

**Victaulic® FireLock™ Innovative Groove System | IGS**  
**No. 101, 102, 140, 141, 142, 143, 145, 146, 148**  
**Style 922, Style 108, RG2100, VicFlex™ Series AH2-CC**



**1.0 PRODUCT DESCRIPTION**

**Function**

- No. 142 Welded Outlet
- Style 922 Outlet-T
- No. 101 Installation-Ready™ 90° Elbow
- Style 108 Installation-Ready™ Rigid Coupling
- No. 102 Installation-Ready™ Tee
- No. 148 Sprinkler Reducer, NPT or BSPT sprinkler outlet
- No. 143 Close Nipple
- No. 145 Female NPT or BSPT Threaded x Groove 90° Elbow
- No. 146 Cap
- No. 140 Male NPT or BSPT Threaded x Groove Adapter
- No. 141 Female NPT or BSPT Threaded x Groove Adapter
- RG2100 Roll Grooving Tool
- VicFlex™ Series AH2-CC Braided Flexible Hose with Captured Coupling (Refer to publication [10.85](#))

**Available Sizes**

- 1"/DN25

**Pipe Material**

- Carbon steel, Schedule 10, Schedule 40. For use with alternative materials please contact Victaulic.

**Maximum Working Pressure**

- Up to 365 psi/2517 kPa/25 bar

**Pipe Preparation**

- Cut (Sch. 40) or roll (Sch. 10 or Sch. 40) grooved in accordance with publication [25.14](#): Victaulic IGS Groove Specifications.

**RG2100 Grooving Capability**

- 1"/DN25
- Workstation designed to cut, ream and form a roll groove on carbon steel, Sch. 10 or Sch. 40 pipe.
- This tool has a minimum pipe length requirement of 4 ½"/114 mm.

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

|              |  |          |  |
|--------------|--|----------|--|
| System No.   |  | Location |  |
| Submitted By |  | Date     |  |

|              |  |           |  |
|--------------|--|-----------|--|
| Spec Section |  | Paragraph |  |
| Approved     |  | Date      |  |

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## 2.0 CERTIFICATION/LISTINGS

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### NOTE

- Approvals listed above do not apply to the RG2100 Roll Grooving Tool.

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## 3.0 SPECIFICATIONS - MATERIAL

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**Housing:** Ductile iron conforming to ASTM A536, Grade 65-45-12

**Housing Coating:**

Orange enamel

Optional: Hot dipped galvanized

**Gasket:**

**Grade “E” EPDM Type A Vic-Plus™ Gasket System**

EPDM (Violet color code). FireLock products have been Listed by UL LLC and Approved by FM Approvals LLC for fire sprinkler services up to the rated working pressure using the Grade “E” Type A Vic-Plus™ Gasket System, requiring no field lubrication for most installation conditions.

**Bolts/Nuts:**

Standard: Carbon steel oval neck track bolts meeting the mechanical property requirements of ASTM A449 (imperial) and ISO 898-1 Class 9.8 (metric). Carbon steel hex nuts meeting the mechanical property requirements of ASTM A563 Grade B (imperial - heavy hex nuts) and ASTM A563M Class 9 (metric - hex nuts). Track bolts and hex nuts are zinc electroplated per ASTM B633 Fe/Zn 5, finish Type III (imperial) or Type II (metric).

**Coupling Linkage:** CrMo Alloy Steel zinc electroplated per ASTM B633 Fe/Zn 5, Type III Finish

**No. 140, 141, 142, 143, 148:** Carbon steel meeting the chemical and mechanical property requirements of ASTM A53 Grade A

**No. 145, 146:** Ductile iron conforming to ASTM A536, Grade 65-45-12

**RG2100 Roll Grooving Tool:**

**Required Power Supply:** Ridgid™ 300 Power Drive

**Accessories/Components:**

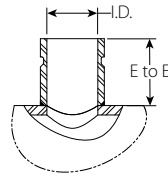
Tool head assembly

Carriage assembly - accepts RG2100 tool head assembly, Ridgid 360 Cutter, Ridgid 341 Reamer and Ridgid 312 Lever

