            |             |             |             |             |             |
| 1 ¼                                  | 1.660<br>42.4                          | 3.15<br>80             | 2.90<br>74 | 5.47<br>139 | 6.43<br>163 | —           | —           | —           |
| 1 ½                                  | 1.900<br>48.3                          | 3.65<br>93             | 3.06<br>78 | 5.47<br>139 | 6.51<br>165 | —           | —           | —           |
| 2                                    | 2.375<br>60.3                          | 3.65<br>93             | 3.06<br>78 | 5.47<br>139 | 6.51<br>165 | —           | —           | —           |
| STYLE 720 THREADED ENDS              |                                        |                        |            |             |             |             |             |             |
| 1                                    | 1.315<br>33.4                          | 3.00<br>76             | 2.38<br>61 | 5.47<br>139 | 6.43<br>163 | —           | —           | —           |
| 1 ¼*                                 | 1.660<br>42.2                          | 3.00<br>76             | 2.38<br>61 | 5.47<br>139 | 6.43<br>163 | —           | —           | —           |
| 1 ½*                                 | 1.900<br>48.3                          | 3.63<br>92             | 2.38<br>61 | 5.47<br>139 | 6.51<br>165 | —           | —           | —           |
| 2                                    | 2.375<br>60.3                          | 3.63<br>92             | 2.38<br>61 | 5.47<br>139 | 6.51<br>165 | —           | —           | —           |
| STYLE 720 WITH PRESSURE RELIEF VALVE |                                        |                        |            |             |             |             |             |             |
| 1                                    | 1.315<br>33.4                          | 3.00<br>76             | 2.38<br>61 | 5.47<br>139 | 6.43<br>163 | 3.90<br>99  | 4.95<br>126 | 4.00<br>102 |
| 1 ¼                                  | 1.660<br>42.2                          | 3.00<br>76             | 2.38<br>61 | 5.47<br>139 | 6.43<br>163 | 3.90<br>99  | 4.95<br>126 | 4.00<br>102 |
| 1 ½                                  | 1.900<br>48.3                          | 3.63<br>92             | 2.38<br>61 | 5.47<br>139 | 6.51<br>165 | 4.09<br>104 | 4.95<br>126 | 4.00<br>102 |
| 2                                    | 2.375<br>60.3                          | 3.63<br>92             | 2.38<br>61 | 5.47<br>139 | 6.51<br>165 | 4.09<br>104 | 4.95<br>126 | 4.00<br>102 |

\* Not available in Canada

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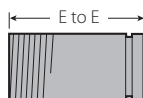


# STANDARD ACCESSORIES FOR GROOVED-END PIPE

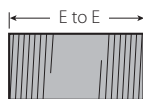
**Style 47-GT – Grooved x Threaded Dielectric Waterway**

**Style 47-TT – Threaded x Threaded Dielectric Waterway**

| Size                      |                                              | Dimensions – inches/mm |
|---------------------------|----------------------------------------------|------------------------|
| Nominal Size<br>inches    | Actual Pipe<br>Outside Diameter<br>inches/mm | E to E                 |
| 47-GT Grooved X Threaded  |                                              |                        |
| 1                         | 1.315<br>33.7                                | 4.00<br>102            |
| 1 ¼                       | 1.660<br>42.4                                | 4.00<br>102            |
| 1 ½                       | 1.900<br>48.3                                | 4.00<br>102            |
| 2                         | 2.375<br>60.3                                | 4.00<br>102            |
| 2 ½                       | 2.875<br>73.0                                | 6.00<br>152            |
| 3                         | 3.500<br>88.9                                | 6.00<br>152            |
| 3 ½                       | 4.000<br>101.6                               | 6.00<br>152            |
| 4                         | 4.500<br>114.3                               | 6.00<br>152            |
| 47-TT Threaded X Threaded |                                              |                        |
| ½                         | 0.840<br>21.3                                | 3.00<br>76             |
| ¾                         | 1.050<br>26.7                                | 3.00<br>76             |
| 1                         | 1.315<br>33.7                                | 4.00<br>102            |
| 1 ¼                       | 1.660<br>42.4                                | 4.00<br>102            |
| 1 ½                       | 1.900<br>48.3                                | 4.00<br>102            |
| 2                         | 2.375<br>60.3                                | 4.00<br>102            |
| 2 ½                       | 2.875<br>73.0                                | 6.00<br>152            |
| 3                         | 3.500<br>88.9                                | 6.00<br>152            |
| 3 ½                       | 4.000<br>101.6                               | 6.00<br>152            |
| 4                         | 4.500<br>114.3                               | 6.00<br>152            |



**Style 47-GT**



**Style 47-TT**



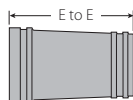
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# STANDARD ACCESSORIES FOR GROOVED-END PIPE

## Style 47-GG – Grooved-End Steel to Grooved-End Copper Dielectric Waterway

| Size                   |                                           |                | Dimensions<br>inches/mm |
|------------------------|-------------------------------------------|----------------|-------------------------|
| Nominal Size<br>inches | Actual Pipe Outside Diameter<br>inches/mm |                | E to E                  |
|                        | Steel (NPS)                               | Copper (CTS)   |                         |
| 2                      | 2.375<br>60.3                             | 2.125<br>54.0  | 4.19<br>106             |
| 2½                     | 2.875<br>73.0                             | 2.625<br>66.7  | 6.19<br>157             |
| 3                      | 3.500<br>88.9                             | 3.125<br>79.4  | 6.19<br>157             |
| 4                      | 4.500<br>114.3                            | 4.125<br>104.8 | 6.19<br>157             |
| 5                      | 5.563<br>141.3                            | 5.125<br>130.2 | 6.19<br>157             |
| 6                      | 6.625<br>168.3                            | 6.125<br>155.6 | 6.19<br>157             |
| 8                      | 8.625<br>219.1                            | 8.125<br>206.4 | 6.19<br>157             |



**Style 47-GG**

## Series 735 – Fire Pump Test Meter

| Size                   |                                              | Dimensions – inches/mm |
|------------------------|----------------------------------------------|------------------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside Diameter<br>inches/mm | End-to-End             |
| 2½                     | 2.875<br>73.0                                | 4.00<br>102            |
| 3                      | 3.500<br>88.9                                | 4.25<br>108            |
| 4                      | 4.500<br>114.3                               | 3.75<br>95             |
| 5                      | 5.563<br>141.3                               | 5.00<br>127            |
| 6                      | 6.625<br>168.3                               | 6.00<br>152            |
| 8                      | 8.625<br>219.1                               | 7.00<br>178            |
| 10                     | 10.750<br>273.0                              | 8.00<br>203            |
| 12                     | 12.750<br>323.9                              | 12.00<br>305           |



**Series 735**



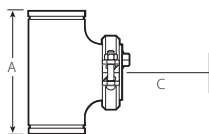
Always refer to the current Victaulic submittal publication in the G-100 General Catalog or on the website [www.victaulic.com](http://www.victaulic.com) for the most up-to-date dimensional information.



