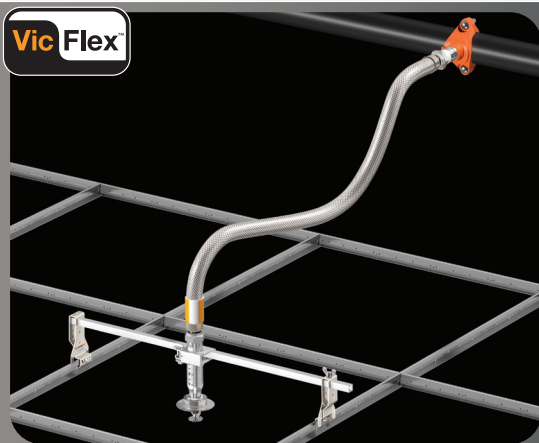




# I-VICFLEX

## FIELD INSTALLATION HANDBOOK Victaulic® VicFlex™ Products



Revision A 03/2021

### ! WARNING



- Read and understand all instructions before attempting to install any Victaulic products.
- Always verify that the piping system has been completely depressurized and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic products.
- Confirm that any equipment, branch lines, or sections of piping that may have been isolated for/during testing or due to valve closures/positioning are identified, depressurized, and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic products.
- Wear safety glasses, hardhat, foot protection, and hearing protection.

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

Contact Victaulic with any questions regarding safe and proper installation of products featured in this handbook.

Visit [victaulic.com](http://victaulic.com) for the most up-to-date information on Victaulic products.



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# General Information

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# HAZARD IDENTIFICATION

Definitions for identifying the various hazard levels are provided below.



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

## DANGER

- 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

This field handbook is a guide for installation of Victaulic® VicFlex™ Sprinkler System Fittings and shall be used in combination with Victaulic® VicFlex™ submittal documents and local building codes to ensure proper product selection and application. Additional copies of installation instructions and submittal documents are available to download on the Victaulic® website, victaulic.com.

Always follow good piping practices. Specified pressures, temperatures, performance standards, and tolerances shall never be exceeded. Many applications require recognition of special conditions, code requirements, and the use of safety factors, which shall be evaluated by qualified system engineers.

Always check compliance with local codes, as well as engineering specifications.

## NOTICE

- Victaulic® maintains a continual policy of product improvement. Therefore, Victaulic® reserves the right to change product specifications, designs, and standard equipment without notice and without incurring obligation.
- Victaulic® is not responsible for system design, nor does 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.





## WARNING



- Read and understand all instructions before attempting to install any Victaulic® products.
- Always verify that the piping system has been completely depressurized and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic® products.
- Confirm that any equipment, branch lines, or sections of piping that may have been isolated for/during testing or due to valve closures/positioning are identified, depressurized, and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic® products.
- Wear safety glasses, hardhat, and foot protection.

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


- Victaulic® VicFlex™ products shall be used only in fire protection systems that are designed and installed in accordance with current, applicable National Fire Protection Association (NFPA 13, 13D, 13R, etc.) standards, or equivalent standards, and in accordance with applicable building and fire codes. These standards and codes contain important information regarding protection of systems from freezing temperatures, corrosion, mechanical damage, etc.
- These installation instructions are intended for an experienced, trained installer. The installer shall understand the use of this product and why it was specified for the particular application.
- The installer shall understand common industry safety standards and potential consequences of improper product installation.
- It is the system designer's responsibility to verify suitability of stainless steel flexible hose for use with the intended fluid media within the piping system and external environment.
- The material specifier shall evaluate the effect of chemical composition, pH level, operating temperature, chloride level, oxygen level, and flow rate on stainless steel components to confirm system life will be acceptable for the intended service.
- It is the responsibility of the owner of a building or their authorized agent to provide the sprinkler system installer with any knowledge that the water supply might be contaminated with or conducive to the development of microbiologically influenced corrosion (MIC), including as required by NFPA 13. Failure to identify adverse water quality issues may affect the VicFlex product and void the manufacturer's warranty.

Failure to follow installation requirements and local and national codes and standards could compromise system integrity or cause system failure, resulting in death or serious personal injury and property damage.

- Replacement/relocation of Victaulic® VicFlex™ products SHALL be performed by qualified personnel familiar with the system's original design criteria, sprinkler listings/approvals, and state and local codes (including NFPA 13 standards).


Failure to properly replace/relocate a Victaulic® VicFlex™ product could affect its performance during a fire, resulting in death or serious personal injury and property damage.



	<p><b>WARNING:</b></p> <ul style="list-style-type: none"><li>• The painted surface of these products can expose you to chemicals, including BBP, which are known to the State of California to cause birth defects or other reproductive harm. For more information, go to <a href="http://www.p65warnings.ca.gov">www.p65warnings.ca.gov</a>.</li><li>• Brass components, even those manufactured from “low lead” or “no lead” brass can expose you to trace amounts of chemicals, such as lead, which is known to the State of California to cause cancer and birth defects of other reproductive harm. For more information go to <a href="http://www.p65warnings.ca.gov">www.p65warnings.ca.gov</a>.</li></ul>
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## IMPORTANT INSTALLATION INFORMATION

The below instructions apply to all Victaulic® VicFlex™ products. For additional information, always refer to the specific product’s installation instructions featured in this handbook.

 <b>CAUTION</b>
<ul style="list-style-type: none"><li>• To protect hoses from dirt, debris, moisture, and other environmental factors, hoses shall remain in factory packaging and be stored in a dry location prior to installation.</li></ul> <p><b>Failure to protect hoses may cause product failure, resulting in joint leakage and property damage.</b></p>

- Victaulic® VicFlex™ products shall be installed according to current, applicable National Fire Protection Association (NFPA 13, 13D, 13R, etc.) standards or equivalent standards and in accordance with applicable building and fire codes. Victaulic® VicFlex™ products are intended to be installed in wet, dry, or preaction actuated systems. Deviations from these standards or alterations to Victaulic® VicFlex™ products or sprinklers will void any Victaulic® warranty and will impact system integrity. Installations shall meet the provisions of the local authority having jurisdiction and local codes, as applicable, and shall comply with all design specifications.
- Victaulic® VicFlex™ products shall not be intermixed with other manufacturer’s flexible sprinkler products.
- **For recessed sprinklers, a standard long elbow reducer is recommended.**
- **For concealed sprinklers, a short 90° elbow reducer is recommended.**
- **Refer to the specific Victaulic® product publication for applications and listing information. In addition, when installing Victaulic® FireLock™ Automatic Sprinklers with Victaulic® VicFlex™ Sprinkler Fittings, refer to the I-40 Installation and Maintenance Instructions for details on sprinkler installation requirements. Product publications and installation instructions can be downloaded at [victaulic.com](http://victaulic.com).**
- Size the piping system to meet or exceed the minimum required flow rate for the sprinkler system.
- Per NFPA requirements, flush the system to remove foreign material. Continue to flush the system until water runs clear.
- **DO NOT** install sprinkler system piping through heating ducts.

- **DO NOT** connect sprinkler system piping to domestic hot water systems.
- **DO NOT** allow electrical wiring or other cabling to be hung or wrapped around the sprinkler piping system.
- **DO NOT** install sprinklers and sprinkler fittings where ambient conditions may fall below or exceed the maximum listed or approved temperature ratings.
- The flexible hose shall not be bent or fluctuated up-and-down or side-to-side when pressurized.
- Victaulic® VicFlex™ flexible hoses may be painted or coated, provided that the paint or coating is compatible with stainless steel material. Care shall be taken to ensure that the sprinkler and associated components are not painted.
- When using recessed sprinklers, the standard long elbow reducer is recommended.
- **Flexible hose and fittings have limited flexibility and are intended only to be installed with bends not less than their respective minimum bend radii. DO NOT install a flexible hose in a straight configuration.**
- Victaulic® VicFlex™ Series AH1 and AH2 Flexible Hoses can be installed for hydrostatic testing and then readjusted for final sprinkler placement once the ceiling structure and associated Victaulic® VicFlex™ brackets are installed.
- Protect wet piping systems from freezing temperatures.
- If construction is altered, the building owner or their representative is responsible for referencing applicable standards to determine if additional sprinklers or other system adjustments are required.
- The building owner or their representative is responsible for maintaining the fire protection system in proper operating condition.
- After installation is complete, the entire sprinkler system shall be tested in accordance with applicable standards (NFPA 13, NFPA 25, etc.) that describe the care and maintenance of sprinkler systems. In addition, the authority having jurisdiction may have additional maintenance, testing, and inspection requirements that shall be followed. **NOTE:** A successful test is not a substitute for proper system installation and maintenance.
- Victaulic® VicFlex™ flexible hoses may penetrate drywall.

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# Construction Requirements

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## Overview

The following section identifies the requirements for ceiling or wall construction. Contact Victaulic® for information regarding applications that do not appear in this section.

### Style AB1, AB2, AB7, and AB10 Brackets

Construction shall meet the requirements of ASTM C635 for ceiling suspension systems and shall be installed in accordance with ASTM C636 standards. VdS Approval for Style AB1, AB2, AB7, and AB10 Brackets applies only for use with the following manufacturers' ceiling suspension systems:

AMF	Dipling	Gema-Armstrong	Lafarge	Richter	Suckow & Fischer
Armstrong	Durlum	Hilti	Lindner	Rigips	USG Donn
Chicago Metallic	Geipel	Knauf	Odenwald	Rockfon Pagos	

### Style AB3 Bracket

The Victaulic® VicFlex™ Style AB3 Bracket is designed for use as a surface-mount bracket for pendent or sidewall applications in wood, metal, or concrete block walls or ceilings.

### Style AB4 Bracket

Construction shall meet the requirements of ASTM C645 for hat furring channel ceiling systems and shall be installed in accordance with ASTM C754 standards. **NOTE:** VdS Approval for the Style AB4 Bracket does not require specific approval for manufacturers of hat furring channel ceiling systems.

### Style AB5 Bracket

The Victaulic® VicFlex™ Style AB5 Bracket is designed for use on wood or metal joists/studs and CD Profile (60 mm) channel ceiling systems.

### Style AB6 Bracket

The Victaulic® VicFlex™ Style AB6 assembly shall be installed only in applications where the minimum thickness of the ceiling or wall is 3 inches/76 mm and the strength and structure of the ceiling or wall is comparable to or stronger than thin-clad aluminum freezer panel.

### Style AB11 Bracket

Construction shall meet the requirements of ASTM C635 for ceiling suspension systems and shall be installed in accordance with ASTM C636 or ASTM C754 standards. VdS Approval for Style AB11 Brackets applies only for use with the following manufacturers' ceiling suspension systems:

AMF	Dipling	Gema-Armstrong	Lafarge	Richter	Suckow & Fischer
Armstrong	Durlum	Hilti	Lindner	Rigips	USG Donn
Chicago Metallic	Geipel	Knauf	Odenwald	Rockfon Pagos	

### Style AB12 Bracket

The Victaulic® VicFlex™ Style AB12 Threaded Rod Bracket is designed for use in suspended and hard-lid ceilings.

### Style ABBA and ABMM Brackets

The Victaulic® VicFlex™ Style ABBA and ABMM Brackets are designed for installation in multiple configurations on various wall and ceiling surfaces. Refer to the specific product instructions in this handbook for a complete listing of installation configurations.



## **Style AQC-U**

The Victaulic® VicFlex™ Style AQC-U Sprinkler Fitting is FM Approved for use with cleanroom ceilings. Refer to the “Listing and Approval Information - Flexible Hose Assemblies with Corresponding Maximum Working Pressure Rating (AQC-U/AQC and AQD)” section in this handbook.

## **Style C-AQC (Regional Availability Only)**

The Victaulic® VicFlex™ Style C-AQC Sprinkler Fitting is FM Approved and CCC Approved for use with cleanroom ceilings. Refer to the “Listing and Approval Information - Flexible Hose Assemblies with Corresponding Maximum Working Pressure Rating (AQC-U/C-AQC and AQD)” section in this handbook.

### **NOTES FOR STYLE AQC-U AND C-AQC:**

Channel Systems is a product of Channel Systems, Inc.

CLIN is a product of Cleanroom Industries Sdn. Bdh.

Gordon is a product of Gordon Incorporated.

M+W Zander Facility Engineering GmbH is a company of the M+W Group.

SBB Daldrop and SBB Gorilla Grid are products of SBB, Inc.

Topwell is a product of Chyi Lee Industry Co., Ltd.

Tenryo is a product of Tenryo Technology & Engineering Co., Ltd.

Topline is a product of Topline System Engineering Co., Ltd.

## **Style AQD**

The Victaulic® VicFlex™ Style AQD Sprinkler Fitting is designed for use on round or square fiberglass reinforced pipe (FRP) ducts.

## **Style AQD-M**

The Victaulic® VicFlex™ Style AQD-M Sprinkler Fitting is designed for use on round or square metal ducts.

## **Style VB1 Bracket for Style VS1 Dry Sprinklers**

The Victaulic® VicFlex™ Style VB1 Bracket is designed for use on wood or metal joists.

## **Style VB2 Bracket for Style VS1 Dry Sprinklers**

The Victaulic® VicFlex™ Style VB2 Bracket is designed for use with ASTM C635 suspended ceilings only.

## **Style VB3 and VB4 Brackets for Style VS1 Dry Sprinklers**

Construction shall meet the requirements of ASTM C635 for ceiling suspension systems installed with lay-in tiles (in accordance with ASTM C636 standards). In addition, the Style VB3 and VB4 Brackets are designed for use on wood joists/studs and on ASTM C645 metal joists/studs installed in accordance with ASTM C754 standards.

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# Styles AB1, AB2, and AB10 Brackets

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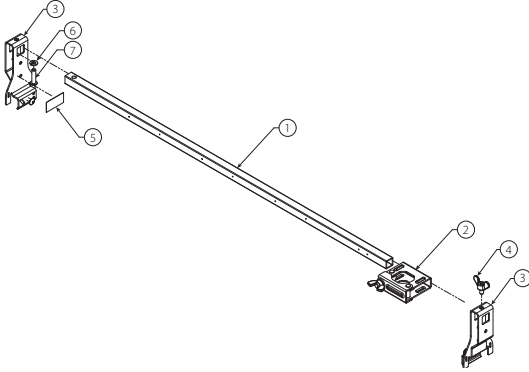
## Installation Instructions

# INTRODUCTION

Victaulic® VicFlex™ Sprinkler Fittings connect the sprinkler piping directly to the sprinkler using a flexible hose and fittings and are designed for use in ceiling suspension systems.

- Refer to the “General Information” and “Construction Requirements” sections.
- Refer to the “Technical Data” section.

## STYLE AB1 BRACKET ASSEMBLY DRAWING

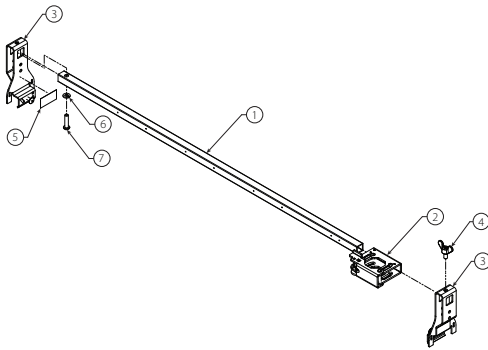


Item	Style AB1 Description
1	24-inch/610-mm or 48-inch/1219-mm Square Bar*
2	Center Gate Assembly with Wing Nut
3	End Bracket with Sheet Metal Screw
4	Wing Screw
5	Relocation Warning Label
6	Helical Spring-Lock Washer
7	T25 Socket Button Head Cap Screw

\*For the UL Listing, when the 48-inch/1220-mm length bracket is used, the maximum sprinkler K-factor is K8.0 and the maximum spacing is 30-inches/762-mm. Square bar length is in reference to nominal ceiling grid spacing.



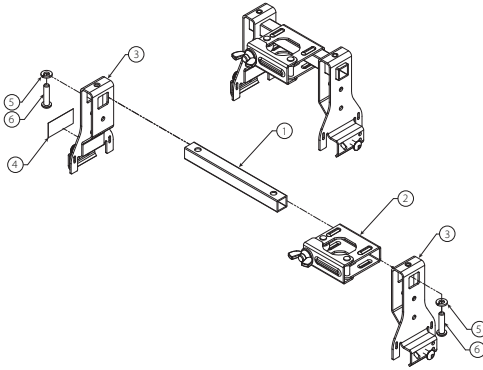
# STYLE AB2 BRACKET ASSEMBLY DRAWING



Item	Style AB2 Description
1	24-inch/610-mm or 48-inch/1219-mm Square Bar*
2	Center Gate Assembly with Adjustment Screw
3	End Bracket with Sheet Metal Screw
4	Wing Screw
5	Relocation Warning Label
6	Helical Spring-Lock Washer
7	T25 Socket Button Head Cap Screw

\*For the UL Listing, when the 48-inch/1220-mm length bracket is used, the maximum sprinkler K-factor is K8.0 and the maximum spacing is 30-inches/762-mm. Square bar length is in reference to nominal ceiling grid spacing.

# STYLE AB10 BRACKET ASSEMBLY DRAWING



Item	Style AB10 Description
1	6-inch/152-mm Square Bar
2	Center Gate Assembly with Wing Nut
3	End Bracket with Sheet Metal Screw
4	Relocation Warning Label
5	Helical Spring-Lock Washer
6	T25 Socket Button Head Cap Screw

## INSTALLATION OF STYLE AB1, AB2, AND AB10 BRACKETS FOR ASTM 635 CEILING SUSPENSION SYSTEMS IN ACCORDANCE WITH ASTM 636 STANDARDS

### **WARNING**

- The flexible hose shall not be bent or fluctuated up-and-down or side-to-side when pressurized.

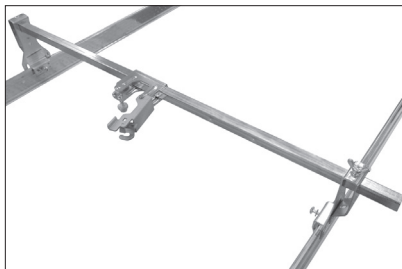
Failure to follow these instructions could cause improper sprinkler operation, resulting in death or serious personal injury and property damage.

1. Install the flexible hose into the sprinkler piping and the sprinkler reducing nipple onto the flexible hose by following the applicable instructions in the “Connection to Sprinkler Piping” and “Connecting the Sprinkler Reducing Nipple to the Flexible Hose” sections.

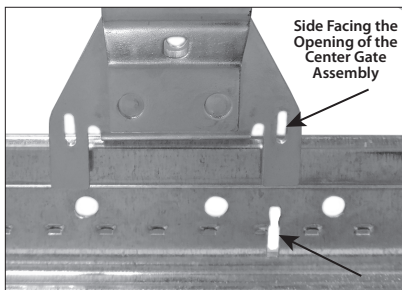




**FOR STYLES AB1 AND AB2 BRACKETS ONLY:** For adjustment purposes, the wing screw on top of the end bracket assembly can be loosened to allow the end bracket to slide on the square bar. Tighten the wing screw on top of the end bracket assembly to a torque of 36 inch-lbs/ 4 N•m (approximately ½ to ¾ of a turn past hand-tight) to secure the end bracket to the square bar.



**2.** Attach the end brackets of the Style AB1, AB2, or AB10 Bracket to the T-bar rails of an ASTM C635 ceiling suspension system installed in accordance with ASTM C636 standards. Verify that the ends of the Style AB1, AB2, or AB10 Bracket engage the rails.



**2a.** For center-of-tile installations, align the end bracket with the center-of-tile slot of the T-bar rail (with the side facing the opening of the center gate assembly), as shown.



**2b.** Apply light downward pressure, as shown above, to maintain the position of the end bracket flat against the T-bar rail. To secure the end brackets to the T-bar rails, tighten the pre-installed sheet metal screws using a T25 drive bit. Penetrate through the T-bar rail until the end bracket is seated fully against the T-bar rail, as shown above. **DO NOT over-tighten the screws. Over-tightening will cause the screw to strip, resulting in an unsecured bracket connection.**

**3.** Complete the installation by following the applicable instructions in the “Sprinkler Reducing Nipple Installation,” “Sprinkler Installation,” and “Ceiling Tile Installation” sections.

# INSTALLATION OF THE STYLE AB2 BRACKET FOR ASTM C645 HAT FURRING CHANNEL CEILING SYSTEMS INSTALLED IN ACCORDANCE WITH ASTM C754 STANDARDS (FM AND VDS ONLY)

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1. Install the flexible hose into the sprinkler piping and the sprinkler reducing nipple onto the flexible hose by following the applicable instructions in the “Connection to Sprinkler Piping” and “Connecting the Sprinkler Reducing Nipple to the Flexible Hose” sections.



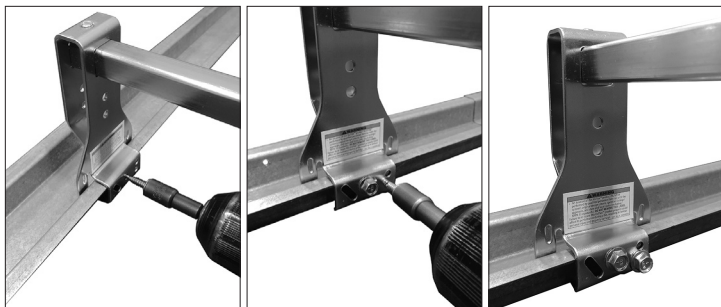
2. Using a T25 drive bit, remove the pre-installed sheet metal screw from each Style AB2 end bracket.



**NOTE:** For adjustment purposes, the wing screw on top of the Style AB2 end bracket assembly can be loosened to allow the end bracket to slide on the square bar. Tighten the wing screw on top of the end bracket assembly to a torque of 36 inch-lbs/4 N•m (approximately ½ to ¾ of a turn past hand-tight) to secure the end bracket to the square bar.



3. Attach the end brackets of the Style AB2 Bracket to the T-bar rails of the CD Profile (60 mm) Channel Ceiling System. Verify that the ends of the Style AB2 Bracket engage the rails.



4. To secure the end brackets to the T-bar rails of the CD Profile (60-mm) Channel Ceiling System, tighten a #10 diameter x 1-inch length sheet metal screw (not provided) into the center and bottom right hole locations of each end bracket (four total locations), as shown above. Penetrate each sheet metal screw through the T-bar rail until the end bracket is seated fully against the T-bar rail.

**DO NOT over-tighten the screws. Over-tightening will cause the screws to strip, resulting in an unsecured bracket connection.**

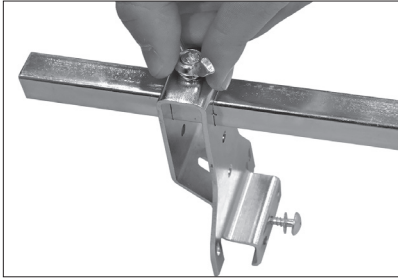


5. Verify that the wing screw on top of the end bracket assembly is tightened to a torque of 36 inch-lbs/4 N•m (approximately  $\frac{1}{2}$  to  $\frac{3}{4}$  of a turn past hand-tight).

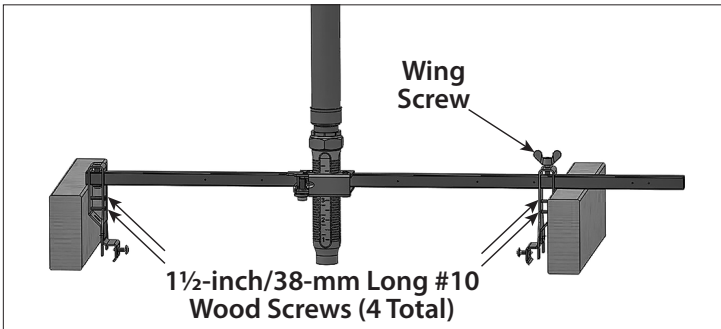
6. Complete the installation by following the applicable instructions in the “Sprinkler Reducing Nipple Installation” and “Sprinkler Installation” sections.