1"/DN25 IGS Groove Confirmation Gauge

## 4.0 DIMENSIONS

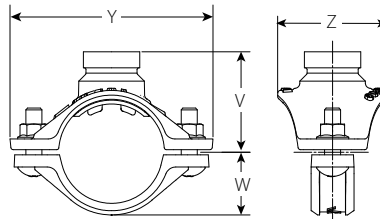
### No. 142 Welded Outlet



| Nominal<br>inches<br>DN<br>Run x Branch | Actual<br>Outside Diameter<br>inches<br>mm<br>Run x Branch | Inside<br>Diameter<br>I.D.<br>inches<br>mm | E to E<br>inches<br>mm | Approximate<br>Weight |     |
|---|--|--|------------------------|-----------------------|-----|
|   |  |  |                        | lb                    | kg  |
| 1 ¼ – 1 ½<br>DN32 – DN40                | 1.660 – 1.900<br>42.4 – 48.3                               | 1.049<br>26.6                              | 1.38<br>34.9           | 0.2                   | 0.1 |
| 1 ½ – 2<br>DN40 – DN50                  | 1.900 – 2.375<br>48.3 – 60.3                               | 1.049<br>26.6                              | 1.38<br>34.9           | 0.2                   | 0.1 |
| 2 – 2 ½<br>DN50 – DN65                  | 2.375 – 3.000<br>60.3 – 76.1                               | 1.049<br>26.6                              | 1.38<br>34.9           | 0.2                   | 0.1 |
| 2 ½ – 3<br>DN65 – DN80                  | 2.875 – 3.500<br>73.0 – 88.9                               | 1.049<br>26.6                              | 1.38<br>34.9           | 0.2                   | 0.1 |
| 3 – 4<br>DN80 – DN100                   | 3.500 – 4.500<br>88.9 – 114.3                              | 1.049<br>26.6                              | 1.38<br>34.9           | 0.2                   | 0.1 |

## 4.1 DIMENSIONS

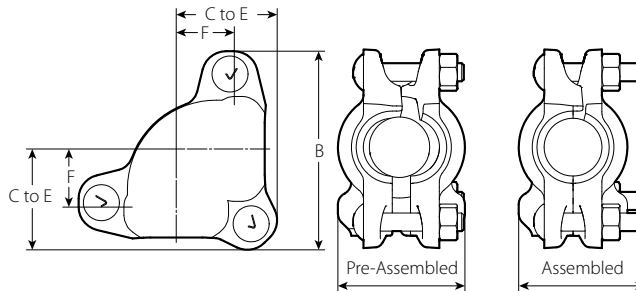
### Style 922 Outlet-T



| Nominal<br>inches<br>DN<br>Run x Branch | Actual<br>Outside Diameter<br>inches<br>mm<br>Run x Branch | Hole<br>Diameter<br>inches<br>mm<br>+0.06/+1.5<br>-0.00/-0.0 | Dimensions        |                   |                   |                   | Approximate<br>Weight<br>lb<br>kg |
|---|--|--|-------------------|-------------------|-------------------|-------------------|-----------------------------------|
|   |  |  | Y<br>inches<br>mm | V<br>inches<br>mm | W<br>inches<br>mm | Z<br>inches<br>mm |                                   |
| 1 ¼<br>DN32                             | 1.660<br>42.4  | 1 ³⁄₁₆<br>30.2   | 4.01<br>101.9     | 1.98<br>50.3      | 1.10<br>27.9      | 2.70<br>68.6      | 1.1<br>0.5                        |
| 1 ½<br>DN40                             | 1.900<br>48.3  | 1 ³⁄₁₆<br>30.2   | 4.01<br>101.9     | 2.11<br>53.6      | 1.22<br>31.0      | 2.70<br>68.7      | 1.2<br>0.5                        |
| 2<br>DN50                               | 2.375<br>60.3  | 1 ³⁄₁₆<br>30.2   | 4.01<br>101.9     | 2.34<br>59.4      | 1.46<br>37.1      | 2.56<br>65.1      | 1.2<br>0.5                        |
| 2 ½                                     | 2.875<br>73.0  | 1 ³⁄₁₆<br>30.2   | 4.01<br>101.9     | 2.67<br>67.8      | 1.71<br>43.4      | 2.56<br>65.1      | 1.6<br>0.7                        |