# STANDARD ACCESSORIES FOR GROOVED-END PIPE

## Series 730 – Vic-Strainer

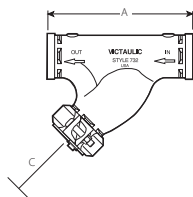
| Size                   |                                                 | Dimensions – inches/mm |                          |
|------------------------|-------------------------------------------------|------------------------|--------------------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | A<br>End-to-End        | C<br>Basket<br>Clearance |
| 1 ½                    | 1.900<br>48.3                                   | 5.50<br>140            | 4.00<br>102              |
| 2                      | 2.375<br>60.3                                   | 6.50<br>165            | 5.00<br>127              |
| 2 ½                    | 2.875<br>73.0                                   | 7.50<br>191            | 5.00<br>127              |
| 3                      | 3.500<br>88.9                                   | 8.50<br>216            | 6.00<br>152              |
| 4                      | 4.500<br>114.3                                  | 10.00<br>254           | 7.00<br>178              |
| 5                      | 5.563<br>141.3                                  | 11.00<br>279           | 8.00<br>203              |
| 6                      | 6.625<br>168.3                                  | 13.00<br>330           | 10.00<br>254             |
| 8                      | 8.625<br>219.1                                  | 15.50<br>394           | 12.00<br>305             |
| 10                     | 10.750<br>273.0                                 | 18.00<br>457           | 14.00<br>356             |
| 12                     | 12.750<br>323.9                                 | 20.00<br>508           | 16.00<br>406             |



**Series 730**

## Series 732 – Wye Type Vic-Strainer

| Size                         |                                                 | Dimensions – inches/mm |                          |
|------------------------------|-------------------------------------------------|------------------------|--------------------------|
| Nominal Size<br>inches or mm | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | A<br>End-to-End        | C<br>Basket<br>Clearance |
| 2                            | 2.375<br>60.3                                   | 9.75<br>248            | 8.00<br>203              |
| 2 ½                          | 2.875<br>73.0                                   | 10.75<br>273           | 9.00<br>229              |
| 76.1 mm                      | 3.000<br>76.1                                   | 10.75<br>273           | 10.00<br>254             |
| 3                            | 3.500<br>88.9                                   | 11.75<br>299           | 10.00<br>254             |
| 4                            | 4.500<br>114.3                                  | 14.25<br>362           | 12.00<br>305             |
| 5                            | 5.563<br>141.3                                  | 16.50<br>419           | 14.00<br>356             |
| 165.1 mm                     | 6.500<br>165.1                                  | 18.50<br>470           | 16.00<br>406             |
| 6                            | 6.625<br>168.3                                  | 18.50<br>470           | 16.00<br>406             |
| 8                            | 8.625<br>219.1                                  | 24.00<br>610           | 20.00<br>508             |
| 10                           | 10.750<br>273.0                                 | 27.00<br>686           | 24.00<br>610             |
| 12                           | 12.750<br>323.9                                 | 30.00<br>762           | 28.00<br>711             |



**Series 732**

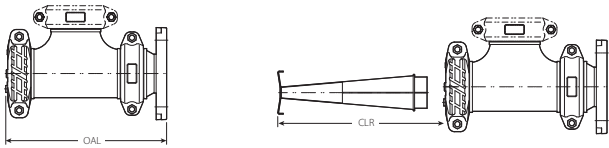


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# STANDARD ACCESSORIES FOR GROOVED-END PIPE

## Series 731-I – Suction Diffuser (Europe Only)



Series 731-I

| Nominal Size<br>inches/Actual mm |   |             | Dimensions – inches/mm |                        |
|----------------------------------|---|-------------|------------------------|------------------------|
| Inlet                            | x | Outlet      | OAL - Overall Length   | CLR - Basket Clearance |
| 76.1 mm                          | x | 2<br>60.3   | 12.25<br>311           | 14.00<br>356           |
| 3<br>88.9                        | x | 2<br>60.3   | 12.25<br>311           | 14.00<br>356           |
|                                  |   | 2½<br>73.0* | 12.25<br>311           | 14.00<br>356           |
|                                  |   | 76.1 mm*    | 12.25<br>311           | 14.00<br>356           |
|                                  |   | 3<br>88.9   | 14.50<br>368           | 16.00<br>406           |
| 4<br>114.3                       | x | 2<br>60.3   | 12.25<br>311           | 14.00<br>356           |
|                                  |   | 2½<br>73.0* | 12.25<br>311           | 14.00<br>356           |
|                                  |   | 76.1 mm*    | 12.25<br>311           | 14.00<br>356           |
|                                  |   | 3<br>88.9   | 14.50<br>368           | 16.00<br>406           |
|                                  |   | 4<br>114.3  | 16.00<br>406           | 18.00<br>457           |
| 139.7 mm                         | x | 76.1 mm*    | 12.25<br>311           | 14.00<br>356           |
|                                  |   | 3<br>88.9   | 14.50<br>368           | 16.00<br>406           |
|                                  |   | 4<br>114.3  | 16.00<br>406           | 18.00<br>457           |
|                                  |   | 139.7 mm*   | 18.50<br>470           | 20.00<br>508           |
| 5<br>141.3                       | x | 3<br>88.9   | 14.50<br>368           | 16.00<br>406           |
|                                  |   | 4<br>114.3  | 16.00<br>406           | 18.00<br>457           |
|                                  |   | 5<br>141.3* | 18.50<br>470           | 20.00<br>508           |

\* Does not conform to Australian Standard sizes.

**NOTE:** All sizes are available with either an ANSI Class 150 or 300 flange, except for the following configurations: 88.9 x 76.1; 114.3 x 76.1; 139.7 x 76.1; 139.7 x 139.7; 165.1 x 139.7; 168.3 x 139.7; 219.1 x 139.7; 219.1 x 165.1; and 273.0 x 165.1.

**NOTE:** All sizes conform to PN 10 and PN 16 sizes, except for the following configurations: 88.9 x 73.0; 114.3 x 73.0; 141.3 x 73.0; 141.3 x 88.9; 141.3 x 141.3; 168.3 x 141.3; and 219.1 x 141.3.

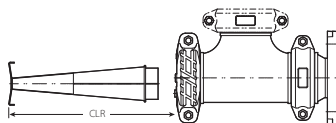
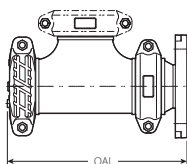
**NOTE:** All sizes conform to JIS 10K sizes, except for the following configurations: 139.7 x 139.7; 165.1 x 139.7; 168.3 x 139.7; 219.1 x 139.7; 273.0 x 273.0; 323.9 x 273.0; and 323.9 x 323.9.

**Table continued on the following page.**

⚠ Always refer to the current Victaulic submittal publication in the G-100 General Catalog or on the website [www.victaulic.com](http://www.victaulic.com) for the most up-to-date dimensional information.



# STANDARD ACCESSORIES FOR GROOVED-END PIPE



Series 731-I

| Nominal Size<br>inches/Actual mm |   |              | Dimensions – inches/mm |                        |
|----------------------------------|---|--------------|------------------------|------------------------|
| Inlet                            | x | Outlet       | OAL - Overall Length   | CLR - Basket Clearance |
| 165.1 mm                         | x | 3<br>88.9    | 14.50<br>368           | 16.00<br>406           |
|                                  |   | 4<br>114.3   | 16.00<br>406           | 18.00<br>457           |
|                                  |   | 139.7 mm*    | 18.50<br>470           | 20.00<br>508           |
| 6<br>168.3                       | x | 3<br>88.9    | 14.50<br>368           | 16.00<br>406           |
|                                  |   | 4<br>114.3   | 16.00<br>406           | 18.00<br>457           |
|                                  |   | 139.7 mm*    | 18.50<br>470           | 20.00<br>508           |
|                                  |   | 5<br>141.3*  | 18.50<br>470           | 20.00<br>508           |
|                                  |   | 6<br>168.3   | 22.25<br>565           | 24.00<br>610           |
| 8<br>219.1                       | x | 139.7 mm*    | 18.50<br>470           | 20.00<br>508           |
|                                  |   | 5<br>141.3*  | 18.50<br>470           | 20.00<br>508           |
|                                  |   | 165.1 mm     | 22.25<br>565           | 24.00<br>610           |
|                                  |   | 6<br>168.3   | 22.25<br>565           | 24.00<br>610           |
|                                  |   | 8<br>219.1   | 26.00<br>660           | 27.00<br>686           |
| 10<br>273.0                      | x | 165.1 mm     | 22.25<br>565           | 24.00<br>610           |
|                                  |   | 6<br>168.3   | 22.25<br>565           | 24.00<br>610           |
|                                  |   | 8<br>219.1   | 26.00<br>660           | 27.00<br>686           |
|                                  |   | 10<br>273.0* | 29.00<br>737           | 30.00<br>762           |
| 12<br>323.9                      | x | 8<br>219.1   | 26.00<br>660           | 27.00<br>686           |
|                                  |   | 10<br>273.0* | 29.00<br>737           | 30.00<br>762           |
|                                  |   | 12<br>323.9* | 37.25<br>946           | 37.00<br>940           |

Refer to notes on the previous page.