# WOOD JOISTS/STUDS INSTALLATION (FM ONLY FOR AB1 AND FM/UL FOR AB2)

1. Install the flexible hose into the sprinkler piping and the sprinkler reducing nipple onto the flexible hose by following the applicable instructions in the "Connection to Sprinkler Piping" and "Connecting the Sprinkler Reducing Nipple to the Flexible Hose" sections.



2. Loosen and remove the wing screw of the Style AB1 or AB2 end bracket assembly.



3. Rotate the end bracket assembly (side with the wing screw removed in step 2) 180°, as shown in the graphic above. Reinstall the wing screw loosely into the top of the end bracket assembly.

3a. Place the end bracket assembly (without the wing screw) against the outside surface of the metal joist/stud with the square bar resting on top of the metal joists/studs.

3b. Slide the end bracket assembly (with the wing screw) toward the outside, flat surface of the opposite metal joist/stud, as shown in the graphic above.

4. Install the modified Style AB1 or AB2 Bracket to the metal joists/studs by using four, 1 ¼-inch/32-mm long #10 self-drilling sheet metal screws in the locations noted in the graphic shown above. **NOTE:** Install the top two sheet metal screws first.

5. **Optional:** Tighten the wing screw on top of the end bracket assembly to a torque of 36 inch-lbs/4 N•m (approximately ½ to ¾ of a turn past hand-tight).

6. Complete the installation by following the applicable instructions in the "Sprinkler Reducing Nipple Installation" and "Sprinkler Installation" sections.

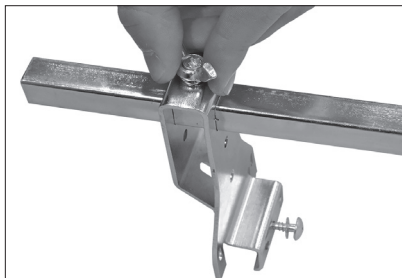
## NOTES:

- For metal joists/studs larger than 2 x 4, longer sprinkler reducing nipples shall be used, or one of the alternative installation methods on the following pages shall be followed.
- For the 24-inch/610-mm length Style AB2 Bracket, the maximum on-center spacing between metal joists/studs is 20-inches/508-mm.

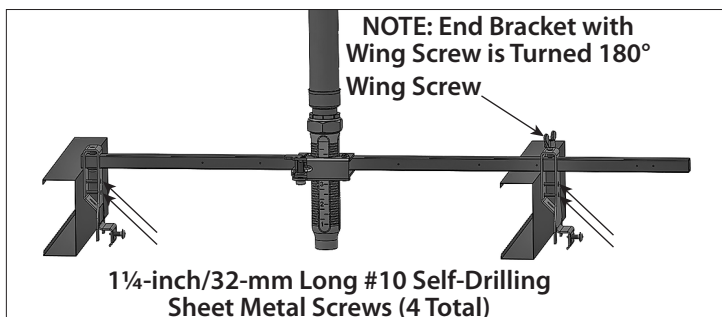


# ASTM C645 METAL JOISTS/STUDS IN ACCORDANCE WITH ASTM C754 STANDARDS INSTALLATION (FM ONLY FOR AB1 AND FM/UL FOR AB2)

1. Install the flexible hose into the sprinkler piping and the sprinkler reducing nipple onto the flexible hose by following the applicable instructions in the “Connection to Sprinkler Piping” and “Connecting the Sprinkler Reducing Nipple to the Flexible Hose” sections.



2. Loosen and remove the wing screw of the Style AB1 or AB2 end bracket assembly.



3. Rotate the end bracket assembly (side with the wing screw removed in step 2) 180°, as shown in the graphic above. Reinstall the wing screw loosely into the top of the end bracket assembly.

3a. Place the end bracket assembly (without the wing screw) against the outside surface of the metal joist/stud with the square bar resting on top of the metal joists/studs.

3b. Slide the end bracket assembly (with the wing screw) toward the outside, flat surface of the opposite metal joist/stud, as shown in the graphic above.

4. Install the modified Style AB1 or AB2 Bracket to the metal joists/studs by using four, 1¼-inch/32-mm long #10 self-drilling sheet metal screws in the locations noted in the graphic shown above. **NOTE:** Install the top two sheet metal screws first.

5. **Optional:** Tighten the wing screw on top of the end bracket assembly to a torque of 36 inch-lbs/4 N•m (approximately ½ to ¾ of a turn past hand-tight).

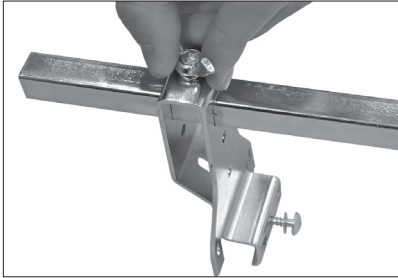
6. Complete the installation by following the applicable instructions in the “Sprinkler Reducing Nipple Installation” and “Sprinkler Installation” sections.

#### NOTES:

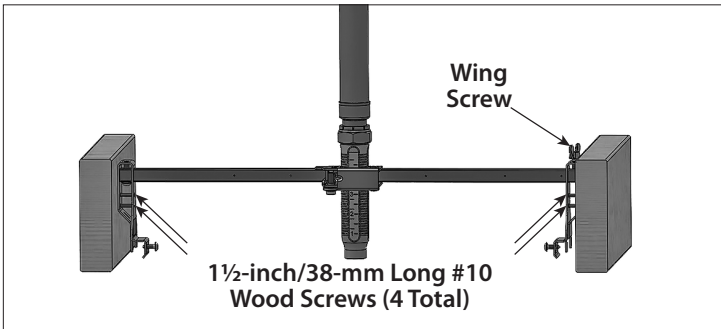
- For metal joists/studs larger than 2 x 4, longer sprinkler reducing nipples shall be used, or one of the alternative installation methods on the following pages shall be followed.
- For the 24-inch/610-mm length Style AB2 Bracket, the maximum on-center spacing between metal joists/studs is 20-inches/508-mm.

# ALTERNATIVE #1 – WOOD JOIST/STUD INSTALLATION (FM ONLY FOR AB1 AND AB2)

1. Install the flexible hose into the sprinkler piping and the sprinkler reducing nipple onto the flexible hose by following the applicable instructions in the “Connection to Sprinkler Piping” and “Connecting the Sprinkler Reducing Nipple to the Flexible Hose” sections.



2. Loosen and remove the wing screw of the Style AB1 or AB2 end bracket assembly.



3. Measure the distance between the wood joists/studs.

3a. Cut the square bar to the length needed to fit between the two wood joists/studs. This length shall be measured from the outside of the end bracket assembly to the point on the square bar that will butt against the other wood joist/stud.

4. Place the end bracket assembly, removed in step 2, onto the end of the square bar so that the square bar is flush with the outside of the end bracket assembly. Reinstall the wing screw loosely into the top of the end bracket assembly.

5. Install the modified Style AB1 or AB2 Bracket between the wood joists/studs by using four, 1 1/2-inch/38-mm long #10 wood screws in the locations noted in the graphic shown above. **NOTE:** Install the top two wood screws first.

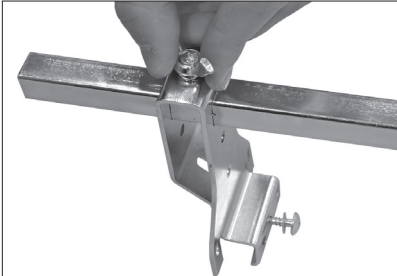
6. Tighten the wing screw on top of the end bracket assembly to a torque of 36 inch-lbs/ 4 N•m (approximately 1/2 to 3/4 of a turn past hand-tight).

7. Complete the installation by following the applicable instructions in the “Sprinkler Reducing Nipple Installation” and “Sprinkler Installation” sections.

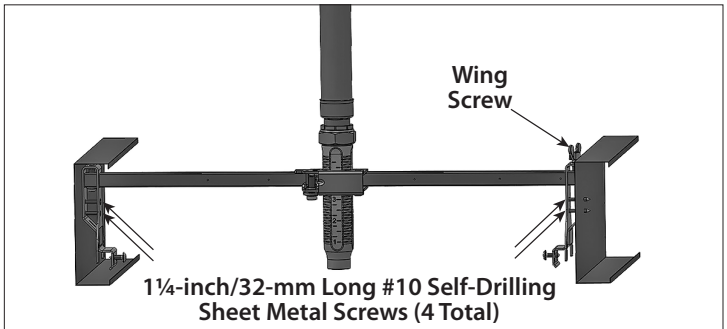


# ALTERNATIVE #1 – METAL JOIST/STUD INSTALLATION (FM ONLY FOR AB1 AND AB2)

1. Install the flexible hose into the sprinkler piping and the sprinkler reducing nipple onto the flexible hose by following the applicable instructions in the “Connection to Sprinkler Piping” and “Connecting the Sprinkler Reducing Nipple to the Flexible Hose” sections.



2. Loosen and remove the wing screw of the Style AB1 or AB2 end bracket assembly.



3. Measure the distance between the metal joists/studs.

3a. Cut the square bar to the length needed to fit between the two metal joists/studs. This length shall be measured from the outside of the end bracket assembly to the point on the square bar that will butt against the other metal joist/stud.

4. Place the end bracket assembly, removed in step 2, onto the end of the square bar so that the square bar is flush with the outside of the end bracket assembly. Reinstall the wing screw loosely into the top of the end bracket assembly.

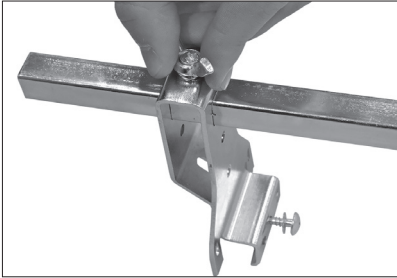
5. Install the modified Style AB1 or AB2 Bracket between the metal joists/studs by using four, 1 1/4-inch/32-mm long #10 self-drilling sheet metal screws in the locations noted in the graphic shown above. **NOTE:** Install the top two sheet metal screws first.

6. Tighten the wing screw on top of the end bracket assembly to a torque of 36 inch-lbs/ 4 N•m (approximately 1/2 to 3/4 of a turn past hand-tight).

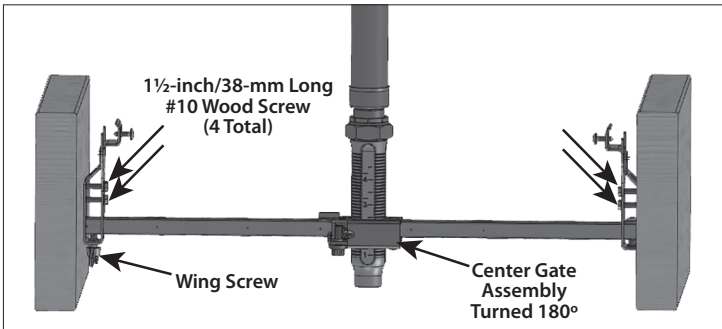
7. Complete the installation by following the applicable instructions in the “Sprinkler Reducing Nipple Installation” and “Sprinkler Installation” sections.

## ALTERNATIVE #2 – WOOD JOIST/STUD INSTALLATION (FM ONLY FOR AB1 AND AB2)

1. Install the flexible hose into the sprinkler piping and the sprinkler reducing nipple onto the flexible hose by following the applicable instructions in the “Connection to Sprinkler Piping” and “Connecting the Sprinkler Reducing Nipple to the Flexible Hose” sections.



2. Loosen and remove the wing screw of the Style AB1 or AB2 end bracket assembly.



**2a. FOR STYLE AB2 BRACKETS ONLY:** Remove and turn the center gate assembly 180° so that the adjustment screw is facing downward when the bracket is installed in the orientation shown below.

3. Measure the distance between the wood joists/studs.

**3a.** Cut the square bar to the length needed to fit between the two wood joists/studs. This length shall be measured from the outside of the end bracket assembly to the point on the square bar that will butt against the other wood joist/stud.

4. Place the end bracket assembly, removed in step 2, onto the end of the square bar so that the square bar is flush with the outside of the end bracket assembly. Reinstall the wing screw loosely into the top of the end bracket assembly.

5. Install the modified Style AB1 or AB2 Bracket between the wood joists/studs by using four, 1 1/2-inch/38-mm long #10 wood screws in the locations noted in the graphic shown above. **NOTE:** Install the top two wood screws first.

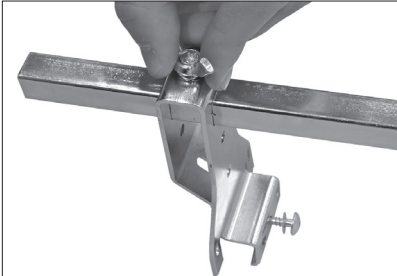
6. Tighten the wing screw on top of the end bracket assembly to a torque of 36 inch-lbs/ 4 N•m (approximately 1/2 to 3/4 of a turn past hand-tight).

7. Complete the installation by following the applicable instructions in the “Sprinkler Reducing Nipple Installation” and “Sprinkler Installation” sections.

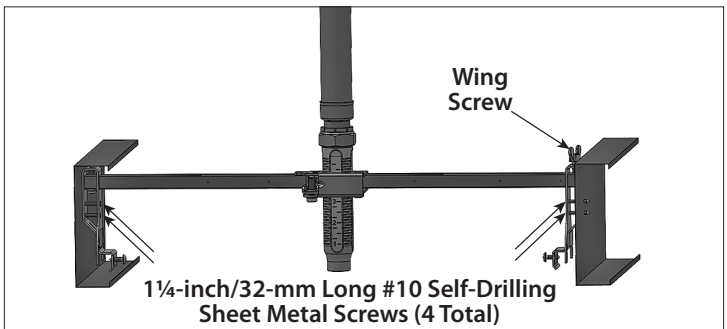


# ALTERNATIVE #2 – METAL JOIST/STUD INSTALLATION (FM ONLY FOR AB1 AND AB2)

1. Install the flexible hose into the sprinkler piping and the sprinkler reducing nipple onto the flexible hose by following the applicable instructions in the “Connection to Sprinkler Piping” and “Connecting the Sprinkler Reducing Nipple to the Flexible Hose” sections.



2. Loosen and remove the wing screw of the Style AB1 or AB2 end bracket assembly.



**2a. FOR STYLE AB2 BRACKETS ONLY:** Remove and turn the center gate assembly 180° so that the adjustment screw is facing downward when the bracket is installed in the orientation shown below.

3. Measure the distance between the metal joists/studs.

**3a.** Cut the square bar to the length needed to fit between the two metal joists/studs. This length shall be measured from the outside of the end bracket assembly to the point on the square bar that will butt against the other metal joist/stud.

4. Place the end bracket assembly, removed in step 2, onto the end of the square bar so that the square bar is flush with the outside of the end bracket assembly. Reinstall the wing screw loosely into the top of the end bracket assembly.

5. Install the modified Style AB1 or AB2 Bracket between the metal joists/studs by using four, 1 1/4-inch/32-mm long #10 self-drilling sheet metal screws in the locations noted in the graphic shown above. **NOTE:** Install the top two sheet metal screws first.

6. Tighten the wing screw on top of the end bracket assembly to a torque of 36 inch-lbs/ 4 N•m (approximately 1/2 to 3/4 of a turn past hand-tight).

7. Complete the installation by following the applicable instructions in the “Sprinkler Reducing Nipple Installation” and “Sprinkler Installation” sections.

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I-VICFLEX\_34

# Style AB3 Bracket

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## Installation Instructions

# INTRODUCTION

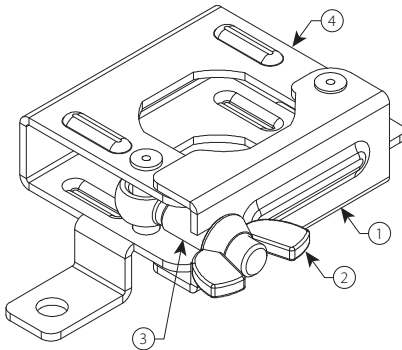
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The Style AB3 Sprinkler Fitting can be installed as a surface mount bracket for pendent or sidewall applications in wood, metal, or concrete block walls or ceilings, along with VicFlex™ flexible hoses. For institutional sprinklers used with the Style AB3 Bracket, refer to the specific sprinkler manufacturer's technical data and installation instructions for complete requirements.

- Refer to the "General Information" and "Construction Requirements" sections.
- Refer to the "Technical Data" section.

## STYLE AB3 BRACKET ASSEMBLY DRAWING

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Item	Style AB3 Description
1	Gate
2	Wing Nut
3	Pivot Screw
4	Bracket Body

# INSTALLATION OF THE STYLE AB3 SURFACE-MOUNT BRACKET ON A WALL OR CEILING

## WARNING

- The flexible hose shall not be bent or fluctuated up-and-down or side-to-side when pressurized.
- Style AB3 Surface-Mount Brackets shall be installed only with Victaulic® VicFlex™ Series AH1, AH2, AH2-300, AH2-CC-300, AH2-638 or AH4 flexible hoses.

**Failure to follow these instructions could cause improper sprinkler operation, resulting in death or serious personal injury and property damage.**

The following photos show the Style AB3 Surface-Mount Bracket being installed in a sidewall application on a concrete block wall. However, the same installation steps apply to the Style AB3 as a surface-mount bracket for pendent or sidewall applications consisting of wood or metal walls or ceilings or concrete block ceilings.

**1.** Install the flexible hose into the sprinkler piping and the sprinkler reducing nipple onto the flexible hose by following the applicable instructions in the “Connection to Sprinkler Piping” and “Connecting the Sprinkler Reducing Nipple to the Flexible Hose” sections. In addition, for applications that utilize Victaulic® FireLock™ Automatic Sprinklers, refer to the “Sprinkler Installation” section.



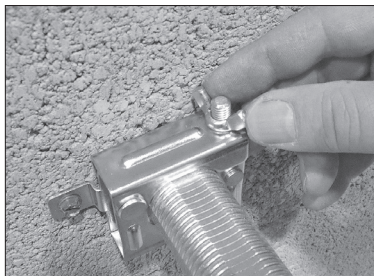
**2.** Drill a hole into the wall or ceiling at the desired location. Refer to the sprinkler manufacturer’s installation instructions for the required hole size.



**3.** Place the Style AB3 Bracket over the hole cut into the wall or ceiling in Step 2. Secure the Style AB3 Bracket to the wall or ceiling using ¼-inch/6-mm diameter screws through each of the mounting holes on each side of the bracket. Tighten the two screws completely until the bracket is retained firmly against the wall or ceiling. **NOTE:** The selected screws shall be appropriate for the wall or ceiling material. Refer to the hardware manufacturer’s instructions for each application.

4. Slide the sprinkler reducing nipple into the center gate assembly and through the hole in the masonry wall or ceiling. Verify that the bends in the flexible hose comply with requirements listed in the "Technical Data" section of this handbook.

4a. Close the gate around the sprinkler reducing nipple. Swing the pivot screw into the slot on the gate, and tighten the wing nut to a torque of 40 – 50 inch-lbs/4.5 - 5.6 N•m (approximately hand-tight, plus ½ to ¾ of a turn). **NOTE:** The pivot screw of the center gate assembly is staked to resist removal of the wing nut.



## NOTICE

- When the Style AB3 is used in institutional applications, install the institutional sprinkler by following the manufacturer's installation instructions. For other applications that utilize Victaulic® FireLock™ Automatic Sprinklers, refer to the I-40 Installation and Maintenance Instructions for sprinkler installation requirements.
- If the sprinkler deflector or bulb protector appears too large to pass through the hole in the ceiling or wall, it may be necessary to install the sprinkler after the sprinkler reducing nipple is installed in the Style AB3 Surface-Mount Bracket.

# Style AB4 Bracket

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## Installation Instructions

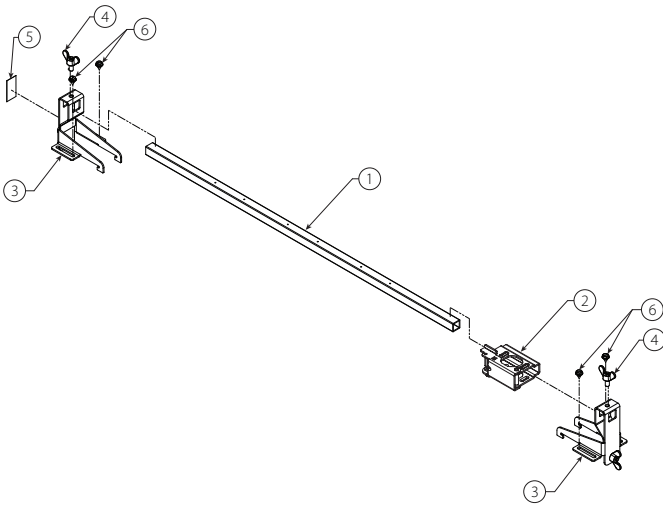
# INTRODUCTION

Victaulic® VicFlex™ Sprinkler Fittings connect the sprinkler piping directly to the sprinkler using a flexible hose and fittings and are designed for use in hat furring channel ceiling applications.

Ceiling construction shall meet the requirements of ASTM C645 and shall be installed in accordance with ASTM C754.

- Refer to the “Technical Data for Flexible Hoses” section.
- Refer to the “Important Information Installation” section.

## STYLE AB4 BRACKET ASSEMBLY DRAWING



Item	Style AB4 Description
1	24-inch/610-mm or 48-inch/1219-mm Square Bar*
2	Center Gate Assembly with Adjustment Screw
3	Style AB4 End Bracket with Wing Screw
4	Wing Screw
5	Relocation Warning Label
6	Sheet Metal Screw (#10 - 24 x 3/8-inch)

\*For the UL Listing, when the 48-inch/1220-mm length bracket is used, the maximum sprinkler K-factor is K8.0 and the maximum spacing is 30-inches/762-mm. Square bar length is in reference to nominal ceiling grid spacing.

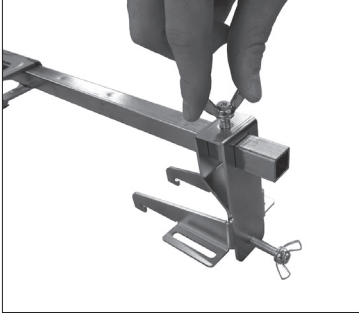




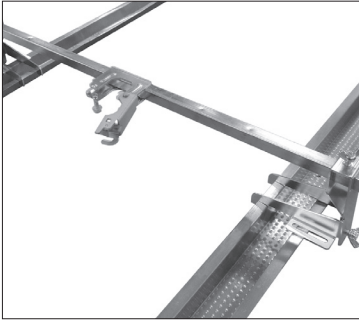
# INSTALLATION OF AB4 BRACKET FOR ASTM C645 HAT FURRING CHANNEL CEILING SYSTEMS IN ACCORDANCE WITH ASTM C754 STANDARDS

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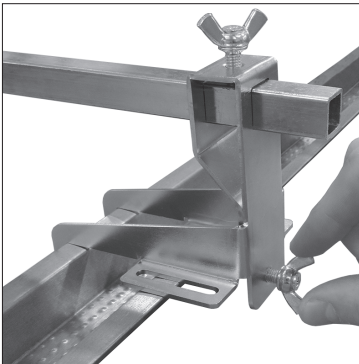
1. Install the flexible hose into the sprinkler piping and the sprinkler reducing nipple onto the flexible hose by following the applicable instructions in the “Connection to Sprinkler Piping” and “Connecting the Sprinkler Reducing Nipple to the Flexible Hose” sections.