## 4.2 DIMENSIONS

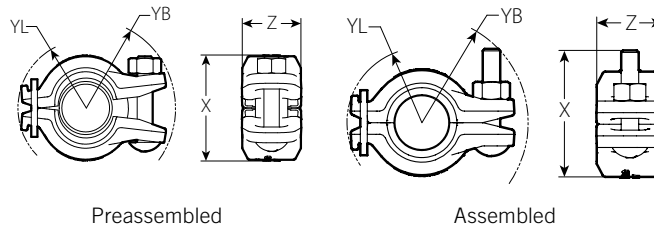
### No. 101 Installation-Ready 90° Elbow



| Size         |                         | Bolt/Nut |   | Dimensions   |              |              |               |              | Weight             |
|--------------|-------------------------|----------|---|--------------|--------------|--------------|---------------|--------------|--------------------|
| Nominal      | Actual Outside Diameter | Qty.     | Size  | F Take Out   | C to E       | B            | Pre-Assembled | Assembled    | Approximate (Each) |
| inches<br>DN | inches<br>mm            |          | inches<br>mm                                | inches<br>mm | inches<br>mm | inches<br>mm | inches<br>mm  | inches<br>mm | lb<br>kg           |
| 1<br>DN25    | 1.315<br>33.7           | 3        | <sup>3</sup> / <sub>8</sub> x 2<br>M10 x 50 | 1.25<br>32   | 2.13<br>54   | 4.25<br>108  | 2.75<br>70    | 2.75<br>70   | 2.2<br>1.0         |

## 4.3 DIMENSIONS

### Style 108 Installation-Ready Rigid Coupling

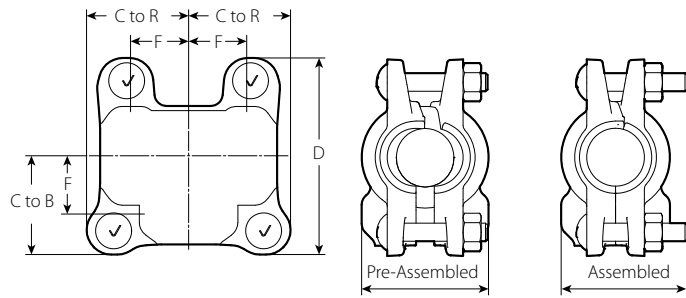


| Size         |                         | Pipe End Separation <sup>1</sup> | Bolt/Nut |   | Dimensions    |              |              |              |                 |              |              |              | Weight        |
|--------------|-------------------------|----------------------------------|----------|---|---------------|--------------|--------------|--------------|-----------------|--------------|--------------|--------------|---------------|
| Nominal      | Actual Outside Diameter | Allowable                        | Qty.     | Size  | Pre-Assembled |              |              |              | Assembled Joint |              |              |              | Approx (Each) |
|              |                         |                                  |          |   | YL            | YB           | X            | Z            | YL              | YB           | X            | Z            |               |
| inches<br>DN | inches<br>mm            | inches<br>mm                     |          | inches<br>mm                                | inches<br>mm  | inches<br>mm | inches<br>mm | inches<br>mm | inches<br>mm    | inches<br>mm | inches<br>mm | inches<br>mm | lb<br>kg      |
| 1<br>DN25    | 1.315<br>33.7           | 0.14<br>3.6                      | 1        | <sup>3</sup> / <sub>8</sub> x 2<br>M10 x 50 | 1.66<br>42.2  | 2.17<br>55.2 | 2.58<br>65.5 | 1.43<br>36.3 | 1.61<br>41.0    | 2.29<br>58.2 | 2.27<br>57.5 | 1.43<br>36.3 | 1.45<br>0.7   |

<sup>1</sup> The allowable pipe end separation dimension shown is for system layout purposes only. FireLock™ Style 108 rigid couplings are considered rigid connections and will not accommodate expansion or contraction of the piping system.

## 4.4 DIMENSIONS

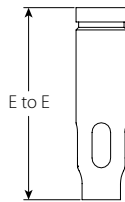
### No. 102 Installation-Ready Tee



| Size         |                         | Bolt/Nut |   | Dimensions   |              |              |               |              | Weight             |
|--------------|-------------------------|----------|---|--------------|--------------|--------------|---------------|--------------|--------------------|
| Nominal      | Actual Outside Diameter | Qty.     | Size  | F Take Out   | C to B       | D            | Pre-Assembled | Assembled    | Approximate (Each) |
| inches<br>DN | inches<br>mm            |          | inches<br>mm                                | inches<br>mm | inches<br>mm | inches<br>mm | inches<br>mm  | inches<br>mm | lb<br>kg           |
| 1<br>DN25    | 1.315<br>33.7           | 4        | <sup>3</sup> / <sub>8</sub> x 2<br>M10 x 50 | 1.25<br>32   | 2.13<br>54   | 4.13<br>105  | 2.75<br>70    | 2.75<br>70   | 3.0<br>1.4         |