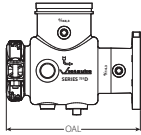
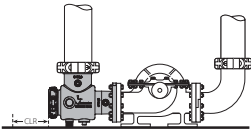


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# STANDARD ACCESSORIES FOR GROOVED-END PIPE

## Series 731-D – Suction Diffuser with ANSI Class 150 Flange



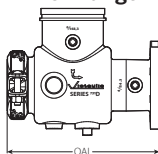
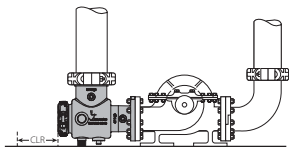
| Size                             |   |                  | Dimensions – inches/mm |                         |
|----------------------------------|---|------------------|------------------------|-------------------------|
| System Side Grooved              | × | Pump Side Flange | OAL<br>Overall Length  | CLR<br>Basket Clearance |
| Nominal Size<br>inches/Actual mm |   |                  |                        |                         |
| 3<br>88.9                        | × | 2<br>60.3        | 11.00<br>279           | 8.00<br>203             |
|                                  |   | 2 ½<br>73.0      | 11.00<br>279           | 8.00<br>203             |
|                                  |   | 3<br>88.9        | 11.00<br>279           | 8.00<br>203             |
| 4<br>114.3                       | × | 2 ½<br>73.0      | 13.00<br>330           | 9.50<br>241             |
|                                  |   | 3<br>88.9        | 13.00<br>330           | 9.50<br>241             |
|                                  |   | 4<br>114.3       | 13.00<br>330           | 9.50<br>241             |
| 5<br>141.3                       | × | 3<br>88.9        | 15.00<br>381           | 10.00<br>254            |
|                                  |   | 4<br>114.3       | 15.00<br>381           | 10.00<br>254            |
|                                  |   | 5<br>141.3       | 15.00<br>381           | 10.00<br>254            |
| 6<br>168.3                       | × | 4<br>114.3       | 16.00<br>406           | 11.50<br>292            |
|                                  |   | 5<br>141.3       | 15.80<br>406           | 11.50<br>292            |
|                                  |   | 6<br>168.3       | 15.80<br>406           | 11.50<br>292            |
| 8<br>219.1                       | × | 5<br>141.3       | 19.00<br>483           | 14.00<br>356            |
|                                  |   | 6<br>168.3       | 19.00<br>483           | 14.00<br>356            |
|                                  |   | 8<br>219.1       | 19.00<br>483           | 14.00<br>356            |
| 10<br>273.0                      | × | 6<br>168.3       | 23.00<br>584           | 18.00<br>457            |
|                                  |   | 8<br>219.1       | 22.50<br>584           | 18.00<br>457            |
|                                  |   | 10<br>273.0      | 22.50<br>584           | 18.00<br>457            |
| 12<br>323.9                      | × | 8<br>219.1       | 27.00<br>686           | 20.00<br>508            |
|                                  |   | 10<br>273.0      | 26.84<br>686           | 20.00<br>508            |
|                                  |   | 12<br>323.9      | 26.84<br>686           | 20.00<br>508            |

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# STANDARD ACCESSORIES FOR GROOVED-END PIPE

## Series 731-D – Suction Diffuser with PN10/PN16 Flange



| Size                |   |                  | Dimensions – mm/inches |                         |
|---------------------|---|------------------|------------------------|-------------------------|
| System Side Grooved | × | Pump Side Flange | OAL<br>Overall Length  | CLR<br>Basket Clearance |
| millimeters/inches  |   |                  |                        |                         |
| 76.1 mm             | × | 50<br>2          | 279<br>11.00           | 203<br>8.00             |
| 80<br>3             | × | 50<br>2          | 279<br>11.00           | 203<br>8.00             |
|                     |   | 76.1 mm          | 279<br>11.00           | 203<br>8.00             |
|                     |   | 80<br>3          | 279<br>11.00           | 203<br>8.00             |
| 100<br>4            | × | 76.1 mm          | 330<br>13.00           | 241<br>9.50             |
|                     |   | 80<br>3          | 330<br>13.00           | 241<br>9.50             |
|                     |   | 100<br>4         | 330<br>13.00           | 241<br>9.50             |
| 139.7 mm            | × | 76.1 mm          | 381<br>15.00           | 254<br>10.00            |
|                     |   | 80<br>3          | 381<br>15.00           | 254<br>10.00            |
|                     |   | 100<br>4         | 381<br>15.00           | 254<br>10.00            |
|                     |   | 139.7 mm         | 381<br>15.00           | 254<br>10.00            |
| 125<br>5            | × | 80<br>3          | 381<br>15.00           | 254<br>10.00            |
|                     |   | 100<br>4         | 381<br>15.00           | 254<br>10.00            |
|                     |   | 125<br>5         | 381<br>15.00           | 254<br>10.00            |
| 150<br>6            | × | 100<br>4         | 406<br>16.00           | 292<br>11.50            |
|                     |   | 139.7 mm         | 406<br>16.00           | 292<br>11.50            |
|                     |   | 125<br>5         | 406<br>16.00           | 292<br>11.50            |
|                     |   | 150<br>6         | 406<br>16.00           | 292<br>11.50            |
| 200<br>8            | × | 139.7 mm         | 483<br>19.00           | 356<br>14.00            |
|                     |   | 125<br>5         | 483<br>19.00           | 356<br>14.00            |
|                     |   | 150<br>6         | 483<br>19.00           | 356<br>14.00            |
|                     |   | 200<br>8         | 483<br>19.00           | 356<br>14.00            |

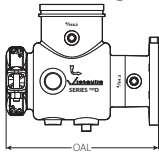
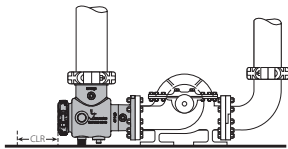


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# STANDARD ACCESSORIES FOR GROOVED-END PIPE

## Series 731-D – Suction Diffuser with PN10/PN16 Flange



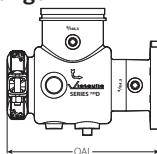
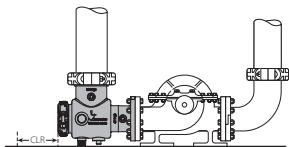
| Size                |   |                  | Dimensions – mm/inches |                         |
|---------------------|---|------------------|------------------------|-------------------------|
| System Side Grooved | × | Pump Side Flange | OAL<br>Overall Length  | CLR<br>Basket Clearance |
| millimeters/inches  |   |                  |                        |                         |
| 250<br>10           | × | 150<br>6         | 584<br>23.00           | 457<br>18.00            |
|                     |   | 200<br>8         | 584<br>23.00           | 457<br>18.00            |
|                     |   | 250<br>10        | 584<br>23.00           | 457<br>18.00            |
| 300<br>12           | × | 200<br>8         | 686<br>27.00           | 508<br>20.00            |
|                     |   | 250<br>10        | 686<br>27.00           | 508<br>20.00            |
|                     |   | 300<br>12        | 686<br>27.00           | 508<br>20.00            |