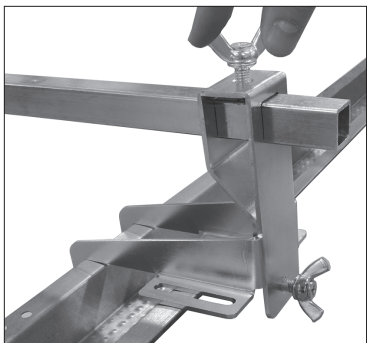
2. Loosen the wing screw on top of each end bracket assembly to allow the end brackets to slide on the square bar.



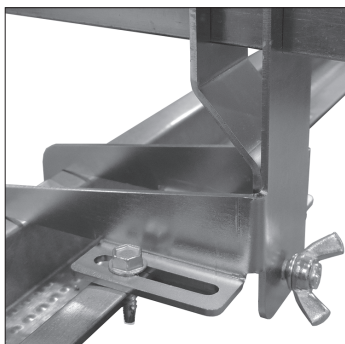
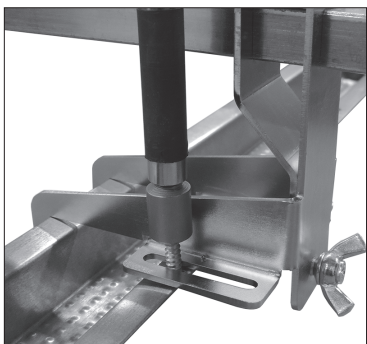
3. Attach the end brackets to the ASTM C645 hat furring channel ceiling system installed in accordance with ASTM C754 standards. Verify that the end brackets engage the hat furring channels, as shown on the left. Adjust the Style AB4 Bracket assembly to the appropriate location on the hat furring channel.



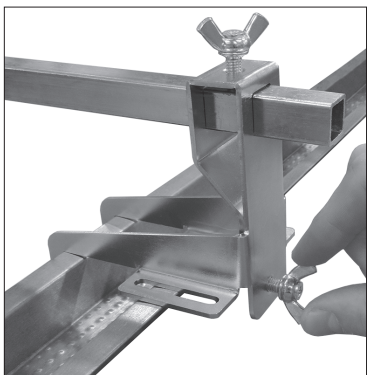
4. Hand-tighten the wing screw on the side of each end bracket until the end bracket is secured to the hat furring channels.



5. Tighten the wing screw on top of each end bracket assembly to a torque of 36 inch-lbs/4 N•m (approximately  $\frac{1}{2}$  to  $\frac{3}{4}$  of a turn past hand-tight) to secure the end brackets to the square bar.



6. Using a  $\frac{5}{16}$ -inch hex drive bit, tighten the #10-24 x  $\frac{3}{8}$ -inch sheet metal screw (provided with the bracket) through the two locations on each end bracket and into the hat furring channels.



7. Verify that the wing screw on the side of each end bracket is hand-tightened until the end bracket is secured to the hat furring channels.

8. Complete the installation by following the applicable instructions in the “Sprinkler Reducing Nipple Installation” and “Sprinkler Installation” sections.

# Style AB5 Bracket

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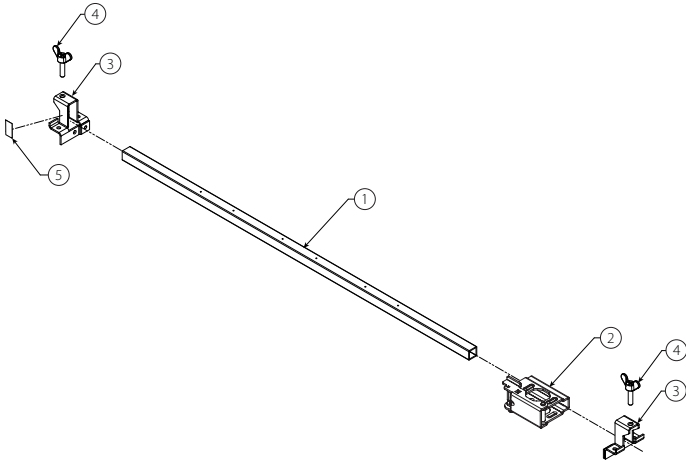
## Installation Instructions

# INTRODUCTION

Victaulic® VicFlex™ Sprinkler Fittings connect the sprinkler piping directly to the sprinkler using a flexible hose and fittings.

- Refer to the “Technical Data for Flexible Hoses” section.
- Refer to the “Important Installation Information” section.

## STYLE AB5 BRACKET ASSEMBLY DRAWING



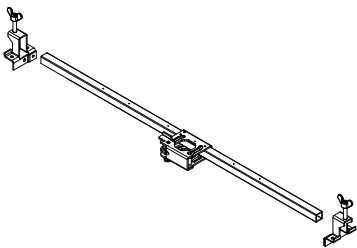
Item	Style AB5 Description
1	24-inch/610-mm or 48-inch/1219-mm Square Bar*
2	Center Gate Assembly with Adjustment Screw
3	Style AB5 End Bracket
4	Wing Screw
5	Relocation Warning Label

\*For the UL Listing, when the 48-inch/1220-mm length bracket is used, the maximum sprinkler K-factor is K8.0 and the maximum spacing is 30-inches/762-mm. Square bar length is in reference to nominal ceiling grid spacing.

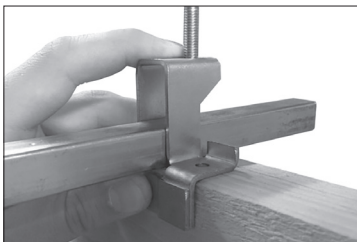
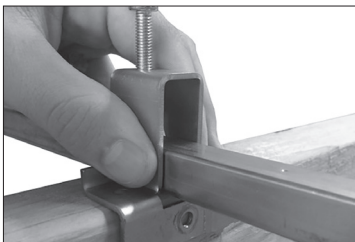


# INSTALLATION FOR WOOD JOISTS/STUDS

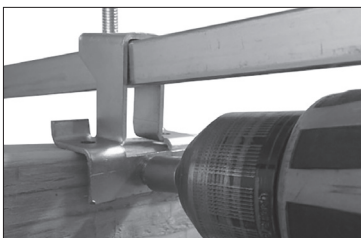
1. Install the flexible hose into the sprinkler piping and the sprinkler reducing nipple onto the flexible hose by following the applicable instructions in the “Connection to Sprinkler Piping” and “Connecting the Sprinkler Reducing Nipple to the Flexible Hose” sections.



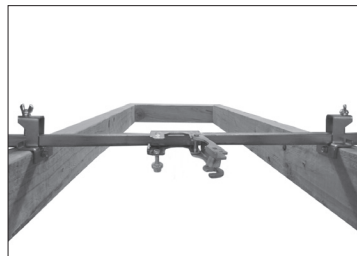
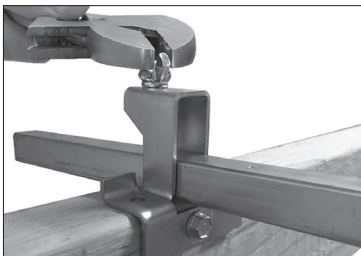
2. Place an end bracket assembly onto each end of the square bar so that the wing screw is facing outward (away from the center gate assembly), as shown on the left.



3. Place the end bracket assembly up against the inside surface of the one wood joist/stud with the top of the 90° bend resting on top of the wood joist/stud, as shown above. Repeat this step for the other end bracket assembly.



4. Install the Style AB5 Bracket to the wood joists/studs by using one, 1 ¼-inch/32-mm long #10 wood screw in each end bracket location shown in the photo on the left. Verify that the top of the 90° bend remains flush with the top of the wood joist/stud during installation of the wood screw.

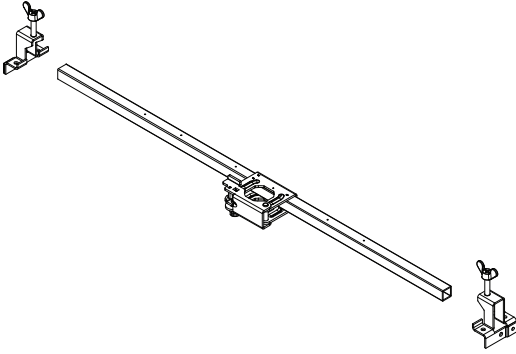


5. Secure the end brackets to the square bar by tightening the wing screw on top of each end bracket assembly until the bottom of the wing screw reaches metal-to-metal contact with the top of the end bracket.

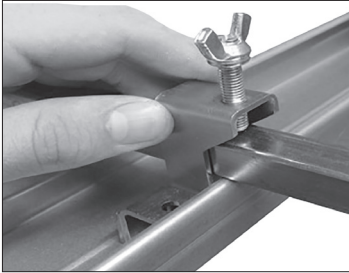
6. Complete the installation by following the applicable instructions in the “Sprinkler Reducing Nipple Installation” and “Sprinkler Installation” sections.

# INSTALLATION FOR CD PROFILE (60 MM) CHANNEL CEILING SYSTEMS (FM AND VdS ONLY)

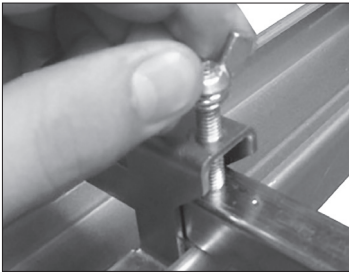
1. Install the flexible hose into the sprinkler piping and the sprinkler reducing nipple onto the flexible hose by following the applicable instructions in the "Connection to Sprinkler Piping" and "Connecting the Sprinkler Reducing Nipple to the Flexible Hose" sections.



2. Place an end bracket assembly onto each end of the square bar so that the wing screw is facing inward (toward the center gate assembly), as shown above.



3. Install each end bracket of the Style AB5 Bracket into the rails of the CD Profile (60 mm) Channel Ceiling System. Verify that the lip of each end bracket assembly engages with the channel.

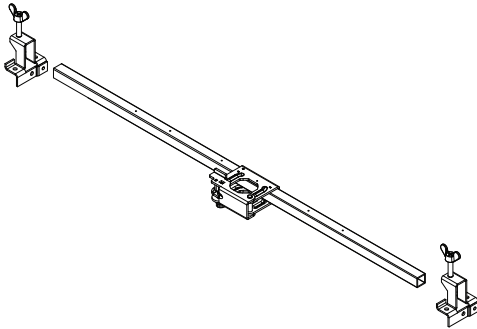


4. Tighten the wing screw on the top of each end bracket to a torque of 15 inch-lbs/ 1.7 N•m (approximately hand-tight, plus ¼ of a turn).

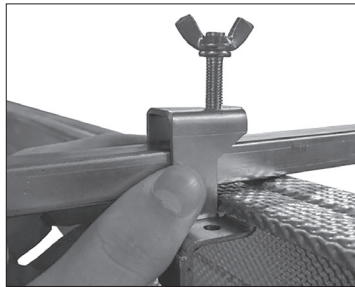
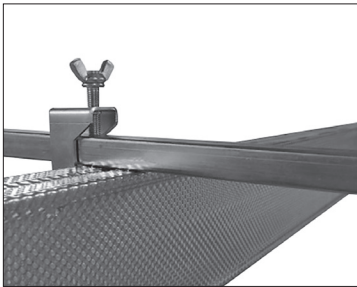
5. Complete the installation by following the applicable instructions in the "Sprinkler Reducing Nipple Installation" and "Sprinkler Installation" sections.

# INSTALLATION FOR ASTM C645 METAL JOISTS/ STUDS INSTALLED IN ACCORDANCE WITH ASTM C754 STANDARDS

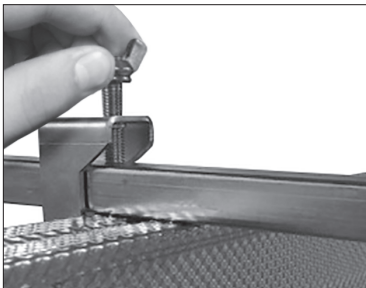
1. Install the flexible hose into the sprinkler piping and the sprinkler reducing nipple onto the flexible hose by following the applicable instructions in the “Connection to Sprinkler Piping” and “Connecting the Sprinkler Reducing Nipple to the Flexible Hose” sections.



2. Place an end bracket assembly onto each end of the square bar so that one of the wing screws is facing inward (toward the center gate assembly) and the other wing screw is facing outward (away from the center gate assembly), as shown above.



3. Install each end bracket of the Style AB5 Bracket onto the lip of the metal joist/studs. Verify that the lip of each end bracket assembly engages with the lip of the metal joist/stud.



4. Tighten the wing screw on the top of each end bracket to a torque of 15 inch-lbs/ 1.7 N•m (approximately hand-tight, plus ¼ of a turn).

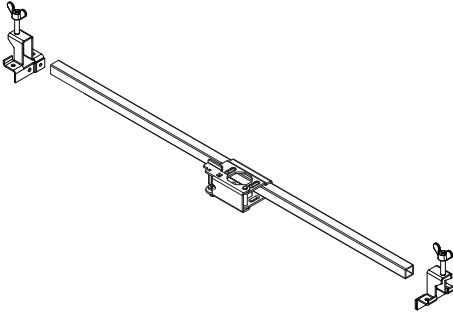
5. Complete the installation by following the applicable instructions in the “Sprinkler Reducing Nipple Installation” and “Sprinkler Installation” sections.

# INSTALLATION FOR ASTM C645 HAT FURRING CHANNEL CEILING SYSTEMS INSTALLED IN ACCORDANCE WITH ASTM C754 STANDARDS (FM ONLY)

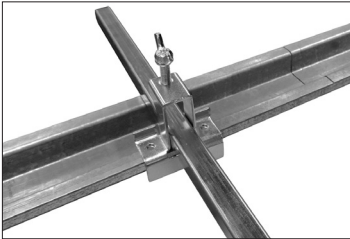
## NOTICE

- The installer shall verify suitability of fit between the Style AB5 Bracket assembly, sprinkler head, and hat furring channel ceiling system.
- Concealed pendent sprinklers may prevent proper engagement of the center gate assembly and sprinkler reducing nipple.

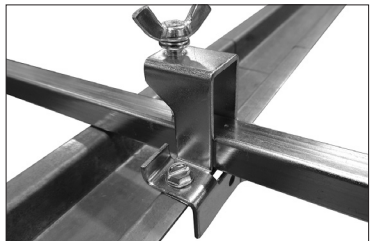
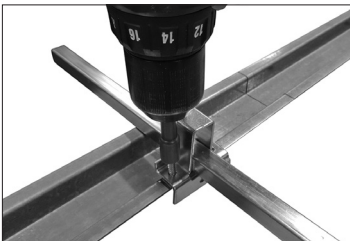
1. Install the flexible hose into the sprinkler piping and the sprinkler reducing nipple onto the flexible hose by following the applicable instructions in the "Connection to Sprinkler Piping" and "Connecting the Sprinkler Reducing Nipple to the Flexible Hose" sections.



2. Place an end bracket assembly onto each end of the square bar so that the wing screw is facing outward (away from the center gate assembly), as shown above.

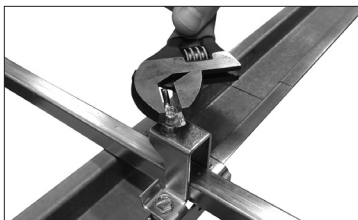


3. Place the end bracket assembly up against the inside surface of the one hat furring channel with the top of the 90° bend resting on top of the hat furring channel, as shown to the left. Repeat this step for the other end bracket assembly.



4. Using a  $\frac{5}{16}$ -inch hex drive bit, tighten a #10-24 x  $\frac{3}{8}$ -inch sheet metal screw (not provided with the bracket) through the two locations on each end bracket and into the hat furring channels.





**5.** Secure the end brackets to the square bar by tightening the wing screw on top of each end bracket assembly until the bottom of the wing screw reaches metal-to-metal contact with the top of the end bracket.

**6.** Complete the installation by following the applicable instructions in the “Sprinkler Reducing Nipple Installation” and “Sprinkler Installation” sections.

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I-VICFLEX\_50

# Style AB6 Bracket

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## Installation Instructions

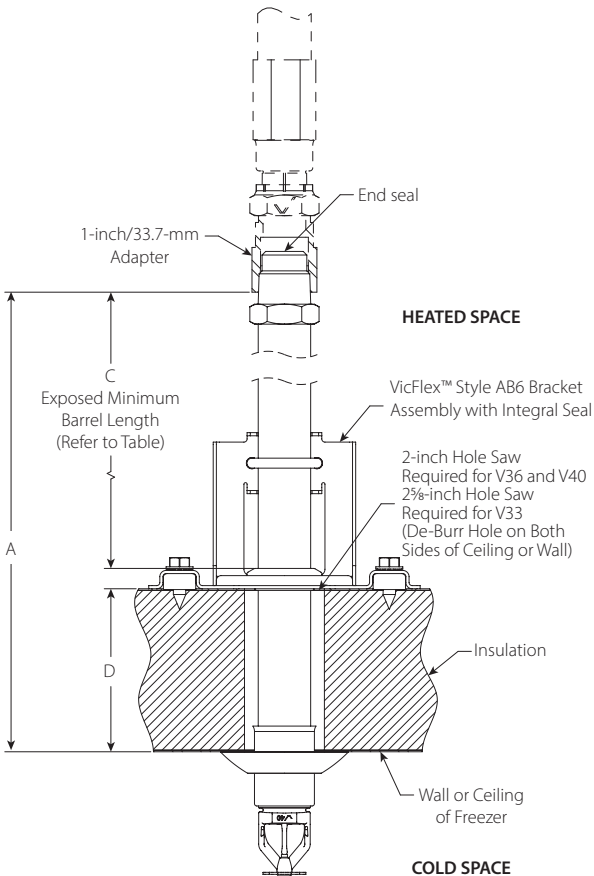
# INTRODUCTION

The Style AB6 Bracket Assembly consists of a V33, V36, or V40 Dry Sprinkler with additional mounting components and shall be installed only in applications where the minimum thickness of the ceiling or wall is 3-inches/76-mm and the strength and structure of the ceiling or wall is comparable to or stronger than thin-clad aluminum freezer panel.

- Refer to the “Technical Data for Flexible Hoses” section.
- Refer to the “Important Information Installation” section.

Refer to Victaulic® publication 10.90 for details regarding Style AB6 Bracket Assembly weights. The ceiling or wall shall be designed to support the load of the Style AB6 Bracket Assembly. Victaulic® publication 10.90 can be downloaded at [victaulic.com](http://victaulic.com)

## DRY SPRINKLER INSTALLATION EXAMPLE



### DRY SPRINKLER INSTALLATION EXAMPLE (Sleeve and Skirt Configuration Shown)

*Exaggerated for Clarity*

# TECHNICAL DATA FOR MODELS V33, V36, AND V40 DRY SPRINKLERS

For technical information regarding the Model V33, V36, or V40 Dry Sprinkler, refer to Victaulic® publication 10.90, which can be downloaded at victaulic.com.

**NOTE:** The graphic shown on the previous page is an example of a typical sleeve and skirt configuration.

## NOTICE

- The following table is used when the ambient temperature is maintained at 40°F/4°C minimum around the wet piping system.

### TEMPERATURE MAINTAINED AT 40°F/4°C MINIMUM

Ambient Temperature Exposed to Discharge End of Sprinkler	"D" Freezer Ceiling or Wall Thickness	"A" Order Length
Down to 20°F Down to -6.7°C	3 – 6 inch/76 – 152 mm	12 inch/305 mm
	7 – 12 inch/178 – 305 mm	18 inch/457 mm
19°F to 0°F -7.2°C to -17.8°C	3 – 6 inch/76 – 152 mm	18 inch/457 mm
	7 – 12 inch/178 – 305 mm	24 inch/610 mm
-1°F to -20°F -18.3°C to -28.9°C	3 – 6 inch/76 – 152 mm	24 inch/610 mm
	7 – 12 inch/178 – 305 mm	30 inch/762 mm
-21°F to -30°F -29.4°C to -34.4°C	3 – 6 inch/76 – 152 mm	24 inch/610 mm
	7 – 12 inch/178 – 305 mm	30 inch/762 mm
-31°F to -40°F -35.0°C to -40.0°C	3 – 6 inch/76 – 152 mm	24 inch/610 mm
	7 – 12 inch/178 – 305 mm	30 inch/762 mm

**NOTE:** Exposed minimum barrel lengths are inclusive up to 30-mph/48-kph wind velocities

### TEMPERATURE MAINTAINED AT 50°F/10°C MINIMUM

Ambient Temperature Exposed to Discharge End of Sprinkler	"D" Freezer Ceiling or Wall Thickness	"A" Order Length
Down to 20°F Down to -6.7°C	3 – 6 inch/76 – 152 mm	12 inch/305 mm
	7 – 12 inch/178 – 305 mm	18 inch/457 mm
19°F to 0°F -7.2°C to -17.8°C	3 – 6 inch/76 – 152 mm	12 inch/30 mm
	7 – 12 inch/178 – 305 mm	18 inch/457 mm
-1°F to -20°F -18.3°C to -28.9°C	3 – 6 inch/76 – 152 mm	18 inch/457 mm
	7 – 12 inch/178 – 305 mm	18 inch/457 mm
-21°F to -30°F -29.4°C to -34.4°C	3 – 6 inch/76 – 152 mm	18 inch/457 mm
	7 – 12 inch/178 – 305 mm	24 inch/610 mm
-31°F to -40°F -35.0°C to -40.0°C	3 – 6 inch/76 – 152 mm	18 inch/457 mm
	7 – 12 inch/178 – 305 mm	24 inch/610 mm

**TEMPERATURE MAINTAINED AT 60°F/16°C MINIMUM**

Ambient Temperature Exposed to Discharge End of Sprinkler	“D” Freezer Ceiling or Wall Thickness	“A” Order Length
Down to 20°F Down to -6.7°C	3 – 6 inch/76 – 152 mm	12 inch/305 mm
	7 – 12 inch/178 – 305 mm	18 inch/457 mm
19°F to 0°F -7.2°C to -17.8°C	3 – 6 inch/76 – 152 mm	12 inch/305 mm
	7 – 12 inch/178 – 305 mm	18 inch/457 mm
-1°F to -20°F -18.3°C to -28.9°C	3 – 6 inch/76 – 152 mm	12 inch/305 mm
	7 – 12 inch/178 – 305 mm	18 inch/457 mm
-21°F to -30°F -29.4°C to -34.4°C	3 – 6 inch/76 – 152 mm	12 inch/305 mm
	7 – 12 inch/178 – 305 mm	18 inch/457 mm
-31°F to -40°F -35.0°C to -40.0°C	3 – 6 inch/76 – 152 mm	12 inch/305 mm
	7 – 12 inch/178 – 305 mm	18 inch/457 mm

**Product Marking Information**

UL 2443 Model Designation	Outlet Fitting Mark	Description
AH2-XX-AB6	AB6	AH2 with Style AB6 Bracket Assembly and V33, V36, or V40 Dry Sprinkler
AH2-CC-XX-AB6	AB6	AH2-CC with Style AB6 Bracket Assembly and V33, V36, or V40 Dry Sprinkler

**NOTE:** Flexible hoses are marked with all UL model designations. In addition, the outlet fitting of the flexible hose is marked with the model's corresponding suffix designation, if applicable. Refer to the chart above to correlate the markings with the UL Listing.

# ASSEMBLY WEIGHTS

The values in the tables below are the total weight in pounds/kilograms for a Model V33, V36, or V40 Dry Sprinkler, a Series AH2 Flexible Hose (water-filled), and a Style AB6 Bracket Assembly.