## 4.5 DIMENSIONS

### No. 148 Sprinkler Reducer



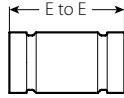
| Length       | Size         |                         | Threaded Outlet Size                |                                     | Weight             |
|--------------|--------------|-------------------------|-------------------------------------|-------------------------------------|--------------------|
| E to E       | Nominal      | Actual Outside Diameter |                                     |                                     | Approximate (Each) |
| inches<br>mm | inches<br>DN | inches<br>mm            | inches<br>DN                        | inches<br>DN                        | lb<br>kg           |
| 3<br>76      | 1<br>DN25    | 1.315<br>33.7           | <sup>1</sup> / <sub>2</sub><br>DN15 | <sup>3</sup> / <sub>4</sub><br>DN20 | 0.4<br>0.2         |
| 3.5<br>89    | 1<br>DN25    | 1.315<br>33.7           | <sup>1</sup> / <sub>2</sub><br>DN15 | <sup>3</sup> / <sub>4</sub><br>DN20 | 0.5<br>0.2         |
| 4<br>102     | 1<br>DN25    | 1.315<br>33.7           | <sup>1</sup> / <sub>2</sub><br>DN15 | <sup>3</sup> / <sub>4</sub><br>DN20 | 0.6<br>0.3         |
| 4.5<br>114   | 1<br>DN25    | 1.315<br>33.7           | <sup>1</sup> / <sub>2</sub><br>DN15 | <sup>3</sup> / <sub>4</sub><br>DN20 | 0.6<br>0.3         |
| 5<br>127     | 1<br>DN25    | 1.315<br>33.7           | <sup>1</sup> / <sub>2</sub><br>DN15 | <sup>3</sup> / <sub>4</sub><br>DN20 | 0.7<br>0.3         |
| 5.5<br>140   | 1<br>DN25    | 1.315<br>33.7           | <sup>1</sup> / <sub>2</sub><br>DN15 | <sup>3</sup> / <sub>4</sub><br>DN20 | 0.8<br>0.3         |
| 6<br>152     | 1<br>DN25    | 1.315<br>33.7           | <sup>1</sup> / <sub>2</sub><br>DN15 | <sup>3</sup> / <sub>4</sub><br>DN20 | 0.8<br>0.4         |
| 12<br>305    | 1<br>DN25    | 1.315<br>33.7           | <sup>1</sup> / <sub>2</sub><br>DN15 | <sup>3</sup> / <sub>4</sub><br>DN20 | 1.7<br>0.8         |

**NOTE**

- NPT or BSPT available
- It is acceptable to cut and groove any No. 148 longer than 6"/152mm. The minimum allowable cut length is 6"/152mm for a No. 148.

## 4.6 DIMENSIONS

### No. 143 Close Nipple

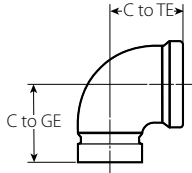


| Size         |                         | Dimensions       |  | Weight             |
|--------------|-------------------------|------------------|--|--------------------|
| Nominal      | Actual Outside Diameter | E to E           |  | Approximate (Each) |
| inches<br>DN | inches<br>mm            | inches<br>mm     |  | lb<br>kg           |
| 1<br>DN25    | 1.315<br>33.7           | 1.5 <sup>2</sup> |  | 0.2                |
|              |                         | 38               |  | 0.1                |
|              |                         | 2                |  | 0.3                |
|              |                         | 51               |  | 0.1                |
|              |                         | 2.5              |  | 0.4                |
|              |                         | 64               |  | 0.2                |
|              |                         | 3                |  | 0.4                |
|              |                         | 76               |  | 0.2                |
|              |                         | 3.5              |  | 0.5                |
|              |                         | 89               |  | 0.2                |
|              |                         | 4                |  | 0.6                |
|              |                         | 102              |  | 0.3                |
| 4.5          |                         | 0.6              |  |                    |
| 114          |                         | 0.3              |  |                    |
| 5            |                         | 0.7              |  |                    |
| 127          |                         | 0.3              |  |                    |

<sup>2</sup> Bolt pad interferences may occur in some installation configurations.