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# STANDARD ACCESSORIES FOR GROOVED-END PIPE

## Series 731-D – Suction Diffuser with GB Flange



| Size                |   |                  | Dimensions – mm/inches |                      |
|---------------------|---|------------------|------------------------|----------------------|
| System Side Grooved | × | Pump Side Flange | OAL Overall Length     | CLR Basket Clearance |
| millimeters/inches  |   |                  |                        |                      |
| 76.1 mm             | × | 50               | 279                    | 203                  |
|                     |   | 2                | 11.00                  | 8.00                 |
| 80<br>3             | × | 50               | 279                    | 203                  |
|                     |   | 2                | 11.00                  | 8.00                 |
|                     |   | 76.1 mm          | 279                    | 203                  |
|                     |   |                  | 11.00                  | 8.00                 |
| 80<br>3             | × | 80               | 279                    | 203                  |
|                     |   | 3                | 11.00                  | 8.00                 |
|                     |   | 76.1 mm          | 330                    | 241                  |
|                     |   |                  | 13.00                  | 9.50                 |
| 100<br>4            | × | 80               | 330                    | 241                  |
|                     |   | 3                | 13.00                  | 9.50                 |
|                     |   | 100              | 330                    | 241                  |
|                     |   | 4                | 13.00                  | 9.50                 |
| 139.7 mm            | × | 76.1 mm          | 381                    | 267                  |
|                     |   |                  | 15.00                  | 10.50                |
|                     |   | 80               | 381                    | 267                  |
|                     |   | 3                | 15.00                  | 10.50                |
| 100<br>4            | × | 100              | 381                    | 267                  |
|                     |   | 4                | 15.00                  | 10.50                |
|                     |   | 139.7 mm         | 381                    | 267                  |
|                     |   |                  | 15.00                  | 10.50                |
| 150<br>6            | × | 100              | 406                    | 292                  |
|                     |   | 4                | 16.00                  | 11.50                |
|                     |   | 139.7 mm         | 406                    | 292                  |
|                     |   |                  | 16.00                  | 11.50                |
| 125<br>5            | × | 125              | 406                    | 292                  |
|                     |   | 5                | 16.00                  | 11.50                |
|                     |   | 150              | 406                    | 292                  |
|                     |   | 6                | 16.00                  | 11.50                |
| 200<br>8            | × | 139.7 mm         | 483                    | 356                  |
|                     |   |                  | 19.00                  | 14.00                |
|                     |   | 125              | 483                    | 356                  |
|                     |   | 5                | 19.00                  | 14.00                |
| 150<br>6            | × | 150              | 483                    | 356                  |
|                     |   | 6                | 19.00                  | 14.00                |
|                     |   | 200              | 483                    | 356                  |
|                     |   | 8                | 19.00                  | 14.00                |
| 250<br>10           | × | 150              | 584                    | 457                  |
|                     |   | 6                | 23.00                  | 18.00                |
|                     |   | 200              | 584                    | 457                  |
|                     |   | 8                | 23.00                  | 18.00                |
| 250<br>10           | × | 250              | 584                    | 457                  |
|                     |   | 10               | 23.00                  | 18.00                |

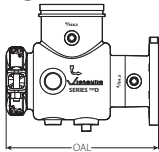
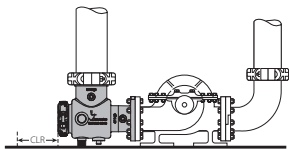


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# STANDARD ACCESSORIES FOR GROOVED-END PIPE

## Series 731-D – Suction Diffuser with GB Flange



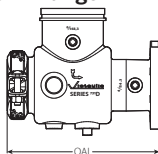
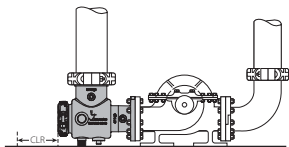
| Size                |   |                  | Dimensions – mm/inches |                         |
|---------------------|---|------------------|------------------------|-------------------------|
| System Side Grooved | × | Pump Side Flange | OAL<br>Overall Length  | CLR<br>Basket Clearance |
| millimeters/inches  |   |                  |                        |                         |
| 300<br>12           | × | 200              | 686                    | 508                     |
|                     |   | 8                | 27.00                  | 20.00                   |
|                     |   | 250              | 686                    | 508                     |
|                     |   | 10               | 27.00                  | 20.00                   |
|                     |   | 300              | 686                    | 508                     |
|                     |   | 12               | 27.00                  | 20.00                   |

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# STANDARD ACCESSORIES FOR GROOVED-END PIPE

## Series 731-D – Suction Diffuser with JIS 10K Flange



| Size                |   |                  | Dimensions – mm/inches |                         |
|---------------------|---|------------------|------------------------|-------------------------|
| System Side Grooved | × | Pump Side Flange | OAL<br>Overall Length  | CLR<br>Basket Clearance |
| millimeters/inches  |   |                  |                        |                         |
| 76.1 mm             | × | 50A<br>2         | 279<br>11.00           | 203<br>8.00             |
| 80A<br>3            | × | 50A<br>2         | 279<br>11.00           | 203<br>8.00             |
|                     |   | 76.1 mm          | 279<br>11.00           | 203<br>8.00             |
|                     |   | 80A<br>3         | 279<br>11.00           | 203<br>8.00             |
| 100A<br>4           | × | 76.1 mm          | 330<br>13.00           | 241<br>9.50             |
|                     |   | 80A<br>3         | 330<br>13.00           | 241<br>9.50             |
|                     |   | 100A<br>4        | 330<br>13.00           | 241<br>9.50             |
| 139.7 mm            | × | 76.1 mm          | 381<br>15.00           | 254<br>10.00            |
| 125A<br>5           | × | 76.1 mm          | 381<br>15.00           | 254<br>10.00            |
|                     |   | 80A<br>3         | 381<br>15.00           | 254<br>10.00            |
|                     |   | 100A<br>4        | 381<br>15.00           | 254<br>10.00            |
|                     |   | 125A<br>5        | 381<br>15.00           | 254<br>10.00            |
| 150A<br>6           | × | 100A<br>4        | 406<br>16.00           | 292<br>11.50            |
|                     |   | 139.7 mm         | 406<br>16.00           | 292<br>11.50            |
|                     |   | 125A<br>5        | 406<br>16.00           | 292<br>11.50            |
|                     |   | 150A<br>6        | 406<br>16.00           | 292<br>11.50            |
| 200A<br>8           | × | 139.7 mm         | 483<br>19.00           | 356<br>14.00            |
|                     |   | 125A<br>5        | 483<br>19.00           | 356<br>14.00            |
|                     |   | 150A<br>6        | 483<br>19.00           | 356<br>14.00            |
|                     |   | 200A<br>8        | 483<br>19.00           | 356<br>14.00            |

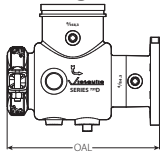
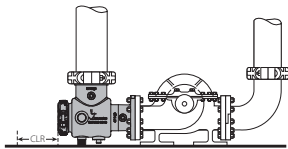