V33, V36, or V40 AB6 Order Length inches/ mm	Weight - pounds/kilograms									
	AH2-31-AB6		AH2-36-AB6		AH2-48-AB6		AH2-60-AB6		AH2-72-AB6	
	V33/ V36	V40	V33/ V36	V40	V33/ V36	V40	V33/ V36	V40	V33/ V36	V40
12	6.5	6.1	6.9	6.5	8.1	7.7	9.2	8.8	10.3	9.9
305	3.0	2.8	3.1	3.0	3.7	3.5	4.2	4.0	4.7	4.5
18	7.5	7.0	7.9	7.4	9.1	8.6	10.2	9.7	11.3	10.8
457	3.4	3.2	3.6	3.4	4.1	3.9	4.6	4.4	5.1	4.9
24	8.5	7.9	8.9	8.3	10.1	9.5	11.2	10.6	12.3	11.7
610	3.9	3.6	4.0	3.8	4.6	4.3	5.1	4.8	5.6	5.3
30	9.5	8.8	9.9	9.2	11.1	10.4	12.2	11.5	13.3	12.6
762	4.3	4.0	4.5	4.2	5.0	4.7	5.5	5.2	6.0	5.7

The values in the tables below are the total weight in pounds/kilograms for a Model V33, V36, or V40 Dry Sprinkler, a Series AH2-CC, and a Style AB6 Bracket Assembly.

V33, V36, or V40 AB6 Order Length inches/ mm	Weight - pounds/kilograms									
	AH2-CC-31- AB6		AH2-CC-36- AB6		AH2-CC-48- AB6		AH2-CC-60- AB6		AH2-CC-72- AB6	
	V33/ V36	V40	V33/ V36	V40	V33/ V36	V40	V33/ V36	V40	V33/ V36	V40
12	7.5	7.1	7.9	7.5	9.1	8.7	10.2	9.8	11.3	10.9
305	3.4	3.2	3.6	3.4	4.1	4.0	4.6	4.5	5.1	5.0
18	8.5	8.0	8.9	8.4	10.1	9.6	11.2	10.7	12.3	11.8
457	3.9	3.6	4.0	3.8	4.6	4.4	5.1	4.9	5.6	5.4
24	9.5	8.9	9.9	9.3	11.1	10.5	12.2	11.6	13.3	12.7
610	4.3	4.0	4.5	4.2	5.0	4.8	5.5	5.3	6.0	5.8
30	10.5	9.8	10.9	10.2	12.1	11.4	13.2	12.5	14.3	13.6
762	4.8	4.5	5.0	4.6	5.5	5.2	6.0	5.7	6.5	6.2

## CAUTION

- It is the system designer's responsibility to verify that the ceiling and/or wall structure can support the weight of the Model V33, V36, or V40 Dry Sprinkler with Integral Style AB6 Bracket Assembly, as detailed in the above table.

Failure to follow this instruction could cause failure of the sprinkler system and sprinkler system components, resulting in property damage.

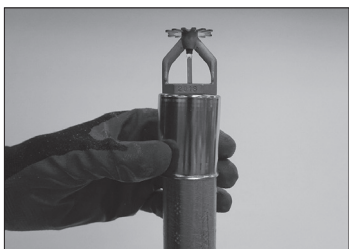
# NOTES FOR PREPARATION OF SLEEVE AND SKIRT AND RECESSED CONFIGURATIONS

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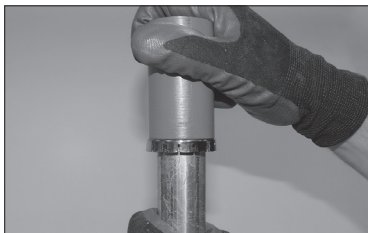
The following section covers steps that are required for preparation of dry sprinklers with removable sleeve and skirt and recessed escutcheon options. **NOTE: RECESSED PENDENT SPRINKLER ASSEMBLIES AND SUPPLIED ESCUTCHEON COMPONENTS ARE NOT FM APPROVED FOR THE 286°F/131°C TEMPERATURE CONFIGURATION.**



**1.** Temporarily remove the bulb protector from the sprinkler. Use caution when removing bulb protector to prevent damage to the bulb, deflector, and frame arms. **DO NOT** use any tools to remove the bulb protector.



**2.** Carefully place sleeve or collar over sprinkler and onto the barrel.



**3.** Using the tool provided, push down on the sleeve or collar just until the sleeve or collar is retained on the barrel. Use caution when using this tool to prevent damage to the bulb, deflector, and frame arms.



**4.** Reinstall the bulb protector onto the sprinkler. Use caution when reinstalling the bulb protector to prevent damage to the bulb, deflector, and frame arms. **DO NOT** use any tools to reinstall the bulb protector. **Sprinklers showing any signs of damage shall be replaced immediately.**



# INSTALLATION OF THE STYLE AB6 BRACKET ASSEMBLY

## CAUTION

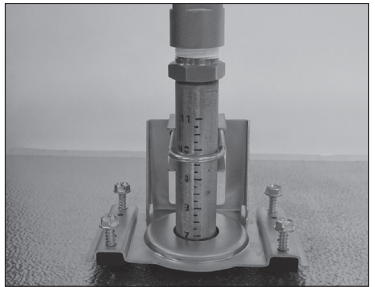
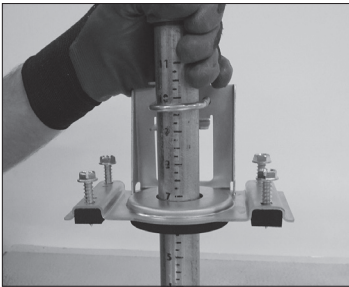
- The hole cut into the ceiling or wall shall be deburred on both sides. Failure to follow this instruction could cause sprinkler assembly leakage, resulting in property damage.

## NOTICE

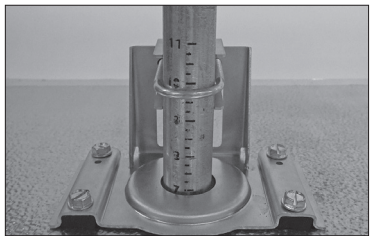
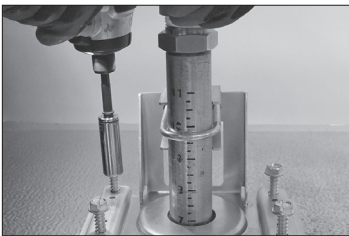
- The following photos depict an installation in a freezer application where the Style AB6 Bracket Assembly is installed through the ceiling; however, the installation steps in this section can be applied to any installation orientation.



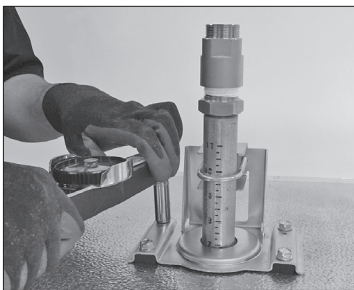
1. Drill a hole into the ceiling or wall of the freezer. Use a 2-inch hole saw for V36 and V40 Dry Sprinklers and a 2 5/8-inch hole saw for V33 Dry Sprinklers. **THE HOLE SHALL BE DEBURRED ON BOTH SIDES OF THE CEILING OR WALL.**



2. Insert the V33, V36, or V40 Dry Sprinkler with integral Style AB6 Bracket Assembly into the hole that was drilled in the freezer ceiling or wall.



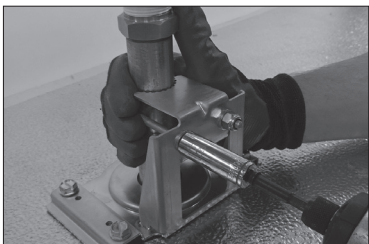
3. Using the tool provided, push down on the sleeve or collar just until the sleeve or collar is retained on the barrel.



4. Tighten each hex flange screw to a torque of 40 inch-lbs/4.5 N•m. DO NOT exceed the specified torque.

## ADJUSTING THE LOCATION OF THE V33, V36, OR V40 DRY SPRINKLER

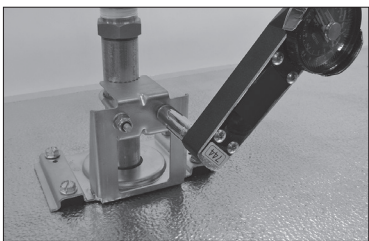
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1. Support the barrel of the V33, V36, or V40 Dry Sprinkler while loosening the two nuts located at the back of the Style AB6 Bracket Assembly.



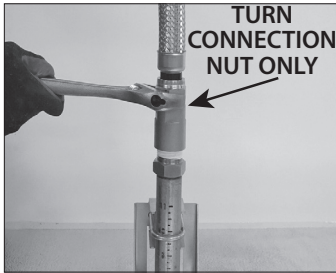
2. Slide the barrel of the V33, V36, or V40 Dry Sprinkler up or down to the desired location.



3. Retighten each nut located at the back of the Style AB6 Bracket Assembly to a torque of 45 inch-lbs/5.1 N•m. DO NOT exceed the specified torque.

4. Install the flexible hose into the sprinkler piping and the sprinkler reducing nipple onto the flexible hose by following the applicable instructions in the “Connection to Sprinkler Piping” section in this handbook and the “Installation of the Series AH2 or AH2-CC Flexible Hose to the Style AB6 Threaded Inlet Adapter” section on the following page.

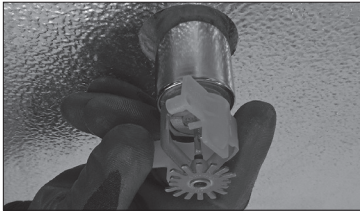
# INSTALLATION OF THE SERIES AH2 OR AH2-CC FLEXIBLE HOSE TO THE STYLE AB6 THREADED INLET ADAPTER



1. Confirm that the seal inside the nut of the Series AH2 or AH2-CC Flexible Hose is in place and is free from damage prior to installation. Connect the nut to the threaded inlet adapter of the Style AB6 Bracket Assembly, as shown to the left.

- DO NOT use pipe joint compound or PTFE thread sealant tape on the threads of the inlet to the Style AB6 Bracket Assembly. The seal inside the nut of the flexible hose provides the leak-proof connection.
- Tighten the connection nut to a torque of 40 ft-lbs/54 N•m (approximately  $\frac{1}{2}$  to  $\frac{3}{4}$  of a turn past hand-tight). **NOTE:** To prevent damage to the seal, tighten the assembly by applying torque only to the connection nut and DO NOT exceed the specified torque.

## INSTALLATION OF THE SKIRT, RECESSED ESCUTCHEON, OR FLUSH PLATE



1. Temporarily remove the bulb protector from the sprinkler. Use caution when removing bulb protector to prevent damage to the bulb, deflector, and frame arms. DO NOT use any tools to remove the bulb protector.



2. Install the skirt, recessed escutcheon, flush plate, or concealed cover plate, as shown above. Verify that the skirt, recessed escutcheon, flush plate, or concealed cover plate is in full contact with the freezer ceiling or wall.



3. Reinstall the bulb protector onto the sprinkler until the sprinkler system is placed in service. Use caution when reinstalling the bulb protector to prevent damage to the bulb, deflector, and frame arms. DO NOT use any tools to reinstall the bulb protector

## INSTRUCTIONS FOR USING THE STYLE AB6 ADAPTER FOR DRAINING THE ASSEMBLY

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1. Slowly loosen and then remove the plug from the Style AB6 adapter. Allow the assembly to drain.
2. After the assembly is drained completely, install the plug back into the Style AB6 adapter hand tight, plus 1 ½ to 3 turns.

## BULB PROTECTOR REMOVAL

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### **WARNING**

- Sprinklers cannot operate properly with bulb protectors in place.
- Bulb protectors shall be removed from all sprinklers before the sprinkler system is placed in service.
- DO NOT use any tools to remove bulb protectors.

Failure to follow these instructions will cause improper sprinkler operation, resulting in death or serious personal injury and property damage.

1. Remove the bulb protector from all sprinklers carefully by hand before the sprinkler system is placed in service.

# Style AB7 Bracket

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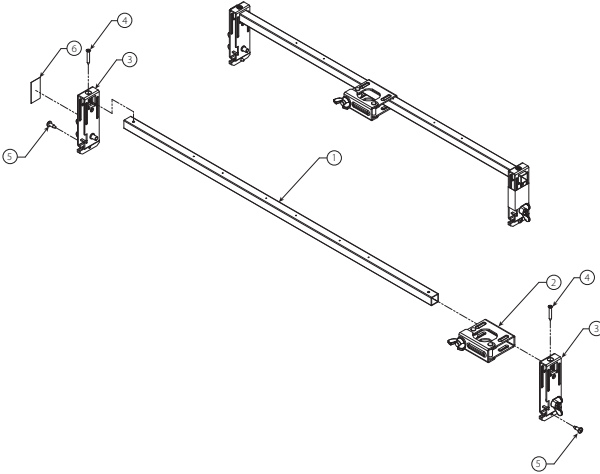
## Installation Instructions

# INTRODUCTION

Victaulic® VicFlex™ Sprinkler Fittings connect the sprinkler piping directly to the sprinkler using a flexible hose and fittings and are designed for use in ceiling suspension systems.

- Refer to the “General Information” and “Construction Requirements” sections.
- Refer to the “Technical Data” section.

## STYLE AB7 BRACKET ASSEMBLY DRAWING



Item	Style AB7 Description
1	24-inch/610-mm or 48-inch/1219-mm Square Bar*
2	Center Gate Assembly with Wing Nut
3	Style AB7 End Bracket with Wing Screw
4	Sheet Metal Screw
5	#8 x 1/2-inch Self-Drilling Screw
6	Relocation Warning Label

\*For the UL Listing, when the 48-inch/1220-mm length bracket is used, the maximum sprinkler K-factor is K8.0 and the maximum spacing is 30-inches/762-mm. Square bar length is in reference to nominal ceiling grid spacing.

# INSTALLATION OF STYLE AB7 BRACKET ASSEMBLY FOR ASTM C635 CEILING SUSPENSION SYSTEMS INSTALLED IN ACCORDANCE WITH ASTM C636 STANDARDS

## WARNING

- The flexible hose shall not be bent or fluctuated up-and-down or side-to-side when pressurized.

Failure to follow this instruction could cause improper sprinkler operation, resulting in death or serious personal injury and property damage.

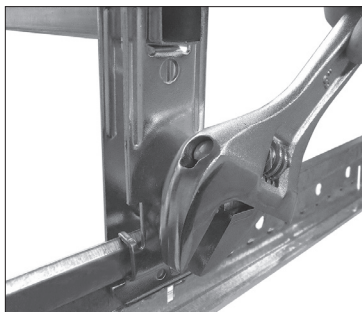
1. Install the flexible hose into the sprinkler piping and the sprinkler reducing nipple onto the flexible hose by following the applicable instructions in the “Connection to Sprinkler Piping” and “Connecting the Sprinkler Reducing Nipple to the Flexible Hose” sections.

### 2. FOR ADJUSTABLE END BRACKET ASSEMBLIES (REGIONAL AVAILABILITY ONLY):

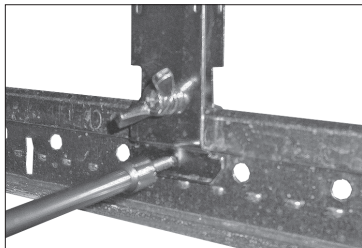
For adjustment purposes, the wing screw on top of one end bracket assembly can be loosened to allow the end bracket to slide on the square bar. Tighten the wing screw on top of the each end bracket assembly to a torque of 36 inch-lbs/4 N•m (approximately ½ to ¾ of a turn past hand-tight) to secure the end bracket to the square bar.



3. Attach the end brackets of the Style AB7 Bracket to the T-bar rails of an ASTM C635 ceiling suspension system installed in accordance with ASTM C636 standards. Verify that the ends of the Style AB7 Bracket engage the rails.



4. Tighten the wing screw on each side of the end bracket assemblies to a torque of 36 inch-lbs/4 N•m (approximately ½ to ¾ of a turn past hand-tight) to secure the end brackets to the rails.



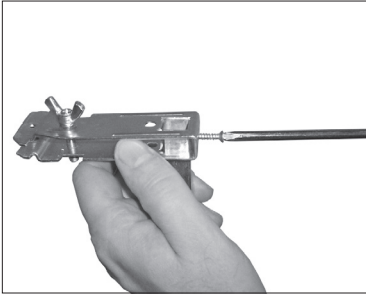
5. For installations to comply with cULus Listing requirements, or for added tamper resistance: Use a #2 square drive bit to tighten a #8 x ½-inch self-drilling screw through each Style AB7 end bracket assembly and into the ceiling grid. **NOTE:** A tamper-evident label is available and can be applied to one or both of the end brackets.

6. Complete the installation by following the applicable instructions in the Sprinkler Reducing Nipple Installation” and “Sprinkler Installation” sections.

# INSTALLATION FOR WOOD JOISTS/STUDS (FM ONLY)

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1. Install the flexible hose into the sprinkler piping and the sprinkler reducing nipple onto the flexible hose by following the applicable instructions in the "Connection to Sprinkler Piping" and "Connecting the Sprinkler Reducing Nipple to the Flexible Hose" sections.

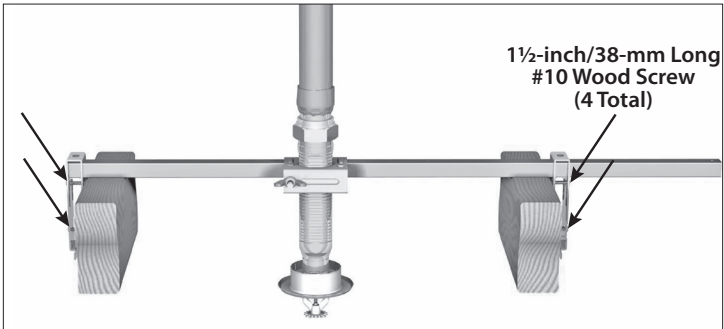


2. Using a #2 Phillips head screwdriver, remove the sheet metal screw from only one end bracket assembly of the Style AB7 Bracket.

2a. Remove the wing screw from each of the end bracket assemblies.

3. Place the end bracket assembly (with the sheet metal screw still installed) up against the outside surface of the wood joist/stud with the square bar resting on top of the wood joists/studs.

3a. Slide the end bracket assembly (with the sheet metal screw removed in step 2) toward the outside surface of the opposite wood joist/stud, as shown in the graphic on the following page.



4. Install the modified Style AB7 Bracket assembly to the wood joists/studs by using four, 1 1/2-inch/38-mm long #10 wood screws in the locations noted in the graphic shown above.

5. **Optional:** Using an 1/8-inch/3-mm drill bit, drill a hole down through the end bracket assembly (with the sheet metal screw removed in step 2) and into the square bar to accommodate re-installation of the sheet metal screw. Re-install the sheet metal screw into the end bracket assembly/square bar.

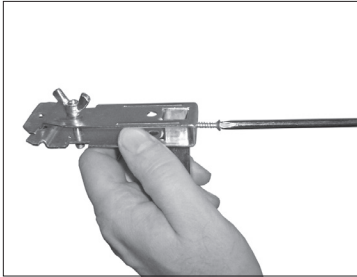
6. Complete the installation by following the applicable instructions in the "Sprinkler Reducing Nipple Installation" and "Sprinkler Installation" sections.

**NOTE:** For wood joists/studs larger than 2 x 4, longer sprinkler reducing nipples shall be used, or the alternative installation method on the following page shall be followed.



# INSTALLATION FOR ASTM C645 METAL JOISTS/ STUDS IN ACCORDANCE WITH ASTM C754 STANDARDS (FM ONLY)

1. Install the flexible hose into the sprinkler piping and the sprinkler reducing nipple onto the flexible hose by following the applicable instructions in the “Connection to Sprinkler Piping” and “Connecting the Sprinkler Reducing Nipple to the Flexible Hose” sections.

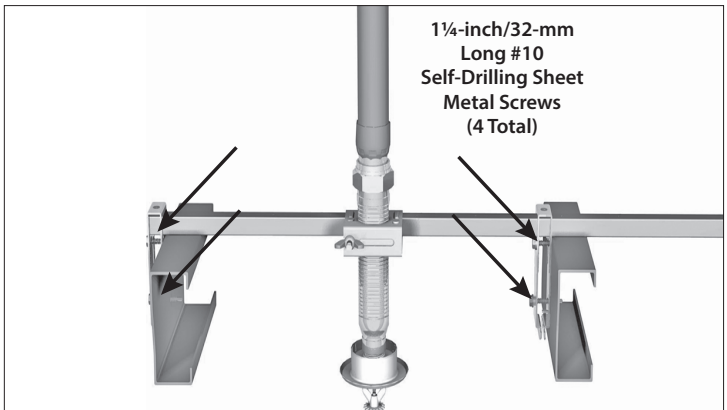


2. Using a #2 Phillips head screwdriver, remove the sheet metal screw from only one end bracket assembly of the Style AB7 Bracket. Slide the end bracket assembly toward the center of the square below.

2a. Remove the wing screw from each of the end bracket assemblies.

3. Place the end bracket assembly (with the sheet metal screw still installed) up against the outside surface of the metal joist/stud with the square bar resting on top of the metal joists/studs.

3a. Slide the end bracket assembly (with the sheet metal screw removed in step 2) toward the inside, flat surface of the opposite metal joist/stud, as shown in the graphic below.



4. Install the modified Style AB7 Bracket assembly to the metal joists/studs by using four, 1 1/4-inch/32-mm long #10 self-drilling sheet metal screws in the locations noted in the graphic shown above.

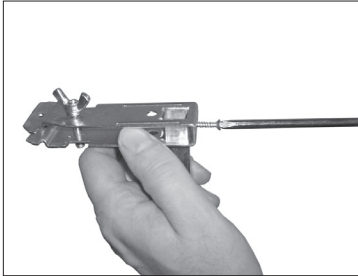
5. **Optional:** Using an 1/8-inch/3-mm drill bit, drill a hole down through the end bracket assembly (with the sheet metal screw removed in step 2) and into the square bar to accommodate re-installation of the sheet metal screw. Re-install the sheet metal screw into the end bracket assembly/square bar.

6. Complete the installation by following the applicable instructions in the “Sprinkler Reducing Nipple Installation” and “Sprinkler Installation” sections.

**NOTE:** For metal joists/studs larger than 2 x 4, longer sprinkler reducing nipples shall be used, or the alternative installation method on the following page shall be followed.

# ALTERNATIVE WOOD JOISTS/STUDS INSTALLATION (FM ONLY)

1. Install the flexible hose into the sprinkler piping and the sprinkler reducing nipple onto the flexible hose by following the applicable instructions in the "Connection to Sprinkler Piping" and "Connecting the Sprinkler Reducing Nipple to the Flexible Hose" sections.



2. Using a #2 Phillips head screwdriver, remove the sheet metal screw from only one end bracket assembly of the Style AB7 Bracket. Remove the end bracket assembly from the square bar.

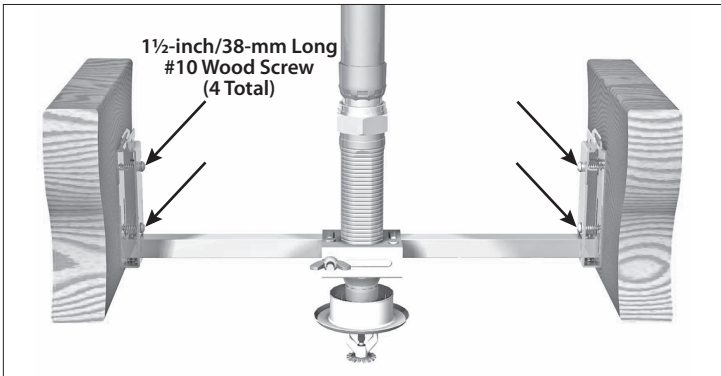
2a. Remove the wing screw from each of the end bracket assemblies.