## 4.7 DIMENSIONS

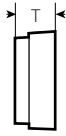
### No. 145 Female Threaded x Groove 90° Elbow



| Size            |                |                         |                 | Dimensions   |              | Weight             |
|-----------------|----------------|-------------------------|-----------------|--------------|--------------|--------------------|
| Nominal         |                | Actual Outside Diameter |                 | C-TE         | C-GE         | Approximate (Each) |
| inches<br>DN    |                | inches<br>mm            |                 |              |              |                    |
| Threaded Outlet | Grooved Outlet | Threaded Outlet         | Grooved Outlet  | inches<br>mm | inches<br>mm | lb<br>kg           |
| 1/2<br>DN15     | x 1<br>DN25    | 0.840<br>21.3           | x 1.315<br>33.7 | 1.45<br>36.8 | 1.60<br>40.6 | 0.5<br>0.2         |
| 3/4<br>DN20     |                | 1.050<br>26.9           |                 | 1.45<br>36.8 | 1.60<br>40.6 | 0.5<br>0.2         |
| 1<br>DN25       |                | 1.315<br>33.7           |                 | 1.50<br>38.1 | 1.60<br>40.6 | 0.5<br>0.2         |

## 4.8 DIMENSIONS

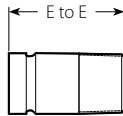
### No. 146 Cap



| Size         |                         | Dimensions   | Weight             |
|--------------|-------------------------|--------------|--------------------|
| Nominal      | Actual Outside Diameter | T            | Approximate (Each) |
| inches<br>DN | inches<br>mm            | inches<br>mm | lb<br>kg           |
| 1            | 1.315                   | 0.55         | 0.2                |
| DN25         | 33.7                    | 14.0         | 0.1                |

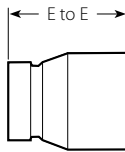
## 4.9 DIMENSIONS

### No. 140 Male Threaded x Groove Adapter



| Size         |                         | Dimensions   | Weight             |
|--------------|-------------------------|--------------|--------------------|
| Nominal      | Actual Outside Diameter | E-E          | Approximate (Each) |
| inches<br>DN | inches<br>mm            | inches<br>mm | lb<br>kg           |
| 1            | 1.315                   | 2.50         | 0.3                |
| DN25         | 33.7                    | 63.5         | 0.1                |

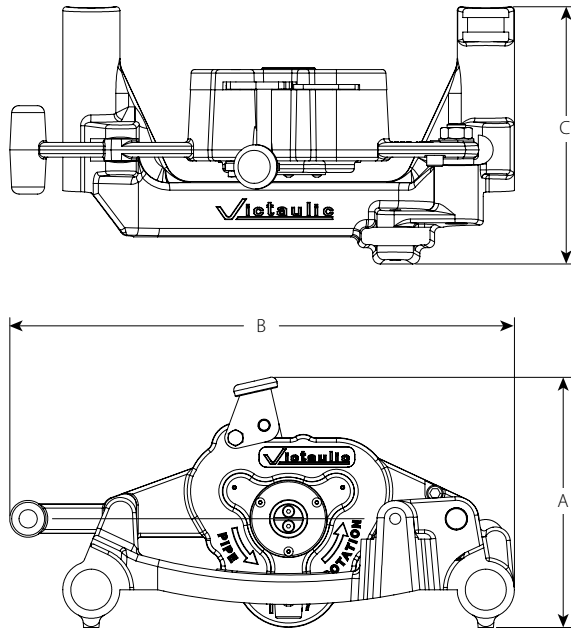
### No. 141 Female Threaded x Groove Adapter



| Size         |                         | Dimensions   | Weight             |
|--------------|-------------------------|--------------|--------------------|
| Nominal      | Actual Outside Diameter | E-E          | Approximate (Each) |
| inches<br>DN | inches<br>mm            | inches<br>mm | lb<br>kg           |
| 1            | 1.315                   | 2.00         | 0.5                |
| DN25         | 33.7                    | 50.8         | 0.2                |

## 4.10 DIMENSIONS

### RG2100 Roll Grooving Tool



| A            | B            | C            | Tool Weight  |
|--------------|--------------|--------------|--------------|
| inches<br>mm | inches<br>mm | inches<br>mm | lb<br>kg     |
| 8.5<br>216   | 17.1<br>435  | 8.7<br>222   | 37.5<br>17.0 |