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# STANDARD ACCESSORIES FOR GROOVED-END PIPE

## Series 731-D – Suction Diffuser with JIS 10K Flange



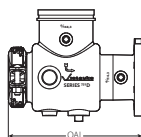
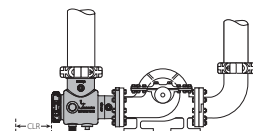
| Size                |                    | Dimensions – mm/inches |                         |              |
|---------------------|--------------------|------------------------|-------------------------|--------------|
| System Side Grooved | × Pump Side Flange | OAL<br>Overall Length  | CLR<br>Basket Clearance |              |
| millimeters/inches  |                    |                        |                         |              |
| 250A<br>10          | ×                  | 150A<br>6              | 584<br>23.00            | 457<br>18.00 |
|                     |                    | 200A<br>8              | 584<br>23.00            | 457<br>18.00 |
|                     |                    | 250A<br>10             | 584<br>23.00            | 457<br>18.00 |
| 300A<br>12          | ×                  | 200A<br>8              | 686<br>27.00            | 508<br>20.00 |
|                     |                    | 250A<br>10             | 686<br>27.00            | 508<br>20.00 |
|                     |                    | 300A<br>12             | 686<br>27.00            | 508<br>20.00 |

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# STANDARD ACCESSORIES FOR GROOVED-END PIPE

## Series 731-D – Suction Diffuser with Australian Standard Flange Table “E”



| Size                |   |                  | Dimensions – mm/inches |                         |
|---------------------|---|------------------|------------------------|-------------------------|
| System Side Grooved | × | Pump Side Flange | OAL<br>Overall Length  | CLR<br>Basket Clearance |
| millimeters/inches  |   |                  |                        |                         |
| 76.1 mm             | × | 50<br>2          | 279<br>11.00           | 203<br>8.00             |
| 80<br>3             | × | 50<br>2          | 279<br>11.00           | 203<br>8.00             |
|                     |   | 76.1 mm          | 279<br>11.00           | 203<br>8.00             |
|                     |   | 80<br>3          | 279<br>11.00           | 203<br>8.00             |
| 100<br>4            | × | 76.1 mm          | 330<br>13.00           | 241<br>9.50             |
|                     |   | 80<br>3          | 330<br>13.00           | 241<br>9.50             |
|                     |   | 100<br>4         | 330<br>13.00           | 241<br>9.50             |
| 125<br>5            | × | 80*<br>3         | 381<br>15.00           | 254<br>10.00            |
|                     |   | 100<br>4         | 381<br>15.00           | 254<br>10.00            |
|                     |   | 125<br>5         | 381<br>15.00           | 254<br>10.00            |
| 150<br>6            | × | 100*<br>4        | 406<br>16.00           | 292<br>11.50            |
|                     |   | 125<br>5         | 406<br>16.00           | 292<br>11.50            |
|                     |   | 150<br>6         | 406<br>16.00           | 292<br>11.50            |
| 200<br>8            | × | 125*<br>5        | 483<br>19.00           | 356<br>14.00            |
|                     |   | 150<br>6         | 483<br>19.00           | 356<br>14.00            |
|                     |   | 200<br>8         | 483<br>19.00           | 356<br>14.00            |
| 250<br>10           | × | 150*<br>6        | 584<br>23.00           | 457<br>18.00            |
|                     |   | 200<br>8         | 584<br>23.00           | 457<br>18.00            |
|                     |   | 250<br>10        | 584<br>23.00           | 457<br>18.00            |
| 300<br>12           | × | 200*<br>8        | 686<br>27.00           | 508<br>20.00            |
|                     |   | 250<br>10        | 686<br>27.00           | 508<br>20.00            |
|                     |   | 300<br>12        | 686<br>27.00           | 508<br>20.00            |

\* Available with No. 50 Concentric Reducer and appropriate coupling. Contact Victaulic.



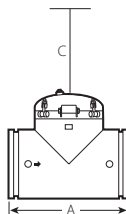
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# AGS® ACCESSORIES FOR GROOVED-END PIPE

## Series W730 – AGS Vic-Strainer

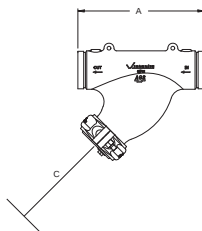
| Size                   |                                                 | Dimensions – inches/mm |                          |
|------------------------|-------------------------------------------------|------------------------|--------------------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | A<br>End-to-End        | C<br>Basket<br>Clearance |
| 14                     | 14.000<br>355.6                                 | 22.00<br>559           | 30.00<br>762             |
| 16                     | 16.000<br>406.4                                 | 24.00<br>610           | 32.00<br>813             |
| 18                     | 18.000<br>457.0                                 | 31.00<br>787           | 35.00<br>889             |
| 20                     | 20.000<br>508.0                                 | 34.50<br>876           | 38.00<br>965             |
| 24                     | 24.000<br>610.0                                 | 40.00<br>1016          | 44.00<br>1118            |



Series W730

## Series W732 – AGS Wye Type Vic Strainer

| Size                   |                                                 | Dimensions – inches/mm |                          |
|------------------------|-------------------------------------------------|------------------------|--------------------------|
| Nominal Size<br>inches | Actual Pipe<br>Outside<br>Diameter<br>inches/mm | A<br>End-to-End        | C<br>Basket<br>Clearance |
| 14                     | 14.00<br>355.60                                 | 34.00<br>863.6         | 30.00<br>762             |
| 16                     | 16.00<br>406.40                                 | 37.00<br>939.8         | 32.00<br>813             |
| 18                     | 18.00<br>457.20                                 | 40.51<br>1028.9        | 35.00<br>889             |



Series W732

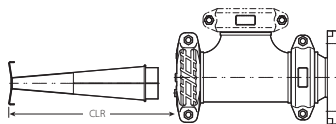
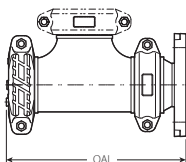


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# AGS<sup>®</sup> ACCESSORIES FOR GROOVED-END PIPE

## Series W731-I – AGS Suction Diffuser (Europe Only)



### Series W731-I

| Nominal Size<br>inches/Actual mm |   |             | Dimensions – inches/mm |                         |
|----------------------------------|---|-------------|------------------------|-------------------------|
| Inlet                            | x | Outlet      | OAL<br>Overall Length  | CLR<br>Basket Clearance |
| 12<br>323.9                      | x | 8<br>219.1  | 26.00<br>660           | 27.00<br>686            |
|                                  |   | 10<br>273.0 | 29.00<br>737           | 30.00<br>762            |
|                                  |   | 12<br>323.9 | 37.25<br>946           | 37.00<br>940            |
| 14<br>355.6                      | x | 10<br>273.0 | 29.00<br>737           | 30.00<br>762            |
|                                  |   | 12<br>323.9 | 37.25<br>946           | 37.00<br>940            |
|                                  |   | 14<br>355.6 | 40.56<br>1030          | 41.00<br>1041           |
| 16<br>406.4                      | x | 12<br>323.9 | 37.25<br>946           | 37.00<br>940            |
|                                  |   | 14<br>355.6 | 40.56<br>1030          | 41.00<br>1041           |
| 18<br>457.0                      | x | 16<br>406.4 | 44.50<br>1130          | 45.00<br>1143           |
| 24<br>610.0                      | x | 20<br>508.0 | 54.25<br>1378          | 57.00<br>1448           |



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# Quick Reference – Product Data and Helpful Information for Hole-Cut Products