3. Measure the distance between the wood joists/studs.

3a. Cut the square bar to the length needed to fit between the two wood joists/studs. This length shall be measured from the outside of the end bracket assembly (with the wing screw removed) to the point on the square bar that will butt up against the other wood joist/stud.

4. Place the end bracket assembly, removed in step 2, onto the end of the square bar so that the square bar is flush with the outside of the end bracket assembly. Mark the new location where the sheet metal screw will be re-installed. Drill an 1/8-inch/3-mm hole at the mark on the square bar to accommodate re-installation of the sheet metal screw.

5. Re-install the end bracket assembly to the square bar with the sheet metal screw removed in step 2.

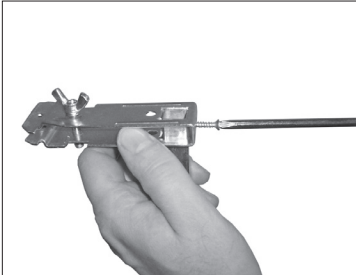


6. Install the modified Style AB7 Bracket assembly between the wood joists/studs by using four, 1 1/2-inch/38-mm long #10 wood screws in the locations noted in the graphic shown above.

7. Complete the installation by following the applicable instructions in the "Sprinkler Reducing Nipple Installation" and "Sprinkler Installation" sections.

# ALTERNATIVE METAL JOIST/STUD INSTALLATION (FM ONLY)

1. Install the flexible hose into the sprinkler piping and the sprinkler reducing nipple onto the flexible hose by following the applicable instructions in the “Connection to Sprinkler Piping” and “Connecting the Sprinkler Reducing Nipple to the Flexible Hose” sections.



2. Using a #2 Phillips head screwdriver, remove the sheet metal screw from only one end bracket assembly of the Style AB7 Bracket. Remove the end bracket assembly from the square bar.

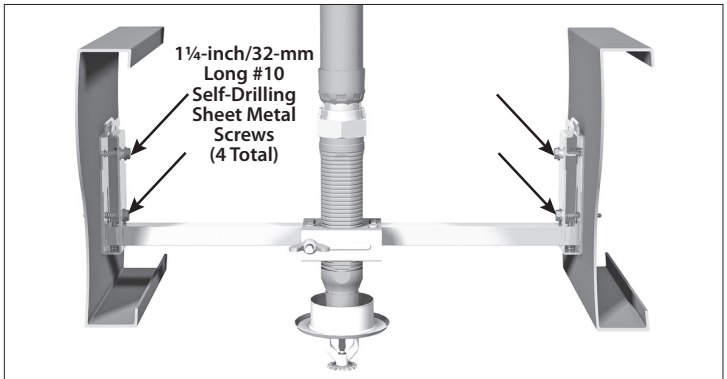
2a. Remove the wing screw from each of the end bracket assemblies.

3. Measure the distance between the metal joists/studs.

3a. Cut the square bar to the length needed to fit between the two metal joists/studs. This length shall be measured from the outside of the end bracket assembly (with the wing screw removed) to the point on the square bar that will butt up against the other metal joist/stud.

4. Place the end bracket assembly, removed in step 2, onto the end of the square bar so that the square bar is flush with the outside of the end bracket assembly. Mark the new location where the sheet metal screw will be re-installed. Drill an 1/8-inch/3-mm hole at the mark on the square bar to accommodate re-installation of the sheet metal screw.

5. Re-install the end bracket assembly to the square bar with the sheet metal screw removed in step 2.



6. Install the modified Style AB7 Bracket assembly between the metal joists/studs by using four, 1 1/4-inch/32-mm long #10 self-drilling sheet metal screws in the locations noted in the graphic shown above.

7. Complete the installation by following the applicable instructions in the “Sprinkler Reducing Nipple Installation” and “Sprinkler Installation” sections.

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# Style AB11 Bracket

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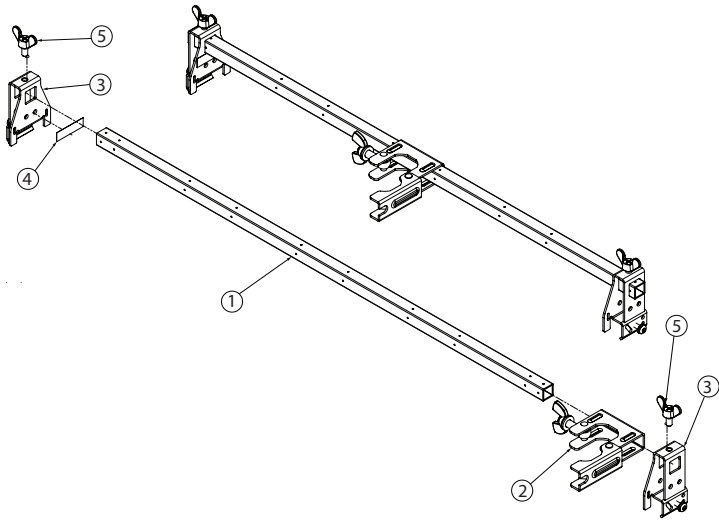
## Installation Instructions

# INTRODUCTION

Victaulic® VicFlex™ Sprinkler Fittings connect the sprinkler piping directly to the sprinkler using a flexible hose and fittings and are designed for use in suspended ceiling applications.

- Refer to the “Technical Data for Flexible Hoses” section.
- Refer to the “Important Installation Information” section.

## STYLE AB11 BRACKET ASSEMBLY DRAWING



Item	Style AB11 Description
1	24-inch/610-mm or 48-inch/1219-mm Square Bar*
2	Center Gate Assembly with Wing Nut
3	Style AB11 End Bracket with Tapping Screw
4	Relocation Warning Label
5	Wing Screw

\*For the UL Listing, when the 48-inch/1220-mm length bracket is used, the maximum sprinkler K-factor is K8.0 and the maximum spacing is 30-inches/762-mm. Square bar length is in reference to nominal ceiling grid spacing.

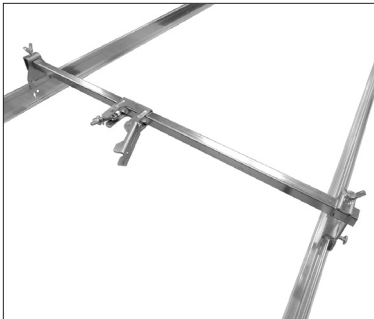


# INSTALLATION OF STYLE AB11 BRACKETS FOR ASTM C635 CEILING SUSPENSION SYSTEMS INSTALLED IN ACCORDANCE WITH ASTM C636 OR ASTM C754 STANDARDS

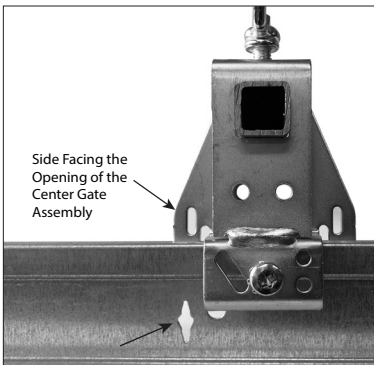
1. Install the flexible hose into the sprinkler piping and the sprinkler reducing nipple onto the flexible hose by following the applicable instructions in the “Connection to Sprinkler Piping” and “Connecting the Sprinkler Reducing Nipple to the Flexible Hose” sections.



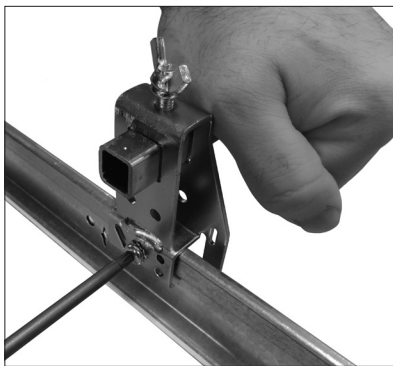
For adjustment purposes, the wing screw on top of the end bracket assembly can be loosened to allow the end bracket to slide on the square bar. Tighten the wing screw on top of the end bracket assembly to a torque of 36 inch-lbs/4 N•m (approximately ½ to ¾ of a turn past hand-tight) to secure the end bracket to the square bar.



2. Attach the end brackets of the Style AB11 Bracket to the T-bar rails of an ASTM C635 ceiling suspension system installed in accordance with ASTM C636 standards. Ensure the ends of the Style AB11 Bracket engage the rails.



2a. For center-of-tile installations, align the end bracket with the center-of-tile slot of the T-bar rail (with the side facing the opening of the center gate assembly), as shown to the left.



3. Apply light downward pressure, as shown above, to maintain the position of the end bracket flat against the T-bar rail. To secure the end brackets to the T-bar rails, tighten the pre-installed sheet metal screws using a T25 drive bit. Penetrate through the T-bar rail until the end bracket is seated fully against the T-bar rail.

**DO NOT over-tighten the screws. Over-tightening will cause the screw to strip, resulting in an unsecured bracket connection.**

4. Complete the installation by following the applicable instructions in the “Sprinkler Reducing Nipple Installation” and “Sprinkler Installation” sections.



# Style AB12 Bracket

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## Installation Instructions

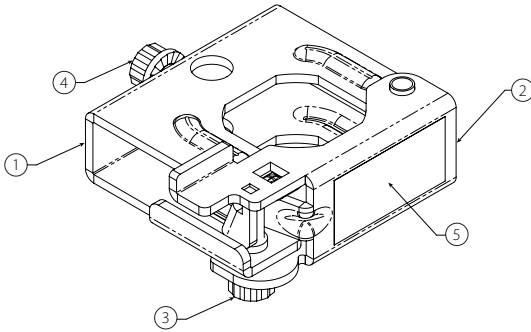
# INTRODUCTION

Victaulic® VicFlex™ Sprinkler Fittings connect the sprinkler piping directly to the sprinkler using a flexible hose and fittings.

The Style AB12 Bracket secures the sprinkler in position and utilizes a  $\frac{3}{8}$ -inch/M10 threaded rod to attach to a surface, such as a concrete deck or sprinkler piping. Applications include, but are not limited to, suspended and hard-lid ceilings.

- The Style AB12 Bracket is designed for low-clearance applications when used with low-profile elbows.
- The Style AB12 Bracket provides a means for vertical sprinkler adjustment after the ceiling has been installed and allows for installations from a maximum of 3-feet/0.9m to a minimum of 4-inches/102-mm of clearance from the face of the ceiling.
- Refer to the “Technical Data for Flexible Hoses” section.
- Refer to the “Important Information Installation” section.

## STYLE AB12 BRACKET ASSEMBLY DRAWING

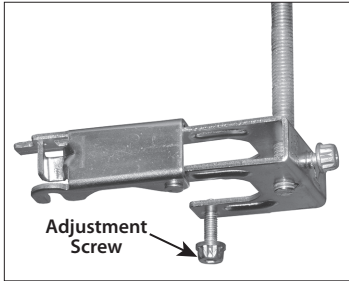


Item	Style AB12 Description
1	Style AB12 Bracket Body
2	Gate
3	T-25 Torx Drive Cap Screw
4	Cone Point Cap Screw
5	Relocation Warning Label

\* Reference submittal document 10.85 for listing information.

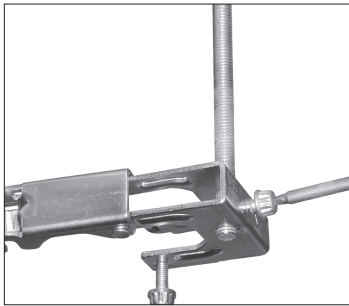
# INSTALLATION OF STYLE AB12 BRACKETS ONTO 3/8-INCH/M10 THREADED ROD

1. Install the flexible hose into the sprinkler piping and the sprinkler reducing nipple onto the flexible hose by following the applicable instructions in the “Connection to Sprinkler Piping” and “Connecting the Sprinkler Reducing Nipple to the Flexible Hose” sections.

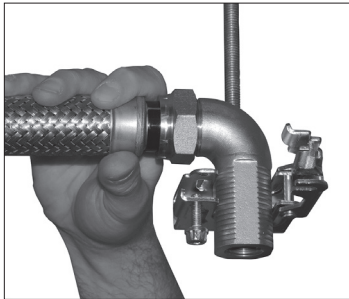


2. Using a T25 drive bit, loosen the adjustment screw, then push open the center gate assembly. **NOTE:** The adjustment screw of the center gate assembly is staked to resist removal.

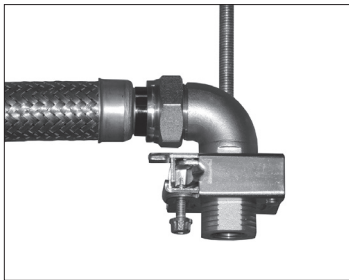
2a. Insert the end of the threaded rod into the Style AB12 Bracket, as shown above. Refer to the table on the following page for bracket installation dimensions.



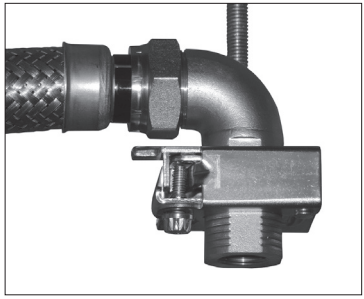
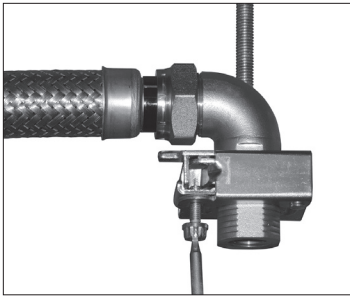
3. Tighten the set screw to a torque of 50 – 60 inch-lbs/5.7 – 6.8 N•m (approximately one turn past hand-tight) to retain the position of the Style AB12 Bracket on the threaded rod.



4. Slide the sprinkler reducing nipple into the Style AB12 Bracket.



5. Close the gate around the sprinkler reducing nipple. The gate will snap together tightly around the sprinkler reducing nipple.

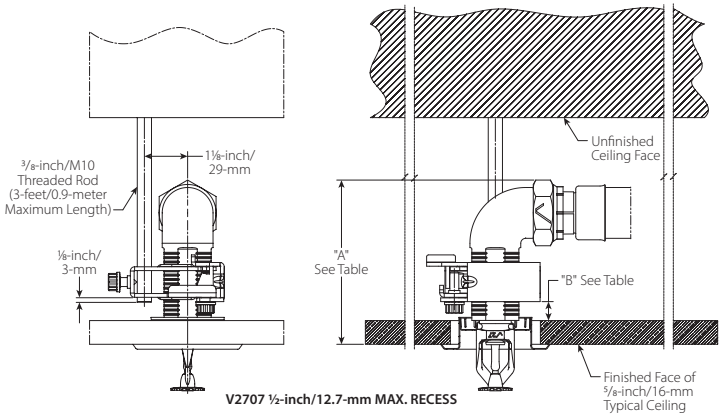


6. Using a T25 drive bit, tighten the adjustment screw to a torque of 75-inch-lbs/ 8.5 N•m (until adjustment screw makes metal-to-metal contact with bottom of gate).

**NOTE:** The sprinkler reducing nipple can be adjusted after the drywall is installed by using the adjustment screw on the center gate assembly.

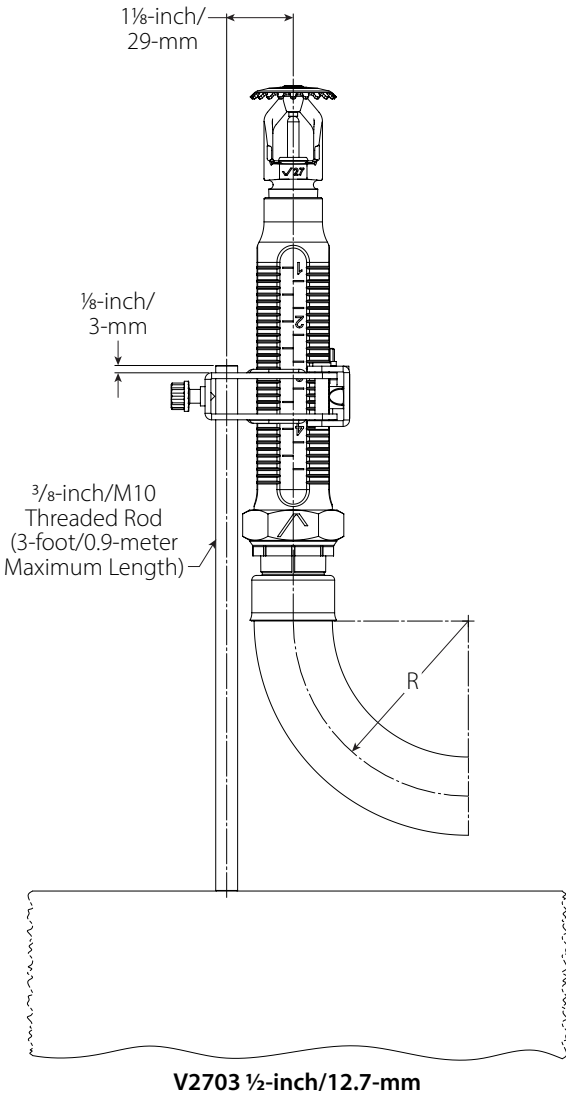
7. Complete the installation by following the applicable instructions in the “Sprinkler Reducing Nipple Installation” and “Sprinkler Installation” sections.

# STYLE AB12 BRACKET INSTALLATION DIMENSIONS



	Low-Profile Short Elbow		Low-Profile Long Elbow		Standard Short Elbow		Standard Long Elbow		Standard Straight Reducer	
	3/4-inch Rec.	Conc.	3/4-inch Rec.	Conc.	3/4-inch Rec.	Conc.	3/4-inch Rec.	Conc.	3/4-inch Rec.	Conc.
Dimensions - inches/millimeters										
"A" Minimum Required Installation Space	4.0 101.6	5.5 139.7	5.6 142.2	7.2 182.9	5.9 149.9	7.5 190.5	7.7 195.6	9.3 236.2	15.0 381.0	16.6 421.6
"B" Distance from Top of Typical Ceiling Tile to Bottom of Gate	0.5 12.7	2.0 50.8	1.5 38.1	1.5 38.1	1.5 38.1	1.5 38.1	3.0 76.2	3.0 76.2	3.0 76.2	3.0 76.2

‡ 7-inches/178-mm minimum bend radius of flexible hose, per FM Approval.  
 Maximum length of 3/8-inch/M10 threaded rod is 3 feet/0.9 meter.



# ABBA/ABMM Bracket

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## Installation Instructions

# INTRODUCTION

Victaulic® VicFlex™ Sprinkler Fittings connect the sprinkler piping directly to the sprinkler using a flexible hose and fittings and are designed for use in multiple configurations on various wall and ceiling surfaces. Each drop assembly comes with one flexible hose, one adapter nipple or captured coupling, one sprinkler reducing nipple, and the Style ABBA/ABMM Bracket.

Drop ceiling construction shall meet the requirements of ASTM C635 and shall be installed in accordance with ASTM C636.

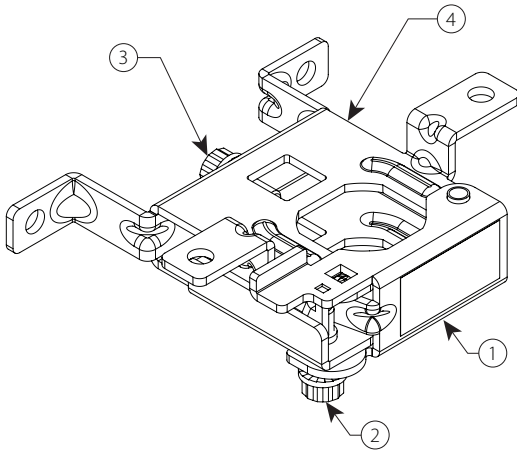
SHORT 90° ELBOW REDUCERS ARE TYPICALLY USED WITH CONCEALED SPRINKLERS.

- Refer to the “Technical Data for Flexible Hoses” section.
- Refer to the “Important Information Installation” section.

## NOTICE

- **Victaulic® VicFlex™ Style ABBA and ABMM Brackets (regional availability only) can be installed in multiple configurations on various wall and ceiling surfaces, along with the VicFlex™ flexible hoses.**
- **Refer to pages 83 and 85 for a complete listing of installation configurations.**
- **Always follow design specifications and local building codes when installing this product.**

## STYLE ABMM BRACKET ASSEMBLY DRAWING

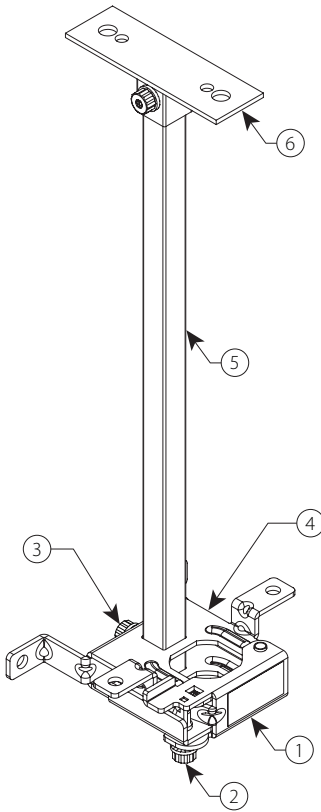


Item	Style ABMM Bracket Assembly Description
1	Gate
2	Adjustment Screw
3	Square Bar Retaining Screw
4	Bracket Body





# STYLE ABBA BRACKET ASSEMBLY DRAWING



Item	Description
1	Gate
2	Adjustment Screw
3	Square Bar Retaining Screw
4	Bracket Body
5	Square Bar
6	Mounting Plate

# INSTALLATION NOTES FOR THE STYLE ABBA BRACKET

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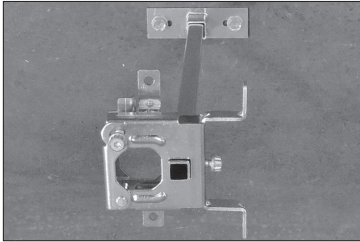
**For floor-above-mount and cantilever-mount configurations:** The Style ABBA Bracket can be installed in wood or concrete block wall or ceiling applications. Victaulic does not supply the screws for attaching the mounting plate to the wall or ceiling. The installing contractor shall select screws that are suitable for the wall or ceiling material. Screws shall be tightened until the mounting plate is in full contact with the wall or ceiling surface.

**For temporary fire protection configurations (1 ½-inch/48.3-mm size sprinkler piping only):** The Style ABBA Bracket requires a U-bolt and two nuts for installation. Victaulic does not supply the U-bolt and two nuts for securing the mounting plate to the sprinkler piping. Place the U-bolt around the sprinkler piping, then insert the ends into the two inner holes located on the Style ABBA Bracket's mounting plate, as shown above. Torque each nut to 20 inch-lbs/2.3 N•m.

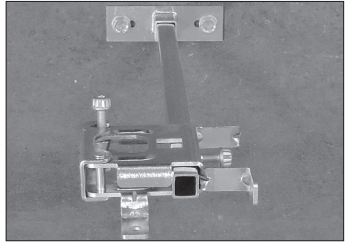
**For all configurations:** Refer to the applicable "Connection to Sprinkler Piping," "Connecting the Sprinkler Reducing Nipple to the Flexible Hose," and "Sprinkler Installation" sections for sprinkler piping, sprinkler reducing nipple, and sprinkler installation instructions.