## 5.0 PERFORMANCE

### Friction Flow Data

| Size                    |   | Equivalent Length of 1" DN25 Sch. 40 Pipe (C=120) |             |                     |                  |         |
|-------------------------|---|---|-------------|---------------------|------------------|---------|
|                         |   | feet<br>meters                                    |             |                     |                  |         |
| Nominal<br>inches<br>DN | Actual<br>Outside<br>Diameter<br>inches<br>mm | Style 922   | No. 101     | No. 102<br>(Branch) | No. 102<br>(Run) | No. 148 |
| 1<br>DN25               | 1.315<br>33.7                                 | See publication<br><a href="#">10.52</a>          | 2.0<br>0.61 | 5.0<br>1.52         | 2.7<br>0.82      | *       |

\* In accordance with NFPA 13, friction loss shall be excluded for fittings directly connected to a sprinkler. For hydraulic calculations, Victaulic recommends using the installed length (E-E or cut length) of the No. 148 Sprinkler Reducer as the equivalent length of 1" | DN25 Sch. 40 pipe.

### Maximum Working Pressure

| Size         |                               | cULus             |                   | FM                |                   |
|--------------|-------------------------------|-------------------|-------------------|-------------------|-------------------|
| Nominal      | Actual<br>Outside<br>Diameter | Sch.10            | Sch.40            | Sch.10            | Sch.40            |
| inches<br>DN | inches<br>mm                  | psi<br>kPa<br>bar | psi<br>kPa<br>bar | psi<br>kPa<br>bar | psi<br>kPa<br>bar |
| 1<br>DN25    | 1.315<br>33.7                 | 365<br>2517<br>25 | 365<br>2517<br>25 | 365<br>2517<br>25 | 365<br>2517<br>25 |



## 6.0 NOTIFICATIONS

### WARNING



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

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

### WARNING



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

- Before operating or servicing any grooving tools, read all instructions in the manual and all warning labels on the tool.
- Wear safety glasses, hardhat, foot protection, and hearing protection while working around the tool.
- Save the operating and maintenance manual in a place accessible to all operators of the tool

If you need additional copies of any literature, or if you have questions concerning the safe and proper operation of the tool, contact Victaulic, P.O. Box 31, Easton, PA 18044-0031, Phone: 1-800-PICK VIC, E-Mail: pickvic@victaulic.com.

## 7.0 REFERENCE MATERIALS

- [10.52: Style 922 Outlet Tee](#)
- [25.14: Victaulic IGS Groove Specification](#)
- [10.06: FireLock Installation-Ready Fittings](#)
- [10.85: VicFlex Series AH2 ad AH2-CC Braided Hose](#)
- [TM-RG2100: Operating and Maintenance Instructions Manual](#)
- [I-101\\_103: FireLock™ Installation-Ready™ Fittings Installation Instruction](#)
- [I-102: FireLock™ Installation-Ready™ Fittings Installation Instruction](#)
- [I-108: FireLock\(TM\) Installation-Ready™ Coupling](#)

| Victaulic No. 148 |   |                |
|-------------------|---|----------------|
| Length            | ½" DN15 outlet  | ¾" DN20 outlet |
| <b>E to E</b>     | <b>Equivalent Length of 1" Sched. 40 Pipe (C=120)</b> |                |
| inches            | feet  |                |
| mm                | meters  |                |
| ≤6                | 6.6   | 3.8            |
| 152               | 2.0   | 1.2            |
| 6 – 12            | 5.5   | 3.8            |
| 152 – 305         | 1.7   | 1.2            |

**NOTE**

- When installed in pipe to pipe connections or it is required by the authority having jurisdiction, the equivalent length data in the table above may apply.

**User Responsibility for Product Selection and Suitability**

Each user bears final responsibility for making a determination as to the suitability of Victaulic products for a particular end-use application, in accordance with industry standards and project specifications, and the applicable building codes and related regulations as well as Victaulic performance, maintenance, safety, and warning instructions. Nothing in this or any other document, nor any verbal recommendation, advice, or opinion from any Victaulic employee, shall be deemed to alter, vary, supersede, or waive any provision of Victaulic Company's standard conditions of sale, installation guide, or this disclaimer.

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**Note**

This product shall be manufactured by Victaulic or to Victaulic specifications. All products to be installed in accordance with current Victaulic installation/assembly instructions. Victaulic reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligations.

**Installation**

Reference should always be made to the Victaulic installation handbook or installation instructions of the product you are installing. Handbooks are included with each shipment of Victaulic products, providing complete installation and assembly data, and are available in PDF format on our website at [www.victaulic.com](http://www.victaulic.com).

**Warranty**

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

**Trademarks**

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