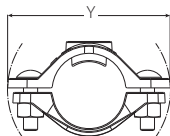
The following information contains take-out dimensions, overall dimensions, and hole sizes for Victaulic hole-cut products. Refer to the current Victaulic product submittal for complete dimensional information.

| NOTICE                                                                                                                                                                                                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Always refer to the current Victaulic submittal publication in the G-100 General Catalog or on the website <a href="http://www.victaulic.com">www.victaulic.com</a> for the most up-to-date dimensional information.</li></ul> |

# PRODUCT DATA – HOLE-CUT PRODUCTS

## Style 912 – FireLock Low-Profile Sprinkler-Tee (Europe Only)

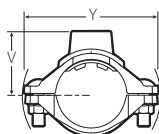
| Nominal Size inches/<br>Actual mm |   |           | “Y” Dimension – inches/mm |
|-----------------------------------|---|-----------|---------------------------|
| Run x Branch FPT†                 |   |           | Style 912                 |
| 1<br>33.7                         | x | ½<br>21.3 | 3.72<br>94                |
| 1 ¼<br>42.4                       | x | ½<br>21.3 | 4.12<br>105               |
| 1 ½<br>48.3                       | x | ½<br>21.3 | 4.32<br>110               |



Style 912

## Style 922 – FireLock Outlet-T

| Nominal Size<br>inches/Actual mm |   |           | Dimensions – inches/mm |               |
|----------------------------------|---|-----------|------------------------|---------------|
| Run X Branch<br>FPT†             |   |           | V                      | Y             |
| 1 ¼<br>42.4                      | X | ½<br>21.3 | 1.83<br>46.5           | 3.87<br>98.3  |
|                                  |   | ¾<br>26.9 | 1.83<br>46.5           | 3.87<br>98.3  |
|                                  |   | 1<br>33.7 | 2.18<br>55.4           | 3.87<br>98.3  |
| 1 ½<br>48.3                      | X | ½<br>21.3 | 1.95<br>49.5           | 4.08<br>103.6 |
|                                  |   | ¾<br>26.9 | 1.95<br>49.5           | 4.08<br>103.6 |
|                                  |   | 1<br>33.7 | 2.30<br>58.4           | 4.08<br>103.6 |
| 2<br>60.3                        | X | ½<br>21.3 | 2.19<br>55.6           | 4.60<br>116.8 |
|                                  |   | ¾<br>26.9 | 2.19<br>55.6           | 4.60<br>116.8 |
|                                  |   | 1<br>33.7 | 2.54<br>64.5           | 4.60<br>116.8 |
| 2 ½<br>73.0                      | X | ½<br>21.3 | 2.44<br>62.0           | 5.40<br>137.2 |
|                                  |   | ¾<br>26.9 | 2.44<br>62.0           | 5.40<br>137.2 |
|                                  |   | 1<br>33.7 | 2.79<br>70.9           | 5.40<br>137.2 |
| 76.1 mm                          | X | ½<br>21.3 | 2.44<br>62.0           | 5.50<br>139.7 |
|                                  |   | ¾<br>26.9 | 2.44<br>62.0           | 5.50<br>139.7 |
|                                  |   | 1<br>33.7 | 2.79<br>70.9           | 5.50<br>139.7 |



Style 922

† Victaulic female threaded products are designed to accommodate standard NPT or BSPT (optional) male pipe threads only. Use of male threaded products with special features, such as probes, dry pendent sprinkler heads, etc., should be verified as suitable for use with this Victaulic product. Failure to verify suitability in advance may result in assembly problems or leakage.



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# PRODUCT DATA – HOLE-CUT PRODUCTS

## Style 923 – Vic-Let Strapless Outlet

| Nominal Size<br>inches/Actual mm  |   |         | Dimensions – inches/mm |            |
|-----------------------------------|---|---------|------------------------|------------|
| Run x Branch                      |   |         | X                      | Y ***      |
| 4 – 8<br>114.3 – 219.1            | x | ½<br>15 | 3.00<br>76             | 3.09<br>78 |
|                                   | x | ¾<br>20 | 3.00<br>76             | 3.09<br>78 |
| 10 and Larger<br>273.0 and Larger | x | ½<br>15 | 3.00<br>76             | 3.00<br>76 |
|                                   | x | ¾<br>20 | 3.00<br>76             | 3.00<br>76 |

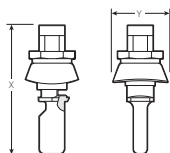


**Style 923**

\*\*\*Width of collar as supplied. The width will change due to deformation of the collar during assembly. DUE TO DEFORMATION OF THE COLLAR, STYLE 923 VIC-LET STRAPLESS OUTLETS SHOULD NOT BE RE-USED AFTER INITIAL INSTALLATION.

## Style 924 – Vic-O-Well Strapless Thermometer Outlet

| Nominal Size<br>inches/Actual mm                                      |  | Dimensions – inches/mm |            |
|-----------------------------------------------------------------------|--|------------------------|------------|
| Run x Branch                                                          |  | X                      | Y ***      |
| 4 – 8 for 6-inch Stem †<br>114.3 – 219.1 for 152.4-mm Stem            |  | 7.09<br>180            | 3.09<br>78 |
| 10 and Larger for 6-inch Stem †<br>273.0 and Larger for 152.4-mm Stem |  | 7.09<br>180            | 3.09<br>78 |



**Style 924**

\*\*\*Width of collar as supplied. The width will change due to deformation of the collar during assembly. DUE TO DEFORMATION OF THE COLLAR, STYLE 924 VIC-O-WELL THERMOMETER OUTLETS SHOULD NOT BE RE-USED AFTER INITIAL INSTALLATION.

† 1 ¼-inch outlet – 1 ¼ – NEF18 – 2B



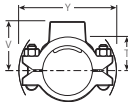
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# PRODUCT DATA – HOLE-CUT PRODUCTS