# INSTALLATION CONFIGURATIONS FOR THE STYLE ABBA BRACKET

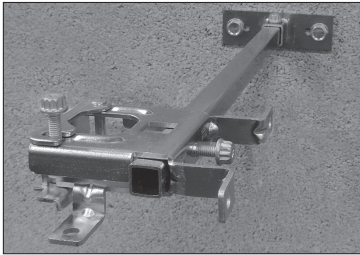
**STYLE ABBA BRACKET USED FOR  
FLOOR-ABOVE MOUNT –  
PENDENT CONFIGURATION (FM)**



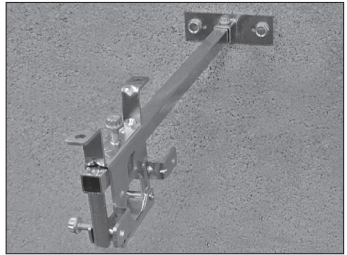
**STYLE ABBA BRACKET USED FOR  
FLOOR-ABOVE MOUNT –  
SIDEWALL CONFIGURATION (FM)**



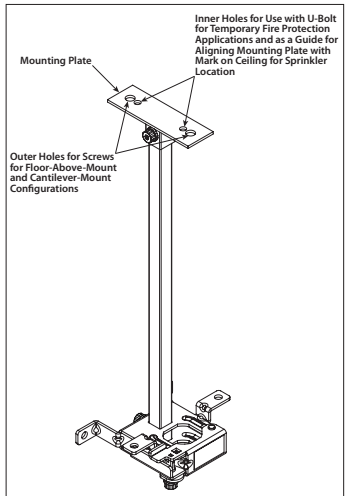
**STYLE ABBA BRACKET USED FOR  
CANTILEVER MOUNT –  
PENDENT CONFIGURATION (FM)**



**STYLE ABBA BRACKET USED FOR  
CANTILEVER MOUNT –  
SIDEWALL CONFIGURATION (FM)**



**STYLE ABBA BRACKET USED FOR  
TEMPORARY FIRE PROTECTION –  
UPRIGHT CONFIGURATION (FM)**



# INSTALLATION NOTES FOR THE STYLE ABMM BRACKET

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**For use with Style AB2 or AB5 square bars and end brackets:** Refer to this handbook for installation instructions on how to install AB2 and AB5 end brackets onto the ceiling grid.

**For surface-mount configurations:** The Style ABMM Bracket can be installed in wood or concrete block wall or ceiling applications or metal wall or ceiling applications. Victaulic® does not supply the screws for attaching the Style ABMM Bracket to the wall or ceiling. The installing contractor shall select screws that are suitable for the wall or ceiling material. Screws shall be tightened until the Style ABMM Bracket is in full contact with the wall or ceiling surface.

**For all configurations:** Refer to the applicable “Connection to Sprinkler Piping,” “Connecting the Sprinkler Reducing Nipple to the Flexible Hose,” and “Sprinkler Installation” sections for sprinkler piping, sprinkler reducing nipple, and sprinkler installation instructions.

# INSTALLATION CONFIGURATIONS FOR THE STYLE ABMM BRACKET

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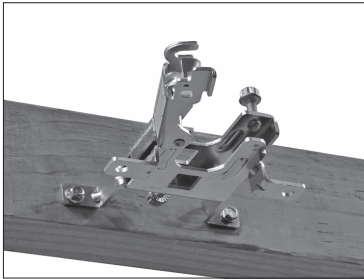
**STYLE ABMM BRACKET ON  
STYLE AB2 SQUARE BAR  
AND END BRACKETS (FM)**



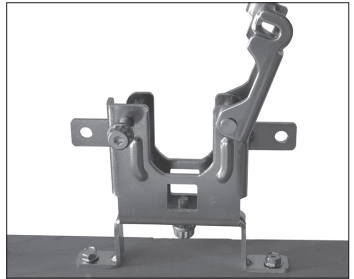
**STYLE ABMM BRACKET ON  
STYLE AB5 SQUARE BAR  
AND END BRACKETS (FM)**



**STYLE ABMM BRACKET USED FOR  
STANDOFF MOUNT –  
PENDENT CONFIGURATION (FM)**



**STYLE ABMM BRACKET USED FOR  
STANDOFF MOUNT –  
SIDEWALL CONFIGURATION (FM)**



**STYLE ABMM BRACKET USED FOR  
SURFACE MOUNT –  
PENDENT AND SIDEWALL CONFIGURATIONS (FM)**



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I-VICFLEX\_86

# Style AQC-U Bracket

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## Installation Instructions

# INTRODUCTION

Victaulic® VicFlex™ Style AQC-U Sprinkler Fittings connect the branch line directly to the sprinkler and are FM Approved for use with Channel Systems, CLIN, Gordon, M+W Zander Facility Engineering GmbH, SBB Daldrop, and SBB Gorilla Grid cleanroom ceiling systems (refer to notes below). Other cleanroom ceilings can be evaluated on a case-by-case basis by contacting Victaulic.

The installer shall wear proper cleanroom attire during installation of the Victaulic® VicFlex™ Style AQC-U Bracket. Contact the building's owner or designated representative to confirm requirements for the specific cleanroom application.

- Refer to the "Technical Data for Flexible Hoses" section.
- Refer to the "Important Installation Information" section.

## NOTES:

Channel Systems is a product of Channel Systems, Inc.

CLIN is a product of Cleanroom Industries Sdn. Bhd.

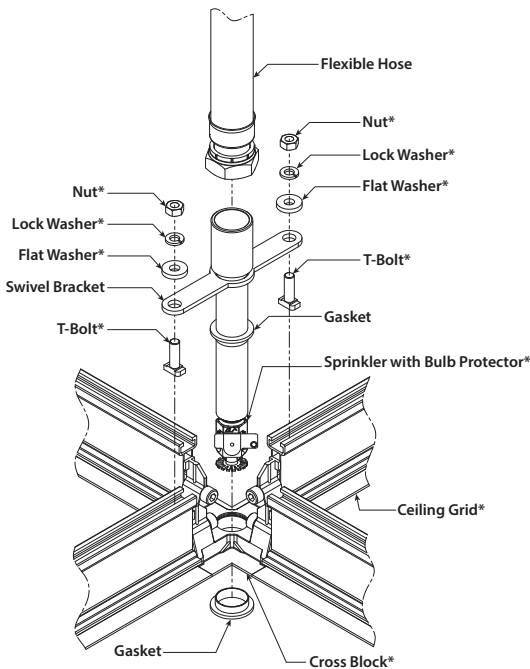
Gordon is a product of Gordon Incorporated.

M+W Zander Facility Engineering GmbH is a company of the M+W Group.

SBB Daldrop and SBB Gorilla Grid are products of SBB, Inc.

## AQC-U BRACKET INSTALLATION COMPONENTS (STANDARD INSTALLATION)

### Exploded View of Installation Components

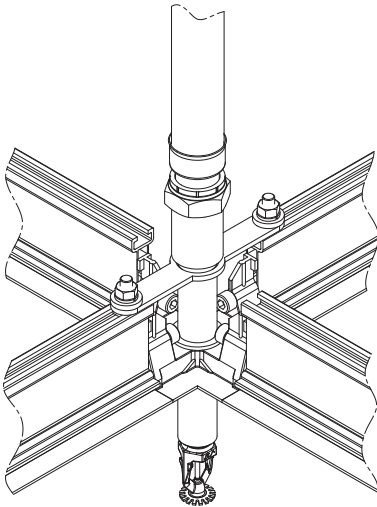


\* Components provided by ceiling grid manufacturer or others.





## Completed Installation



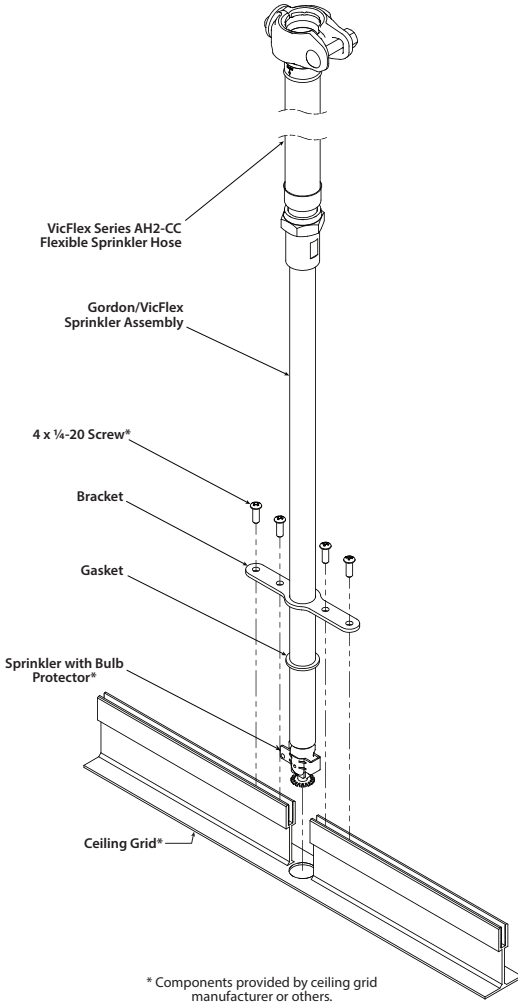
### NOTICE

**If the sprinkler deflector or bulb protector appears too large to pass through the cross block location, it may be necessary to install the sprinkler after the Style AQC-U is tightened to the ceiling grid.**

1. Attach the sprinkler piping. Refer to the applicable "Connection to Sprinkler Piping" section.
2. Slide a T-Bolt (supplied with the ceiling grid) into the slot of the two opposing ceiling grid sections, as shown in the drawing above.
3. Insert the Victaulic® VicFlex™ Style AQC-U assembly into the cross block location.
4. Align the holes in the swivel bracket of the Victaulic® VicFlex™ Style AQC-U with the T-Bolts. Secure the swivel bracket to the ceiling grid by installing a flat washer, lock washer, and nut (supplied with the ceiling grid) onto the end of each T-Bolt. To ensure a rigid connection, tighten each nut until the lock washer is flattened completely.
5. Position the two gaskets, indicated in the drawing above, to seal the ceiling penetration.
6. Install any ceiling grid face plates, sprinkler escutcheons, elastic decorative rings or covers, etc. Use caution to prevent damage to the sprinkler during installation of any accessories.
7. After installation is complete, test the system for leaks in accordance with NFPA guidelines.

# ATTACHING THE STYLE AQC-U TO THE CLEANROOM CEILING GRID (GORDON INSTALLATION)

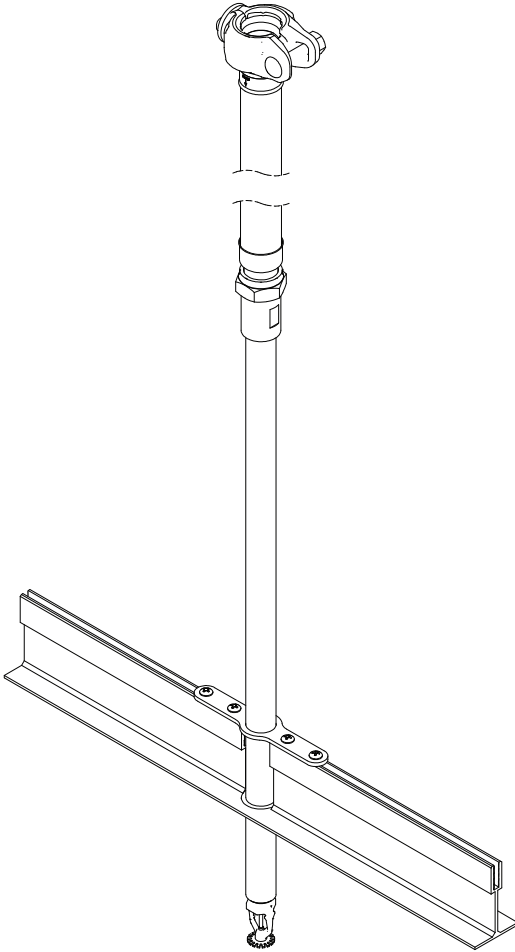
## Exploded View of Installation Components



## NOTICE

- If the sprinkler deflector or bulb protector appears too large to pass through the ceiling grid, it may be necessary to install the sprinkler after the Style AQC-U is tightened to the ceiling grid.

## Completed Installation



1. Attach the sprinkler piping by completing the Gordon Installation. Refer to the applicable "Connection to Sprinkler Piping" section.
2. Insert the Victaulic® VicFlex™ Style AQC-U assembly into the ceiling grid.
3. Align the holes of the Victaulic® VicFlex™ Style AQC-U bracket with the ceiling grid. Secure the bracket to the ceiling grid by installing a 4 x ¼-20 screw (supplied with the ceiling grid) through each hole in the bracket and into the ceiling grid. Tighten each screw completely.
4. Install any ceiling grid face plates, sprinkler escutcheons, elastic decorative rings or covers, etc. Use caution to prevent damage to the sprinkler during installation of any accessories.
5. After installation is complete, test the system for leaks in accordance with NFPA guidelines.

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I-VICFLEX\_92

# Style C-AQC Bracket

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## Installation Instructions

# INTRODUCTION

Victaulic® VicFlex™ Style C-AQC Sprinkler Fittings connect the branch line directly to the sprinkler and are FM Approved and CCC Approved for use with M+W Zander Cleanroom Grid (Model 55/130), Topwell Cleanroom Ceiling Grid System (Model A090-97), Tenryo Technology Cleanroom System (Model T-grid), Suzhou Propphen Cleanroom Ceiling (Model CK2000), and Topline Cleanroom Ceiling (Model C/G) cleanroom ceiling systems. Other cleanroom ceilings can be evaluated on a case-by-case basis by contacting Victaulic®.

The installer shall wear proper cleanroom attire during installation of the Victaulic® VicFlex™ Style C-AQC. Contact the building's owner or designated representative to confirm requirements for the specific cleanroom application.

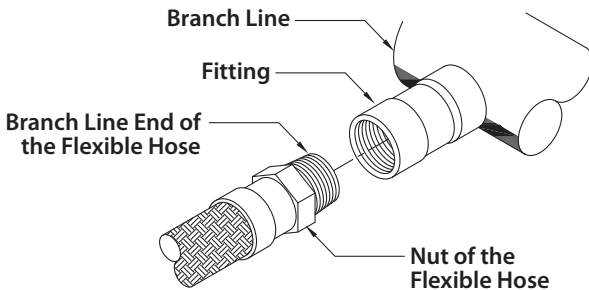
- Refer to the "Technical Data for Flexible Hoses" section.
- Refer to the "Important Information Installation" section.

## CONNECTION TO THE SPRINKLER PIPING USING AN ADAPTER NIPPLE AND A STYLE C-AQC SPRINKLER

### WARNING

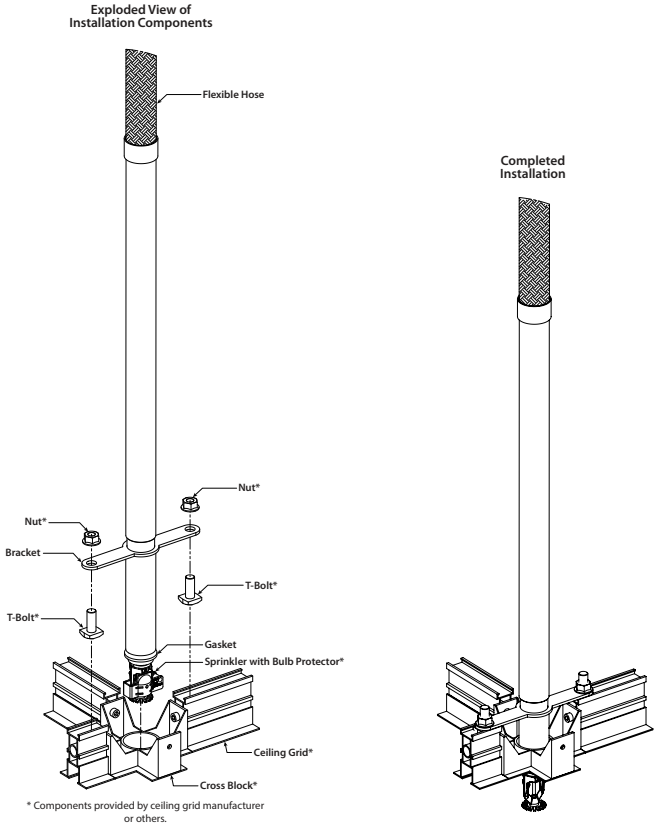
- The flexible hose shall not be bent or fluctuated up-and-down or side-to-side when pressurized.

Failure to follow this instruction could cause improper sprinkler operation, resulting in death or serious personal injury and property damage.



1. Apply pipe joint compound or PTFE thread sealant tape to the branch line end of the flexible hose, in accordance with the pipe joint compound or tape manufacturer's instructions. Tighten the hose into the branch line fitting by using a pipe wrench on the nut of the flexible hose.

# ATTACHING THE STYLE C-AQC TO THE CLEANROOM CEILING GRID



## NOTICE

- If the sprinkler deflector or bulb protector appears too large to pass through the cross block location, it may be necessary to install the sprinkler after the Style C-AQC is tightened to the ceiling grid.

1. Slide a T-Bolt (supplied with the ceiling grid) into the slot of the two opposing ceiling grid sections, as shown in the drawing above.
2. Insert the Victaulic® VicFlex™ Style C-AQC assembly into the cross block location.
3. Align the holes in the swivel bracket of the Victaulic® VicFlex™ Style C-AQC with the T-Bolts. Secure the swivel bracket to the ceiling grid by installing a nut (supplied with the ceiling grid) onto the end of each T-Bolt. To ensure a rigid connection, tighten each nut completely.
4. Install any ceiling grid face plates, sprinkler escutcheons, elastic decorative rings or covers, etc. Use caution to prevent damage to the sprinkler during installation of any accessories.
5. After installation is complete, test the system for leaks in accordance NFPA guidelines or local code requirements.

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I-VICFLEX\_96



# Style AQD-M Bracket

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## Installation Instructions

# INTRODUCTION

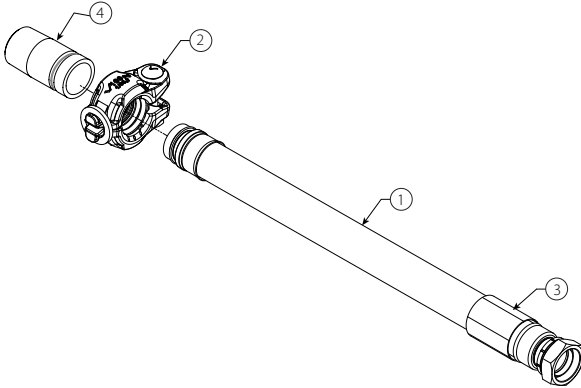
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Victaulic VicFlex Style AQD-M Brackets connect the branch line directly to the sprinkler and can be installed on round or square metal duct.

- Refer to the “Technical Data for Flexible Hoses” section.
- Refer to the “Important Installation Information” section.

## STYLE AH2-CC FLEXIBLE HOSE ASSEMBLY DRAWING

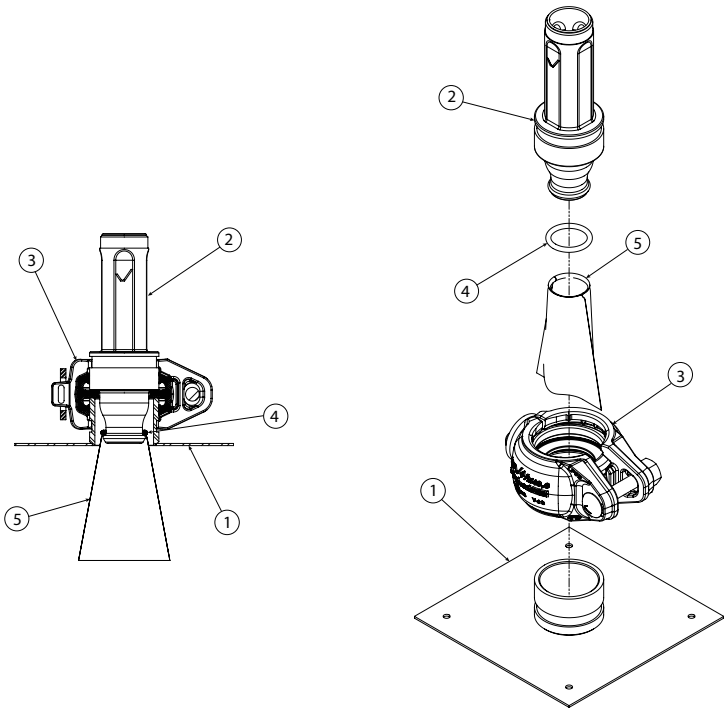
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Item	Series AH2-CC Description
1	Flexible Hose Assembly
2	Coupling Assembly
3	Identification Sleeve
4	No. 140 Male NPT or BSPT Thread x Groove Adapter Nipple*

\* A No. 140 Male NPT or BSPT Thread x Groove Adapter (Item 4 above) is provided with the shipment. This adapter is used only when connecting the Series AH2-CC Flexible Hose to threaded sprinkler piping.

# STYLE AQD-M BRACKET ASSEMBLY DRAWING



Item	Series AH2-CC Description
1	Bracket
2	Sprinkler Reducer
3	Coupling Assembly
4	O-Ring (0.984" ID X 0.139" Width)
5	Sprinkler Bag*

\* Two different bag materials (cellophane and polyethylene) are provided with the shipment. Choose the bag material that is appropriate for system conditions. The polyethylene bag is larger than the cellophane bag.

# CONNECTION TO THE SPRINKLER PIPING USING THE SUPPLIED NO. 140 MALE NPT OR BSPT THREAD X GROOVE ADAPTER

## WARNING

- The flexible hose shall not be bent or fluctuated up-and-down or side-to-side when pressurized.

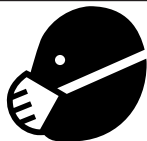
Failure to follow this instruction could cause improper sprinkler operation, resulting in death or serious personal injury and property damage.

1. Apply pipe joint compound or PTFE thread sealant tape to the tapered threads of the No. 140 Male NPT or BSPT Thread x Groove Adapter, in accordance with the pipe joint compound or tape manufacturer's instructions. Using a pipe wrench, tighten the adapter into the sprinkler piping.

2. Follow all applicable instructions in the above notice to install the Series AH2-CC Flexible Hose.

## INSTALLING THE STYLE AQD-M BRACKET ONTO THE DUCT

## WARNING



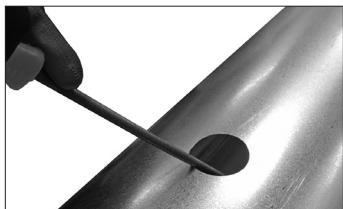
- A particle mask and protective gloves shall be worn during preparation of the duct.
- Wear safety glasses, hardhat, and foot protection.

Failure to follow these instructions could result in serious respiratory system illness or other personal injury.

**NOTE:** Before performing the following steps, determine the location on the duct where the Style AQD-M Bracket will be installed. The location shall permit easy access to the Style AQD-M Bracket for inspection purposes. Wear a particle mask, safety glasses, hardhat, and foot protection during this phase of installation.



1. Drill a 1 1/2-inch/38-mm hole into the surface of the duct at the desired location.



- 1a. Remove all burrs from the hole.  
1b. Remove all cutting particles from the surface of the duct.



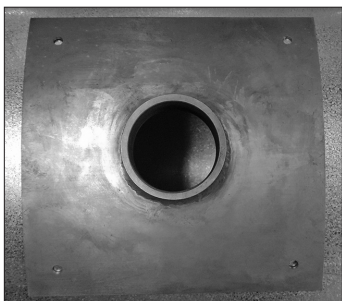
2. Apply duct mastic/sealant to the duct around the drilled hole as shown in the picture to the left. Always refer to the duct mastic/sealant manufacturer's instructions.



3. Place the bracket onto the duct.



3a. Verify that the bracket opening is aligned with the hole in the duct.

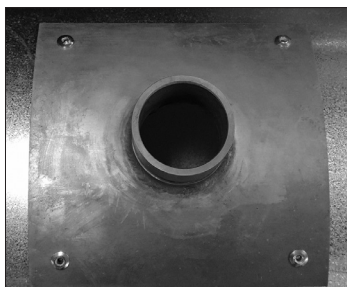


4a. Install a  $\frac{3}{16}$ " stainless steel, domed-head, sealing blind rivet (recommended) into each drilled hole. **NOTE:** Hardware is not included and shall be stainless steel or a material suitable for the application.

4b. Four stainless steel #10 Type AB self-tapping metal screws can be used instead of rivets. When using self-tapping sheet metal screws, holes do not have to be drilled into the duct. **NOTE:** Hardware is not included and shall be stainless steel or a material suitable for the application.

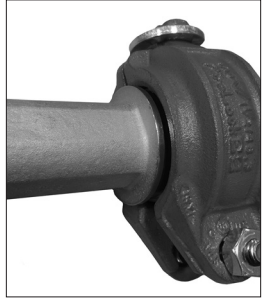


5. Using a rivet squeezer tool, install the four rivets.



# SPRINKLER INSTALLATION

1. Install the sprinkler by following the manufacturer's installation instructions. For Victaulic sprinklers, refer to the I-40 Victaulic® FireLock™ Automatic Sprinklers Installation and Maintenance Instructions.



2. Install the bag and O-ring. **NOTE:** Two different bag materials (cellophane and polyethylene) are provided with the shipment. Choose the bag material that is appropriate for system conditions. The polyethylene bag is larger than the cellophane bag.

3. Slide the Style 109 Coupling over the bag and O-ring.



4. Insert sprinkler/bag assembly into bracket opening.



5. Install the Style 109 Coupling. Refer to the Style 109 Installation-Ready Coupling Installation Instructions.

5a. For applications where a Style 005 FireLock™ Rigid Coupling with silicone gasket is required, refer to the current version of the I-100 Field Installation Handbook for instructions. **For silicone gaskets, use Victaulic Lubricant or a silicone-compatible lubricant. DO NOT use silicone lubricant on silicone gaskets.**



SCAN QR CODE FOR  
ACCESS TO THE  
I-109 INSTALLATION  
INSTRUCTIONS



SCAN QR CODE FOR  
ACCESS TO THE STYLE  
005 INSTALLATION  
INSTRUCTIONS IN THE  
I-100  
FIELD INSTALLATION  
HANDBOOK



6. Apply the duct mastic/sealant to cover over any gaps between the bracket and the duct. Always follow duct/mastic sealant manufacturer's instructions for cure times.

## SPRINKLER BAG INSPECTION/MAINTENANCE

### WARNING



- Always verify that the piping system has been completely depressurized and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic products.

- Confirm that any equipment, branch lines, or sections of piping that may have been isolated for/during testing or due to valve closures/positioning are identified, depressurized, and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic products.

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



1. Verify that the system is depressurized and drained completely.

2. Loosen the coupling and remove the sprinkler reducer with sprinkler/sprinkler bag.



3. Replace the sprinkler bag. **NOTE:** Sprinkler bags shall be replaced periodically so that heavy deposits of residue do not accumulate. Follow all NFPA and Authority Having Jurisdiction (AHJ) requirements for bag and sprinkler maintenance.

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I-VICFLEX\_104



# Style AQD Bracket

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## Installation Instructions

# INTRODUCTION

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The Style AQD Sprinkler Fitting connects the branch line directly to the sprinkler and can be installed on round or square metal, and fiberglass-reinforced plastic (FRP) ducts.

- Refer to the “Technical Data for Flexible Hoses” section.
- Refer to the “Important Installation Information” section.

## CONNECTING THE STYLE AQD SPRINKLER FITTING TO THE BRANCHLINE

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### WARNING

- Victaulic® VicFlex™ products shall not be bent or fluctuated up-and-down or side-to-side when pressurized.

Failure to follow this instruction could cause improper sprinkler operation, resulting in death or serious personal injury and property damage.



1. Apply pipe joint compound or PTFE thread sealant tape to the nipple of the flexible stainless steel hose, in accordance with the pipe joint compound or tape manufacturer's instructions. Tighten the hose into the branch line fitting by using a pipe wrench on the nut of the flexible stainless steel hose.

# INSTALLING THE STYLE AQD ONTO THE DUCT

## WARNING



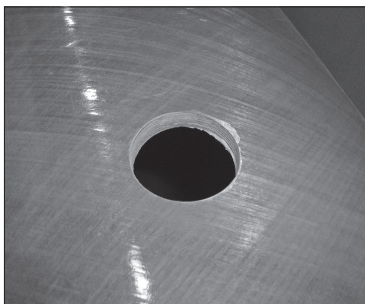
- A particle mask and protective gloves shall be worn during preparation of the duct.
- Wear safety glasses, hardhat, and foot protection.

Failure to follow these instructions could result in serious respiratory system illness or other personal injury.

**NOTE:** Before performing the following steps, determine the location on the duct where the Style AQD will be installed. The location shall permit easy access to the Style AQD for inspection purposes. Wear a particle mask, safety glasses, hardhat, and foot protection during this phase of installation.



1. Drill a 1 ½-inch/38-mm hole into the surface of the duct at the desired location.



- 1a. Remove all cutting particles from the surface of the duct.



**NOTE:** To aid in preparing the area where the mounting block will be installed, place the mounting block onto the duct with the hole in the duct centered in the opening of the mounting block. Draw a line around the outside of the mounting block to identify the surface preparation area.



**FOR FRP DUCTS ONLY:** Use a disc sander to prepare a 6 x 6-inch/ 152 x 152-mm area around the hole cut into the duct in Step 1. This area shall be sanded until the surface is rough to ensure a proper bond with the mounting block. Remove sanding dust with a clean, dry cloth.



**2.** Using sandpaper, sand the mating surface of the mounting block until the surface is rough. The surface shall be rough to ensure a proper bond with the duct. Remove sanding dust.

## **WARNING**

- Adhesives are extremely flammable materials and shall be kept away from open flames or other ignition sources.
- Proper ventilation shall be maintained throughout the following installation steps, since vapors are harmful and flammable.
- Consult with the specific adhesive manufacturer for additional technical and safety information.

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

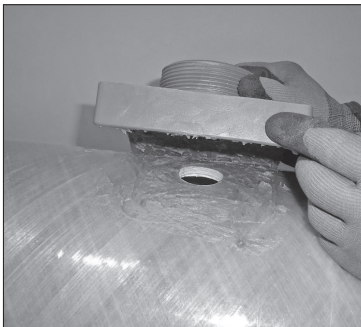
## Recommended Adhesives (Not Supplied)

Manufacturer	Description
AOC	Vipel® K022-C
Ashland	Hetron®/Aropol® FR992 Derakane® 510C
Interplastic	CoREZYN® VE8440 CoREZYN® VE8450
Reichhold	Atlac®/Dion® FR9300
3M	3M™ Scotch-Weld™ Epoxy Adhesive DP100FR
Dow Corning	Dow Corning® 736 Heat Resistant/Sealant

- ° Vipel is a registered trademark of AOC
- ° Hetron, Aropol, and Derakane are registered trademarks of Ashland Inc.
- ° CoREZYN is a registered trademark of Interplastic Corp.
- ° Atlac and Dion are registered trademarks of Reichhold, Inc.
- ™ 3M and Scotch-Weld are trademarks of 3M
- ° Dow Corning is a registered trademark of Dow Corning Corporation



**3.** Wear protective gloves during this phase of installation. Apply an 1/8 – 1/4-inch/ 3 – 6-mm layer of adhesive to the mating surface of the mounting block and 6 x 6-inch/ 152 x 152-mm area around the hole cut into the duct. Refer to the table above for a listing of recommended adhesives. **NOTE:** Victaulic® does not supply the adhesive.



**4.** Install the mounting block onto the prepared section of the duct. Ensure the hole in the mounting block aligns with the hole drilled into the duct. Remove any air pockets in the adhesive by applying light pressure to the entire surface of the mounting block.

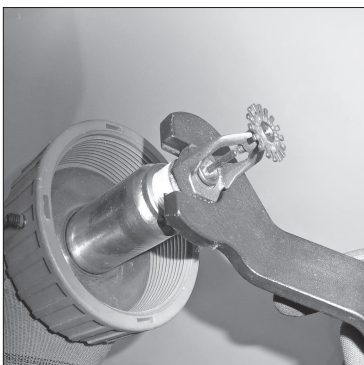
**4a.** To enhance the seal, apply a bead of adhesive around all four sides where the mounting block contacts the surface of the duct.



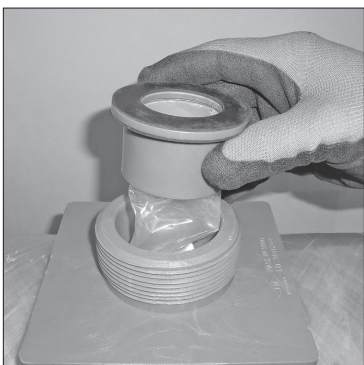
**5.** Stabilize the mounting block in position. Using duct tape, secure the mounting block to the duct by adhering the tape to one side of the duct, wrapping it over the mounting block, and adhering it to the opposite side of the duct. The assembly shall not be disturbed for a minimum of 24 hours to ensure that the adhesive has hardened.

**5a.** After a minimum of 24 hours, remove the duct tape from the mounting block/duct assembly. Allow the assembly to cure for a minimum of 24 hours before placing any stress on the joint.

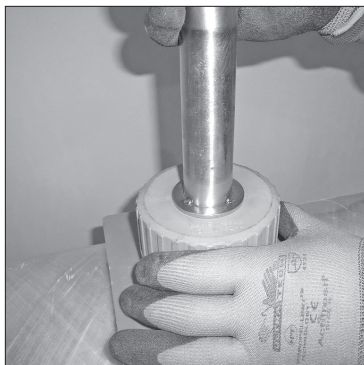
**NOTE:** Due to temperature, humidity, etc. curing times may vary. Consult the adhesive manufacturer's instructions for detailed curing times and additional technical information.



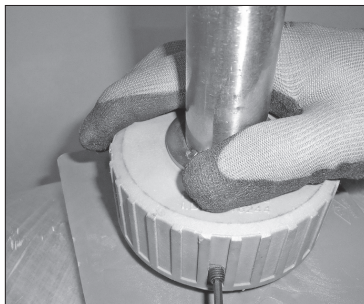
**6.** Install the sprinkler by following the manufacturer's installation instructions. For Victaulic® sprinklers, refer to the I-40 Victaulic® FireLock™ Automatic Sprinklers Installation and Maintenance Instructions.



**7.** If the protective polyethylene sleeve assembly is required for corrosive applications, install the sleeve assembly by inserting it into the hole in the mounting block and duct. Ensure the sleeve is inserted completely into the hole in the duct to prevent the sleeve from being damaged during installation of the union.



**8.** Tighten the union onto the mounting block by turning it clockwise until contact occurs between the union and mounting block. Use caution to prevent cross-threading. DO NOT over-tighten the union.



**8a.** Using a 3-mm hex key wrench, tighten the locking screw on the union by turning it clockwise.

**8b.** Installation of the Style AQD is now complete.

## WARNING

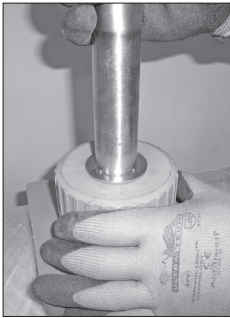


- Always verify that the piping system has been completely depressurized and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic products.

- Confirm that any equipment, branch lines, or sections of piping that may have been isolated for/during testing or due to valve closures/positioning are identified, depressurized, and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic products.

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

1. Depressurize and drain the fire protection system.



2. Using a 3-mm hex key wrench, loosen the locking screw on the union by turning it counterclockwise.

**2a.** Loosen the union from the mounting block by turning it counterclockwise.

**2b.** Remove the Style AQD/sprinkler assembly from the mounting block by grasping the union and pulling it straight up and out. Inspect all components for damage. If any damage is present, replace the affected part(s).

3. Re-install the Style AQD/sprinkler assembly by following Steps 7 – 8b on pages 110 – 111.



# VS1 Dry Sprinkler

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## Installation Instructions

# INTRODUCTION

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Victaulic® VicFlex™ Sprinkler Fittings connect the sprinkler piping directly to the sprinkler using a flexible hose and fittings. Style VB1 Bracket Assemblies can be used with all VS1 Sprinklers. Style VB2 Bracket Assemblies are used only with Style VS1 Recessed Pendent Sprinklers. Style VB3 Bracket Assemblies are used only with Style VS1 Concealed Pendent Sprinklers.

- Refer to the “Technical Data for Flexible Hoses” section.
- Refer to the “Important Information Installation” section.

## IMPORTANT INSTALLATION INFORMATION

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- **DO NOT** install Style VS1 Dry Sprinklers that have been dropped or struck by another object, even if they do not appear damaged. Never install glass bulb sprinklers if the bulb is cracked or if there is a loss of liquid from the bulb. Discard and replace any Style VS1 Dry Sprinklers that are damaged or show signs of corrosion.
- Before installation, verify that the Style VS1 Dry Sprinkler is the proper style, orifice size, and temperature rating for the intended service.



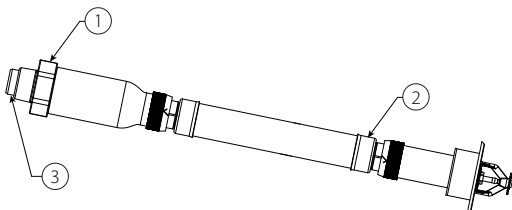
- **DO NOT** paint, coat, or firestop the outlet/inlet portion of the Style VS1 Dry Sprinkler, identified in the above photo. Braided hose and fitting portions of the Style VS1 Dry Sprinkler may be painted or coated, provided that the paint or coating is compatible with stainless steel material. This includes penetration through firestop-filled annular space of a firewall. The firestop material in direct contact with the flexible braided hose will not impede functionality of the Style VS1 Dry Sprinkler, provided that the components are installed in accordance with the installation instructions featured in this section.
- Style VS1 Dry Sprinklers that have been altered from their manufactured condition may not function properly and may void agency listings and/or approvals.
- **DO NOT** test Style VS1 Dry Sprinklers with a heat source. The glass bulb can weaken or shatter if exposed to a heat source during testing.
- Style VS1 Dry Sprinklers that have operated cannot be reassembled or reused, per NFPA requirements. When replacing sprinklers, use new sprinklers of the same type, orifice, temperature, and response.
- **DO NOT** clean Style VS1 Dry Sprinklers with soapy water, detergents, ammonia, cleaning fluids, or other chemicals. Remove any dust, lint, etc. with a soft, dry cloth.
- Inspect Style VS1 Dry Sprinklers on a regular basis for corrosion, mechanical damage, obstructions, etc. The frequency of inspections may vary due to corrosive atmospheres/water supplies and activities around the sprinklers.
- **DO NOT** hang anything from or attach anything to Style VS1 Dry Sprinklers. Obstructing the discharge pattern will prevent the sprinkler from operating properly.

## WARNING

- Replacement/relocation of this Victaulic® VicFlex™ Style VS1 Dry Sprinkler SHALL be performed by qualified personnel familiar with the system's original design criteria, sprinkler listings/approvals, and state and local codes (including NFPA 13 standards).

Failure to properly replace/relocate a Style VS1 Dry Sprinkler could affect its performance during a fire, resulting in death or serious personal injury and property damage.

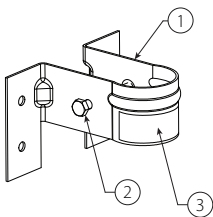
## STYLE VS1 SPRINKLER ASSEMBLY DRAWING



Recessed Pendant Shown Above

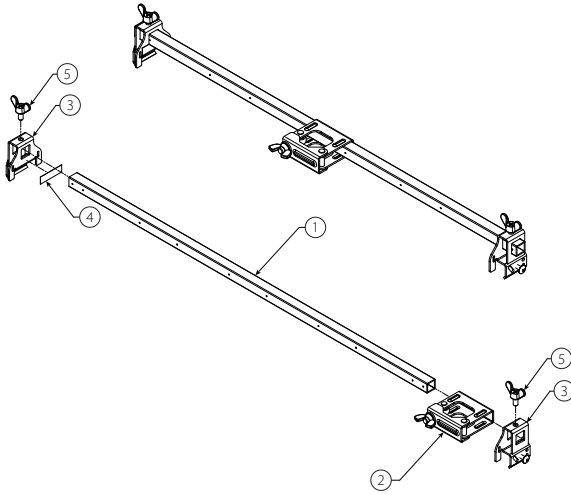
Item	Example Style VS1 Description
1	Swivel Hex Nut
2	Weld Fitting
3	Inlet

## STYLE VB1 BRACKET ASSEMBLY DRAWING



Item	Example Style VB1 Description
1	Style VB1 Bracket
2	Hex Cap Screw
3	Relocation Warning Label

# STYLE VB2 BRACKET ASSEMBLY DRAWING



Item	Example Style VB2 Description
1	24-inch/610-mm or 48-inch/1219-mm Square Bar*
2	Center Gate Assembly with Wing Nut
3	Style VB2 End Bracket with Tapping Screw
4	Relocation/Tamper Evident Warning Label
5	Wing Screw

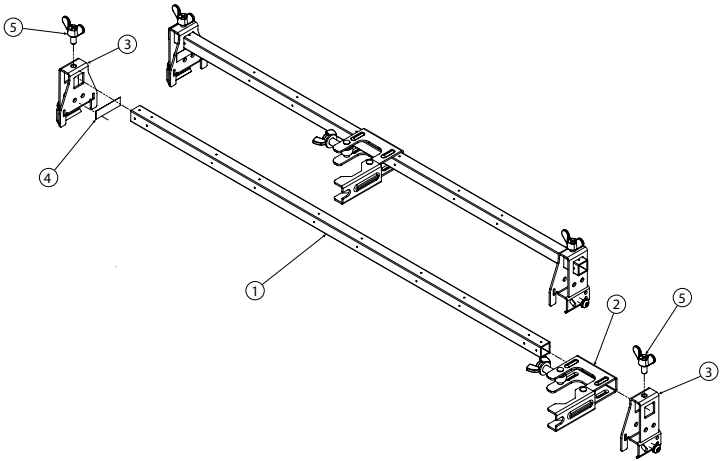
\* Square bar length is in reference to nominal ceiling grid spacing.

## NOTICE

- VICTAULIC® VICFLEX™ STYLE VB2 BRACKET ASSEMBLIES ARE RECOMMENDED FOR USE WITH STYLE VS1 RECESSED PENDENT SPRINKLERS.
- For the UL Listing, when the 48-inch/1220-mm length VB2 Bracket is used with the VS1 (V35) Flexible Dry Sprinkler, the maximum spacing is 30-inches/ 762-mm.



# STYLE VB3 BRACKET ASSEMBLY DRAWING



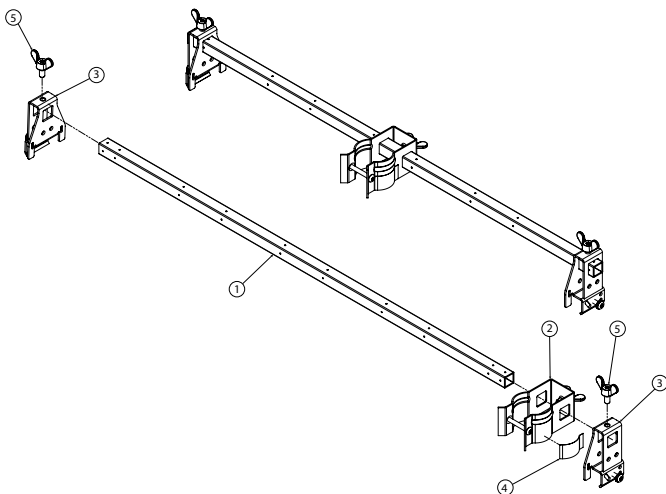
Item	Example Style VB3 Description
1	24-inch/610-mm or 48-inch/1219-mm Square Bar*
2	Center Gate Assembly with Wing Nut
3	Style VB3 End Bracket with Tapping Screw
4	Relocation/Tamper Evident Warning Label
5	Wing Screw

\* Square bar length is in reference to nominal ceiling grid spacing.

## NOTICE

- VICTAULIC® VICFLEX™ STYLE VB3 BRACKET ASSEMBLIES ARE RECOMMENDED FOR USE WITH STYLE VS1 CONCEALED PENDENT SPRINKLERS.
- For the UL Listing, when the 48-inch/1220-mm length VB3 Bracket is used with the VS1 (V35) Flexible Dry Sprinkler, the maximum spacing is 30-inches/ 762-mm.

# STYLE VB4 BRACKET ASSEMBLY DRAWING



Item	Example Style VB4 Description
1	24-inch/610-mm or 48-inch/1219-mm Square Bar*
2	Center Gate Assembly with T25 Button Head Screw
3	Style VB4 End Bracket with Tapping Screw
4	Relocation/Tamper Evident Warning Label
5	Wing Screw

\* Square bar length is in reference to nominal ceiling grid spacing.

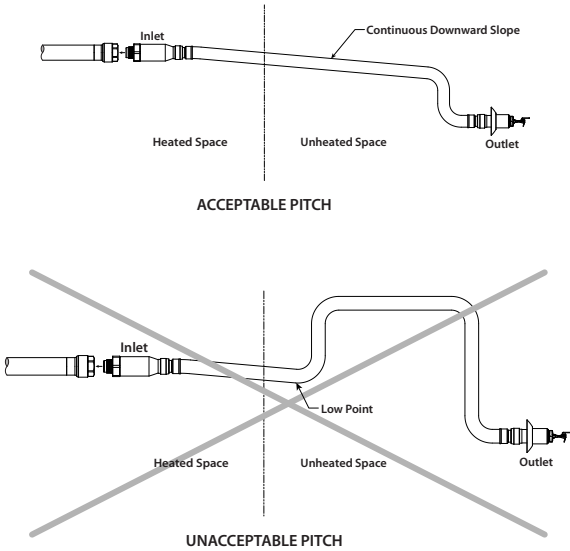
## NOTICE

- VICTAULIC® VICFLEX™ STYLE VB4 BRACKET ASSEMBLIES ARE RECOMMENDED FOR USE WITH STYLE VS1 SLEEVE AND SKIRT PENDENT SPRINKLERS.
- For the UL Listing, when the 48-inch/1220-mm length VB4 Bracket is used with the VS1 (V35) Flexible Dry Sprinkler, the maximum spacing is 30-inches/ 762-mm.