## Styles 920 and 920N – Mechanical-T Bolted Branch Outlets



Style 920 and 920N  
with Grooved Outlet



Style 920 and 920N with Female  
Threaded Outlet

| Size                     |   |                       | Style Number | Dimensions – inches/mm |                 |            |             |
|--------------------------|---|-----------------------|--------------|------------------------|-----------------|------------|-------------|
| Run                      | X | Branch                | 920 or 920N  | T** Takeout            | Fem. Thd. V ± # | Grv. V ±   | Y           |
| Nominal inches/Actual mm |   | inches/Actual mm      |              |                        |                 |            |             |
| 2<br>60.3                | x | ½ (a)<br>21.3         | 920N         | 2.00<br>51             | 2.53<br>64      | —          | 5.35<br>136 |
|                          |   | ¾ (a)<br>26.9         | 920N         | 1.97<br>50             | 2.53<br>64      | —          | 5.35<br>136 |
|                          |   | 1 (a)<br>33.7         | 920N         | 1.85<br>47             | 2.53<br>64      | —          | 5.35<br>136 |
|                          |   | 1 ¼ (a)<br>42.4       | 920N         | 2.05<br>52             | 2.75<br>70      | 3.00<br>76 | 5.35<br>136 |
|                          |   | 1 ½ (a)<br>48.3       | 920N         | 2.03<br>52             | 2.75<br>70      | 3.12<br>79 | 5.35<br>136 |
| 2 ½<br>73.0              | x | ½ (a)<br>21.3         | 920N         | 2.21<br>56             | 2.74<br>70      | —          | 5.64<br>143 |
|                          |   | ¾ (a)<br>26.9         | 920N         | 2.18<br>55             | 2.74<br>70      | —          | 5.64<br>143 |
|                          |   | 1 (a)<br>33.7         | 920N         | 2.06<br>52             | 2.74<br>70      | —          | 5.64<br>143 |
|                          |   | 1 ¼ † (a)<br>42.4     | 920N         | 2.30<br>58             | 3.00<br>76      | 3.25<br>83 | 6.29<br>160 |
|                          |   | 1 ½ † (a)<br>48.3     | 920N         | 2.28<br>58             | 3.00<br>76      | 3.25<br>83 | 6.26<br>159 |
| 76.1 mm                  | x | ½ (a)<br>21.3         | 920N         | 2.22<br>56             | 2.75<br>70      | —          | 6.46<br>164 |
|                          |   | ¾ (a)<br>26.9         | 920N         | 2.19<br>56             | 2.75<br>70      | —          | 6.46<br>164 |
|                          |   | 1 (a)<br>33.7         | 920N         | 2.07<br>53             | 2.75<br>70      | —          | 6.46<br>164 |
|                          |   | 1 ¼ † (a)<br>42.4     | 920N         | 2.30<br>58             | 3.00<br>76      | 3.31<br>84 | 6.29<br>160 |
|                          |   | 1 ½ (a)<br>48.3       | 920N         | 2.28<br>58             | 3.00<br>76      | 3.31<br>84 | 6.29<br>160 |
| 3<br>88.9                | x | ½ (a)<br>21.3         | 920N         | 2.52<br>64             | 3.05<br>78      | —          | 6.15<br>156 |
|                          |   | ¾ (a)<br>26.9         | 920N         | 2.49<br>63             | 3.05<br>78      | —          | 6.15<br>156 |
|                          |   | 1 (a)<br>33.7         | 920N         | 2.38<br>61             | 3.06<br>78      | —          | 6.15<br>156 |
|                          |   | 1 ¼ † (a)<br>42.4 (b) | 920N         | 2.55<br>65             | 3.25<br>83      | 3.56<br>90 | 6.15<br>156 |
|                          |   | 1 ½ † (a)<br>48.3 (b) | 920N         | 2.78<br>71             | 3.50<br>89      | 3.56<br>90 | 6.15<br>156 |
|                          |   | 2 (a)<br>60.3         | 920N         | 2.75<br>70             | 3.50<br>89      | 3.56<br>90 | 6.75<br>172 |

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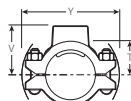


# PRODUCT DATA – HOLE-CUT PRODUCTS

## Styles 920 and 920N – Mechanical-T Bolted Branch Outlets



**Style 920 and 920N  
with Grooved Outlet**



**Style 920 and 920N with Female  
Threaded Outlet**

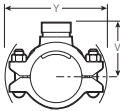
| Size                     |   |                       | Style Number | Dimensions – inches/mm |                 |             |             |
|--------------------------|---|-----------------------|--------------|------------------------|-----------------|-------------|-------------|
| Run                      | X | Branch                | 920 or 920N  | T** Takeout            | Fem. Thd. V ± # | Grv. V ±    | Y           |
| Nominal inches/Actual mm |   | mm                    |              |                        |                 |             |             |
| 3 ½<br>101.6             | x | 2<br>60.3             | 920N         | 3.00<br>76             | —               | 3.75<br>95  | 6.72<br>171 |
| 4<br>114.3               | x | ½ (a)<br>21.3         | 920N         | 3.03<br>77             | 3.56<br>90      | —           | 7.01<br>178 |
|                          |   | ¾ (a)<br>26.9         | 920N         | 3.00<br>76             | 3.56<br>90      | —           | 7.01<br>178 |
|                          |   | 1 (a)<br>33.7         | 920N         | 2.88<br>73             | 3.56<br>90      | —           | 7.01<br>178 |
|                          |   | 1 ¼ + (a)<br>42.4 (b) | 920N         | 3.08<br>78             | 3.78<br>96      | 4.00<br>102 | 7.01<br>178 |
|                          |   | 1 ½ + (a)<br>48.3 (b) | 920N         | 3.28<br>83             | 4.00<br>102     | 4.00<br>102 | 7.01<br>178 |
|                          |   | 2 + (a)<br>60.3       | 920N         | 3.25<br>83             | 4.00<br>102     | 4.00<br>102 | 7.01<br>178 |
|                          |   | 2 ½ + (a)<br>73.0     | 920          | 2.88<br>73             | 4.00<br>102     | 4.00<br>102 | 7.34<br>186 |
|                          |   | 76.1 mm               | 920          | 2.88<br>73             | —               | 4.00<br>102 | 7.34<br>186 |
|                          |   | 3 + (a)<br>88.9       | 920          | 3.31<br>84             | 4.50<br>114     | 4.12<br>105 | 7.73<br>196 |
|                          |   | 1 ¼ (a)<br>42.4       | 920N         | 3.08<br>78             | 3.78<br>96      | —           | 7.64<br>194 |
| 108.0mm                  | x | 1 ½ (a)<br>48.3       | 920N         | 3.28<br>88             | 4.00<br>102     | —           | 7.64<br>194 |
|                          |   | 2 (a)<br>60.3         | 920N         | 3.25<br>83             | 4.00<br>102     | —           | 7.64<br>194 |
|                          |   | 76.1 mm               | 920          | 2.88<br>73             | 4.00<br>102     | 4.00<br>102 | 7.64<br>194 |
|                          |   | 3 (a)<br>88.9         | 920          | 3.31<br>84             | 4.50<br>114     | 4.50<br>114 | 7.63<br>194 |
|                          |   | 1 ½ + (a)<br>48.3     | 920          | 4.03<br>102            | 4.75<br>121     | 4.75<br>121 | 9.70<br>246 |
| 5<br>141.3               | x | 2 + (a)<br>60.3       | 920          | 4.00<br>102            | 4.75<br>121     | 4.75<br>121 | 9.70<br>246 |
|                          |   | 2 ½ + (a)<br>73.0     | 920          | 3.63<br>92             | 4.75<br>121     | 4.75<br>121 | 9.70<br>246 |
|                          |   | 76.1 mm               | 920          | 3.75<br>95             | —               | 4.75<br>121 | 9.70<br>246 |
|                          |   | 3 + (a)<br>88.9       | 920          | 3.81<br>97             | 5.00<br>127     | 4.63<br>118 | 9.70<br>246 |



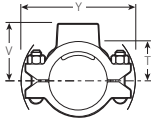
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# PRODUCT DATA – HOLE-CUT PRODUCTS

## Styles 920 and 920N – Mechanical-T Bolted Branch Outlets



Style 920 and 920N  
with Grooved Outlet



Style 920 and 920N with Female  
Threaded Outlet

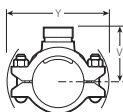
| Size       |   |                       | Style Number | Dimensions – inches/mm |                 |             |              |
|------------|---|-----------------------|--------------|------------------------|-----------------|-------------|--------------|
| Run        | X | Branch                | 920 or 920N  | T** Takeout            | Fem. Thd. V ‡ # | Grv. V ‡    | Y            |
| 133.0mm    | x | 2<br>60.3             | 920N         | 3.75<br>95             | 4.50<br>114     | —           | 8.00<br>203  |
|            |   | 3<br>88.9             | 920          | 3.81<br>97             | 5.00<br>127     | —           | 9.46<br>240  |
| 139.7mm    | x | 1 ½ †<br>48.3         | 920N         | 3.78<br>96             | 4.50<br>114     | —           | 8.23<br>209  |
|            |   | 2 †<br>60.3           | 920N         | 3.75<br>95             | 4.50<br>114     | —           | 8.23<br>209  |
| 6<br>168.3 | x | 1 ¼<br>42.4           | 920N         | 4.43<br>113            | 5.13<br>130     | 5.13<br>130 | 9.15<br>232  |
|            |   | 1 ½ † (a)<br>48.3 (b) | 920N         | 4.40<br>112            | 5.13<br>130     | 5.13<br>130 | 9.15<br>232  |
|            |   | 2 † (a)<br>60.3       | 920N         | 4.38<br>111            | 5.13<br>130     | 5.13<br>130 | 9.15<br>232  |
|            |   | 76.1 mm<br>(a) (b)    | 920          | 4.15<br>105            | —               | 5.21<br>132 | 10.51<br>267 |
|            |   | 3 † (a)<br>88.9       | 920          | 4.31<br>110            | 5.50<br>140     | 5.13<br>130 | 10.51<br>267 |
|            |   | 4 † (a)<br>114.3      | 920          | 3.81<br>97             | 5.75<br>146     | 5.38<br>137 | 10.51<br>267 |
| 159.0mm    | x | 1 ½ (a)<br>48.3       | 920N         | 4.41<br>112            | 5.13<br>130     | —           | 9.40<br>239  |
|            |   | 2 (a)<br>60.3         | 920N         | 4.38<br>111            | 5.13<br>130     | —           | 9.40<br>239  |
|            |   | 76.1 mm               | 920          | 4.38<br>111            | 5.50<br>140     | 5.13<br>130 | 9.40<br>239  |
|            |   | 3<br>88.9             | 920          | 4.31<br>110            | 5.50<br>140     | 5.13<br>130 | 9.40<br>239  |
|            |   | 108.0mm               | 920          | 4.45<br>113            | —               | 5.38<br>137 | 9.40<br>239  |
|            |   | 4<br>114.3            | 920          | 3.81<br>97             | 5.75<br>146     | —           | 9.40<br>239  |

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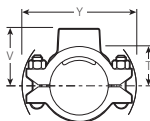


# PRODUCT DATA – HOLE-CUT PRODUCTS

## Styles 920 and 920N – Mechanical-T Bolted Branch Outlets



**Style 920 and 920N  
with Grooved Outlet**



**Style 920 and 920N with Female  
Threaded Outlet**

| Size     |           | Style Number | Dimensions – inches/mm |                 |          |       |
|----------|-----------|--------------|------------------------|-----------------|----------|-------|
| Run      | X Branch  | 920 or 920N  | T** Takeout            | Fem. Thd. V ‡ # | Grv. V ‡ | Y     |
| 165.1 mm | x 1       | 920N         | 3.88                   | 4.56            | —        | 9.34  |
|          | 33.7      |              | 99                     | 116             |          | 237   |
|          | 1 ¼       | 920N         | 4.43                   | 5.13            | —        | 9.34  |
|          | 42.4      |              | 113                    | 130             |          | 237   |
|          | 1 ½ † (a) | 920N         | 4.41                   | 5.13            | 5.13     | 9.34  |
|          | 48.3      |              | 112                    | 130             | 130      | 237   |
|          | 2 † (a)   | 920N         | 4.38                   | 5.13            | 5.13     | 9.34  |
| 8        | x 2 (a)   | 920          | 5.44                   | 6.19            | 6.25     | 12.42 |
|          | 219.1     |              | 138                    | 157             | 159      | 316   |
|          | 2 ½ † (a) | 920          | 5.07                   | 6.19            | 6.19     | 12.42 |
|          | 73.0      |              | 129                    | 157             | 157      | 316   |
|          | 76.1 mm   | 920          | 5.25                   | —               | 6.25     | 12.42 |
|          |           |              | 133                    |                 | 159      | 316   |
|          | 3 † (a)   | 920          | 5.31                   | 6.50            | 6.50     | 12.42 |
|          | x 88.9    |              | 135                    | 165             | 165      | 316   |
|          | 4 † (a)   | 920          | 4.81                   | 6.75            | 6.38     | 12.42 |
|          | 114.3     |              | 122                    | 172             | 162      | 316   |

\*\* Center of run engaged pipe end for female threaded outlets only (dimensions are approximate)

† Available with grooved outlet or female threaded outlet

‡ Center of run to end of fitting

# Female threaded outlets are available to NPT and BSPT specifications

(a) British Standard female pipe threaded outlet is available

(b) For 76.1-mm threaded outlets, specify 2 ½-inch BSPT

**NOTE:** Style 920 and Style 920N housings cannot be mated to each other to achieve cross connections.



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# HOLE SIZE DATA – HOLE-CUT PRODUCTS

- Style 912 FireLock Low-Profile Sprinkler Tee
- Style 922 FireLock Outlet-T
- Style 923 Vic-Let Strapless Outlet
- Style 924 Vic-O-Well Strapless Thermometer Outlet

|           | Style 912                   |                             | Style 922                   |                             | Styles 923/924              |                             |
|-----------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
|           | Minimum Hole Size inches/mm | Maximum Hole Size inches/mm | Minimum Hole Size inches/mm | Maximum Hole Size inches/mm | Minimum Hole Size inches/mm | Maximum Hole Size inches/mm |
| All Sizes | 1 5⁄16<br>24                | 1<br>25                     | 1 3⁄16<br>30                | 1 1⁄4<br>32                 | 1 1⁄2<br>38                 | 1 9⁄16<br>40                |

## Styles 920 and 920N Mechanical-T Bolted Branch Outlets

NOTICE

- For proper installation, some new sizes of Style 920N products require a different hole size than the Style 920 or Style 921 it replaces. Make sure the proper size hole is prepared for the size and style being installed (refer to the table below for requirements).

| Size<br><br>Nominal<br>Outlet Size<br>inches<br>Actual mm | Hole Dimensions<br>inches/mm              |                                  |
|-----------------------------------------------------------|-------------------------------------------|----------------------------------|
|                                                           | Minimum Hole<br>Diameter/Hole<br>Saw Size | Maximum<br>Allowable<br>Diameter |
| All ½-inch/21.3 Outlets                                   | 1 ½<br>38                                 | 1 ⅝<br>41                        |
| All ¾-inch/26.9 Outlets                                   | 1 ½<br>38                                 | 1 ⅝<br>41                        |
| All 1-inch/33.7 Outlets                                   | 1 ½<br>38                                 | 1 ⅝<br>41                        |
| All 1 ¼-inch/42.4 Outlets                                 | 1 ¾<br>44                                 | 1 ⅞<br>48                        |
| All 1 ½-inch/48.3 Outlets                                 | 2†<br>51                                  | 2 ⅞<br>54                        |
| All 2-inch/60.3 Outlets                                   | 2 ½‡<br>64                                | 2 ⅞<br>67                        |
| All 2 ½-inch/73.0 Outlets                                 | 2 ¾<br>70                                 | 2 ⅞<br>73                        |
| All 76.1-mm Outlets                                       | 2 ¾<br>70                                 | 2 ⅞<br>73                        |
| All 3-inch/88.9 Outlets                                   | 3 ½<br>89                                 | 3 ⅝<br>92                        |
| All 4-inch/114.3 Outlets                                  | 4 ½<br>114                                | 4 ⅝<br>118                       |
| All 108.0-mm Outlets                                      | 4 ½<br>114                                | 4 ⅝<br>118                       |

† 2 x 1 ½-inch/60.3 x 48.3-mm Style 920N products require a 1 ¾-inch/44-mm hole.

‡ 8 x 2-inch/219.1 x 60.3-mm Style 920 products require a 2 ¾-inch/70-mm size hole.

**NOTE:** Style 920 and Style 920N housings CANNOT be mated to each other to achieve cross connections.

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