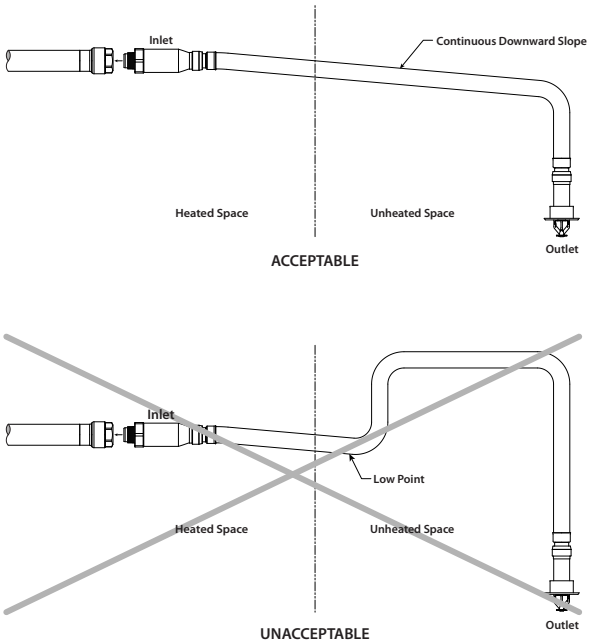


# STYLE VS1 SPRINKLER ASSEMBLY PITCHING REQUIREMENTS

## Sidewall



## Pendent



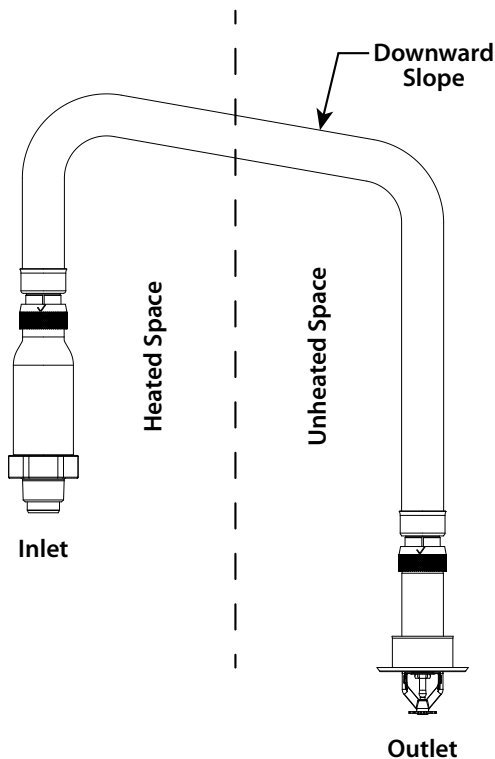
## FOR DRY SYSTEMS ONLY:

- The Style VS1 Dry Sprinkler's inlet shall be installed only into the outlet of a fitting (excluding elbows) or welded outlet that meets the dimensional requirements of ANSI B16.3 and ANSI B16.4, Class 125 and Class 150. Use a sample fitting to confirm proper engagement and to verify that there is no interference between the sprinkler and the fitting.

Style VS1 Dry Sprinklers in an unheated space shall be installed with a continuous downward slope along its entire length from the branch line fitting to the sprinkler. No localized low points shall be present along the length of the Style VS1 Dry Sprinkler.

Style VS1 Dry Sprinklers in an unheated space are not permitted to be installed into the top of the branch line piping. Style VS1 Dry Sprinklers shall be installed into the side or from the bottom of the branch line piping.

In a heated space, if a portion of the Style VS1 Dry Sprinkler is installed from the top of a branch line and then extends into an unheated space, it shall be installed with a continuous downward slope along the entire length from the inside wall to the outlet of the sprinkler. No localized low points shall be present along the length of the sprinkler in the unheated space. Refer to the drawing below.





### FOR WET SYSTEMS ONLY:

- **DO NOT** install Style VS1 Dry Sprinklers into any threaded elbow, thread-by-thread coupling, or fitting that interferes with thread penetration. The inlet of the Style VS1 Dry Sprinkler **SHALL NOT** bottom out in the fitting. Use a sample fitting to confirm proper engagement.
- To ensure unobstructed flow during operation, the Style VS1 Dry Sprinkler shall be installed into a fitting that will prevent water and debris from accumulating at the dry sprinkler's inlet.
- Verify that the exposed minimum barrel length in the heated space is measured and maintained in accordance with the table below.



In a heated space, if a portion of the Style VS1 Dry Sprinkler extends into an unheated space, it shall be installed with a continuous downward slope along the entire length from the inside wall to the outlet end of the dry sprinkler. No localized low points shall be present along the length of the sprinkler in the unheated space. Refer to the drawing above.

## STYLE VB1 BRACKET INSTALLATION FOR WOOD OR METAL JOISTS/STUDS

### WARNING

- **DO NOT** attempt to adjust or remove a Style VS1 Dry Sprinkler while the sprinkler system is pressurized.

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

1. Cut a hole in the finished ceiling or wall. Refer to the table below for hole sizes.

#### Minimum and Maximum Hole Sizes

Sprinkler Style	Hole Sizes – inches/millimeters	
	Minimum	Maximum
VS1 Recessed	2 51	2 3/8 60
VS1 Concealed	2 5/8 67	2 3/4 70
VS1 Sleeve/Skirt	1 3/4 44	2 1/2 64

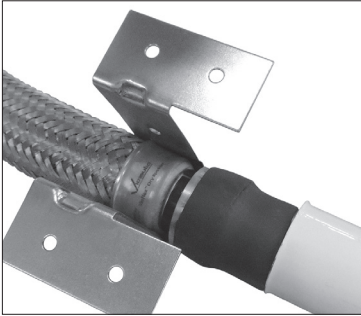


2. Apply a non-hardening pipe-joint compound or two to three wraps of PTFE thread sealant tape to the male threads of the Style VS1 Dry Sprinkler's inlet, in accordance with the pipe joint compound or tape manufacturer's instructions.

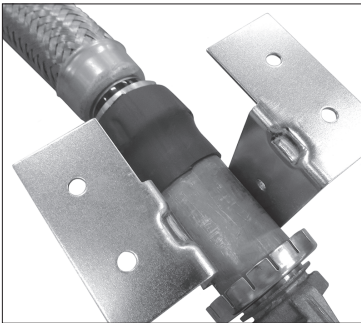
2a. Using a 2-inch wrench, tighten the swivel hex nut at the Style VS1 Dry Sprinkler's inlet to a torque of 30ft-lbs/41 N•m (approximately 1/2 to 3/4 of a turn past hand-tight).



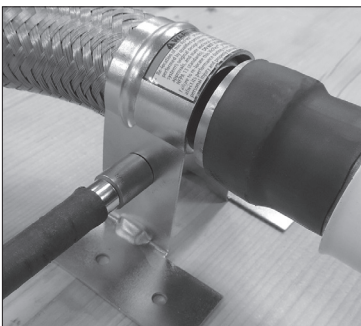
3. Using a  $\frac{5}{16}$ -inch hex socket, remove the hex cap screw from the bracket.



4. Snap the bracket onto the weld fitting, as shown to the left. Verify that the slot of the bracket aligns with the lip on the weld fitting.

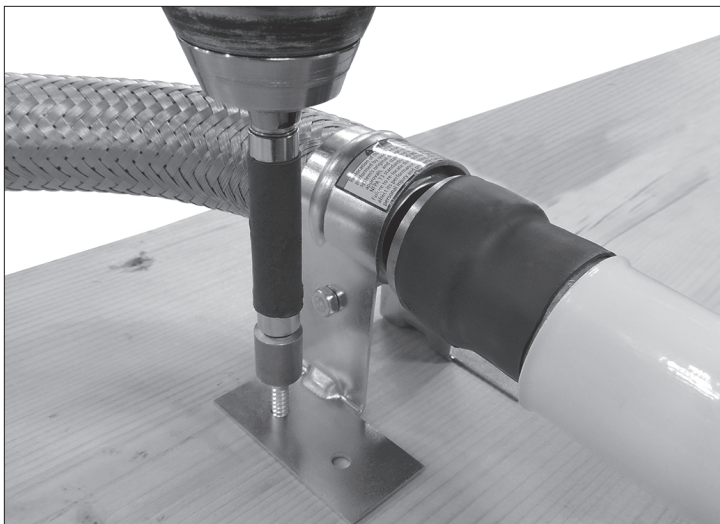


- An alternative to step 4 is to snap the bracket onto the outlet tube, as shown on the left.



5. Place the bracket assembly in the desired position on the wood or metal joist/stud. Verify that the sprinkler is oriented in the proper position.

5a. Using a  $\frac{5}{16}$ -inch hex socket, re-install the hex cap screw. Tighten the hex cap screw to 15 inch-lbs/1.7 N•m (approximately one to two turns past hand-tight). This will retain the sprinkler orientation in relation to the bracket mounting flanges.



6. Anchor the bracket in the desired location on the wood or metal joist/stud by using two #10 x 1 ½-inch long wood screws (for wood joists/studs shown above) or two #10 x 1 ½-inch long sheet metal screws (for metal joists/studs). **NOTE:** Victaulic® does not supply wood screws or sheet metal screws.

## NOTICE

- Always reference page 119 of this manual for Style VS1 Sprinkler Assembly pitching requirements.

# STYLE VB2, STYLE VB3, AND VB4 BRACKETS- INSTALLATION FOR ASTM C635 CEILING SUSPENSION SYSTEMS INSTALLED WITH LAY- IN TILES (IN ACCORDANCE WITH ASTM C636 STANDARDS)

## WARNING

- DO NOT attempt to adjust or remove a Style VS1 Dry Sprinkler while the sprinkler system is pressurized.

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

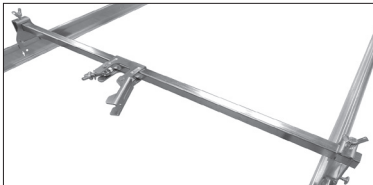


1. Apply a non-hardening pipe-joint compound or two to three wraps of PTFE thread sealant tape to the male threads of the Style VS1 Dry Sprinkler's inlet, in accordance with the pipe joint compound or tape manufacturer's instructions.

1a. Using a 2-inch wrench, tighten the swivel hex nut at the Style VS1 Dry Sprinkler's inlet to a torque of 30 ft-lbs/ 41 N•m (approximately ½ to ¾ of a turn past hand-tight).



**NOTE:** For adjustment purposes, the wing screw on top of each end bracket assembly can be loosened to allow the end bracket to slide on the square bar. Tighten the wing screw on top of each end bracket assembly to a torque of 36 inch-lbs/4 N•m (approximately ½ to ¾ of a turn past hand-tight) to secure the end bracket to the square bar.

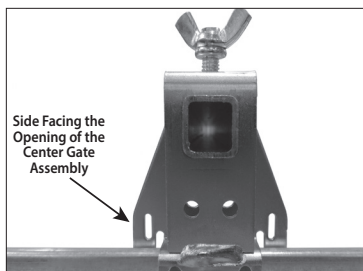


VB2/VB3 Bracket (shown above)



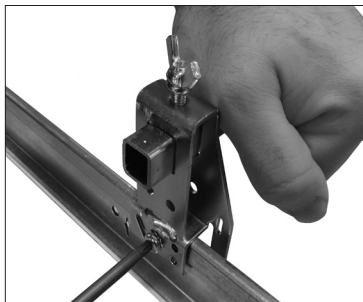
VB4 Bracket (shown above)

2. Attach the end brackets of the Style VB2/VB3 or VB4 Bracket to the T-bar rails of an ASTM C635 ceiling suspension system installed in accordance with ASTM C636 standards. Verify that the ends of the Style VB2/VB3 or VB4 Bracket engage the rails.



**2a.** For center-of-tile installations, align the end bracket with the center-of-tile slot of the T-bar rail (with the side facing the opening of the center gate assembly), as shown to the left.

**NOTE:** For the UL Listing, when the 48-inch/1220-mm length VB2, VB3, or VB4 Bracket is used with the VS1 (V35) Flexible Dry Sprinkler, the maximum spacing is 30-inches/762-mm.

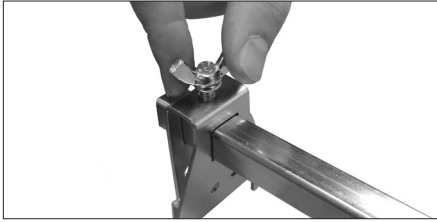


**2b.** Apply light downward pressure, as shown above, to maintain the position of the end bracket flat against the T-bar rail. To secure the end brackets to the T-bar rails, tighten the pre-installed sheet metal screws using a #2 recessed square drive bit. Penetrate through the T-bar rail until the end bracket is seated fully against the T-bar rail. **DO NOT over-tighten the screws. Over-tightening will cause the screw to strip, resulting in an unsecured bracket connection.**

**3.** Complete the installation by following the applicable instructions in the “Sprinkler Reducing Nipple Installation” section in this handbook.

# STYLE VB3 AND VB4 BRACKETS - INSTALLATION FOR WOOD JOISTS/STUDS

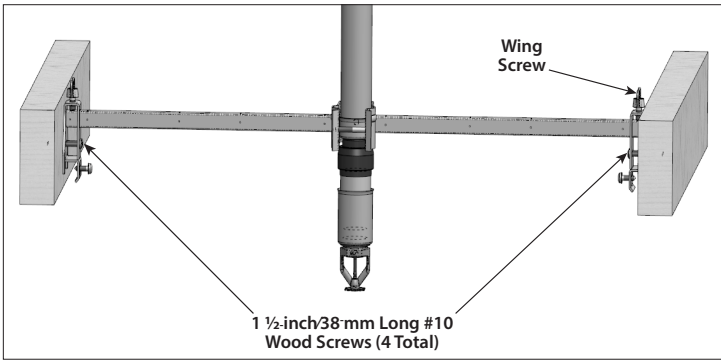
1. Install the inlet of the Style VS1 Dry Sprinkler into the sprinkler piping, as described in step 1 on page 124.



2. Loosen and remove the wing screw of the Style VB3 or VB4 end bracket assembly. Remove the end bracket assembly from the square bar.

3. Measure the distance between the wood joists/studs.

3a. Cut the square bar to the length needed to fit between the two wood joists/studs. This length shall be measured from the outside of the end bracket assembly to the point on the square bar that will butt against the other wood joist/stud.



4. Place the end bracket assembly, removed in step 2, onto the end of the square bar so that the square bar is flush with the outside of the end bracket assembly. Reinstall the wing screw loosely into the top of the end bracket assembly.

5. Install the modified Style VB3 or VB4 Bracket between the wood joists/studs by using four, 1 1/2-inch/38-mm long #10 wood screws in the locations noted in the graphic shown above. **NOTE:** Install the top two wood screws first.

6. Tighten the wing screw on top of the end bracket assembly to a torque of 36 inch-lbs/ 4 N•m (approximately 1/2 to 3/4 of a turn past hand-tight).

7. Complete the installation by following the applicable instructions in the “Sprinkler Reducing Nipple Installation” section in this handbook.

**NOTE:** End brackets may be secured to the joists in a vertical or horizontal orientation, provided they are secured with four screws.

# STYLE VB3 AND VB4 BRACKETS – INSTALLATION FOR ASTM C645 METAL JOISTS/STUDS INSTALLED IN ACCORDANCE WITH ASTM C754 STANDARDS

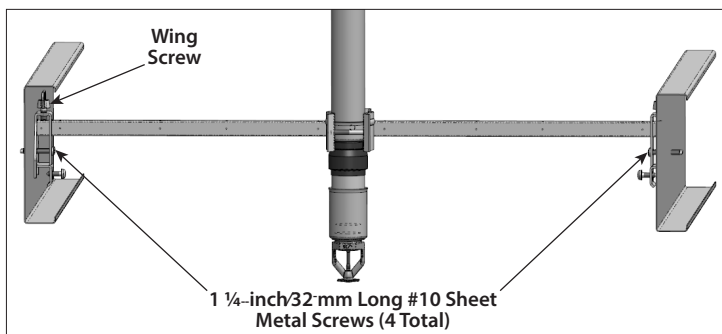
1. Install the inlet of the Style VS1 Dry Sprinkler into the sprinkler piping, as described in step 1 on page 124.



2. Loosen and remove the wing screw of the Style VB3 or VB4 end bracket assembly. Remove the end bracket assembly from the square bar.

3. Measure the distance between the metal joists/studs.

3a. Cut the square bar to the length needed to fit between the two metal joists/studs. This length shall be measured from the outside of the end bracket assembly to the point on the square bar that will butt against the other metal joist/stud.



4. Place the end bracket assembly, removed in step 2, onto the end of the square bar so that the square bar is flush with the outside of the end bracket assembly. Reinstall the wing screw loosely into the top of the end bracket assembly.

5. Install the modified Style VB3 or VB4 Bracket between the metal joists/studs by using four, 1 1/4-inch/32-mm long #10 self-drilling sheet metal screws in the locations noted in the graphic shown above. **NOTE:** Install the top two sheet metal screws first.

6. Tighten the wing screw on top of the end bracket assembly to a torque of 36 inch-lbs/ 4 N•m (approximately 1/2 to 3/4 of a turn past hand-tight).

7. Complete the installation by following the applicable instructions in the “Sprinkler Reducing Nipple Installation” section in this handbook.

**NOTE:** End brackets may be secured to the joists in a vertical or horizontal orientation, provided they are secured with four screws.

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I-VICFLEX\_128



# Connection to the Sprinkler Piping

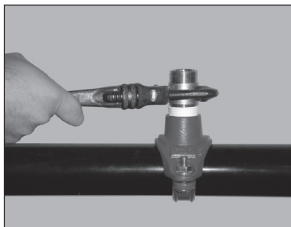
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# CONNECTION TO THE SPRINKLER PIPING USING AN ADAPTER NIPPLE AND A SERIES AH1, AH1-LP, AH2, AH2-LP, AH2-300, AH3, AH3-LP, AH4, AH4-LP, AH5, OR AH2-638 VICTAULIC® VICFLEX™ FLEXIBLE HOSE

## WARNING

- The flexible hose shall not be bent or fluctuated up-and-down or side-to-side when pressurized.

Failure to follow this instruction could cause improper sprinkler operation, resulting in death or serious personal injury and property damage.



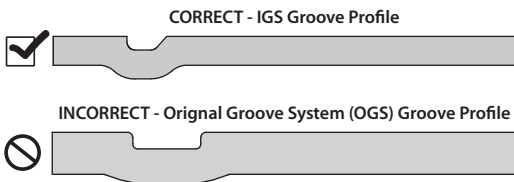
1. Apply pipe joint compound or PTFE thread sealant tape to the tapered threads of the adapter nipple, in accordance with the pipe joint compound or tape manufacturer's instructions. Using a pipe wrench, tighten the adapter nipple into the sprinkler piping.



2. Confirm that the seal inside the nut of the flexible hose is in place and is free from damage prior to installation. Connect the nut to the adapter nipple, as shown to the left.

- DO NOT use pipe joint compound or PTFE thread sealant tape on the threads of the adapter nipple. The seal inside the nut of the flexible hose provides the leak-proof connection.
- Tighten the connection nut to a torque of 40ft-lbs/54 N•m (approximately ½ to ¾ of a turn past hand-tight). **NOTE:** To prevent damage to the seal, tighten the assembly by applying torque only to the connection nut and DO NOT exceed the specified torque.

# 1-INCH/DN25 IGS™ CONNECTION TO THE SPRINKLER PIPING USING A SERIES AH1-CC, AH1-CC-LP, AH2-CC, AH2-CC-LP, OR AH2-CC-300 VICTAULIC® VICFLEX™ FLEXIBLE HOSE



*Pipe and grooves are not shown to scale*

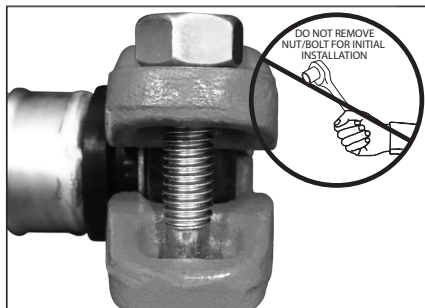
The Style 108 Coupling of the Series AH1-CC, AH1-CC-LP, AH2-CC, AH2-CC-LP, or AH2-CC-300 shall be used **ONLY** with sprinkler piping connections that are prepared to Victaulic® IGS™ proprietary groove specifications. **DO NOT** attempt to install the coupling on sprinkler piping connections that are prepared to any other groove specification. Refer to Victaulic® publication 25.14 for the IGS™ groove specification, which can be downloaded at [victaulic.com](http://victaulic.com).

DO NOT use the Style 108 Coupling for sprinkler-piping-to-sprinkler connections. For sprinkler-piping-to-sprinkler connections, the Style V9 shall be used.

## **WARNING**

- The flexible hose shall not be bent or fluctuated up-and-down or side-to-side when pressurized.

Failure to follow this instruction could cause improper sprinkler operation, resulting in death or serious personal injury and property damage.



### 1. DO NOT DISASSEMBLE

**THE COUPLING:** The Style 108 Coupling of the Series AH1-CC, AH1-CC-LP, AH2-CC, AH2-CC-LP, or AH2-CC-300 Flexible Hose is designed so that the installer does not need to remove the nut, bolt, or linkage for initial installation. This facilitates installation by allowing the installer to directly insert the sprinkler piping's grooved end into the coupling.

2. The outside surface of the sprinkler piping, between the groove and the end of the sprinkler piping, shall be generally free from indentations, projections, weld seam anomalies, and roll marks to ensure a leak-tight seal. All oil, grease, loose paint, dirt, and cutting particles shall be removed.

The sprinkler piping's outside diameter ("OD"), groove dimensions, and maximum allowable flare diameter shall be within the tolerances published in current Victaulic® IGS™ specifications, publication 25.14, which can be downloaded at [victaulic.com](http://victaulic.com).

3. Check the gasket to verify that it is suitable for the intended service. The color code identifies the material grade. Refer to Victaulic® publication 05.01 for the color code chart, which can be downloaded at [victaulic.com](http://victaulic.com). Refer to Victaulic® publication 05.01 for the color code chart, which can be downloaded at [victaulic.com](http://victaulic.com), and the "NOTICE" on the following page for important gasket information.



## CAUTION

- If any conditions listed in the “NOTICE” below are met, a thin coat of a compatible lubricant shall be applied only to the gasket sealing lips to help prevent the gasket from pinching, rolling, or tearing during assembly.
- DO NOT use excessive lubricant on the gasket sealing lips.

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

3a. If any conditions listed in the “NOTICE” below are met, apply a thin coat of a compatible lubricant, such as Victaulic® Lubricant or an EPDM-compatible lubricant, only to the gasket sealing lips. Silicone grease may be used (silicone spray is not a compatible lubricant).

## NOTICE

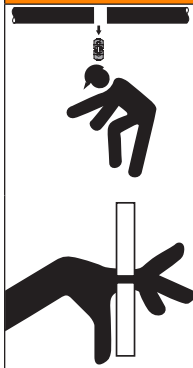
- Gaskets for Style 108 Coupling assemblies of Series AH1-CC, AH1-CC-LP, AH2-CC, AH2-CC-LP, or AH2-CC-300 Flexible Hoses are pre-lubricated. Additional lubrication is not required for the initial installation of wet pipe systems that are installed at or continuously operating above 0°F/–18°C.

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

- If the installation or continuous operating temperature is below 0°F/–18°C
- If the gasket has been exposed to fluids prior to installation
- If the surface of the gasket has a dark black or shiny 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

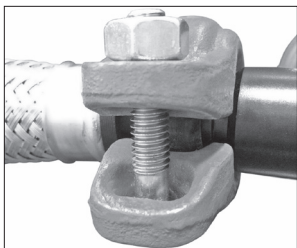
Lubricated gaskets will not enhance sealing capabilities on adverse sprinkler piping conditions. Sprinkler piping condition and preparation shall conform to the requirements listed in these product installation instructions.

## WARNING



- Never leave a Style 108 Coupling of a Series AH1-CC, AH1-CC-LP, AH2-CC, AH2-CC-LP, or AH2-CC-300 partially assembled on grooved sprinkler piping. ALWAYS TIGHTEN THE HARDWARE IMMEDIATELY, IN ACCORDANCE WITH THESE INSTRUCTIONS. A partially assembled coupling poses a drop or fall hazard during installation and a burst hazard during testing.
- Keep hands away from the grooved sprinkler piping and openings of the coupling when attempting to insert the grooved sprinkler piping into the coupling.
- Keep hands away from coupling opening during tightening.

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



4. Assemble the joint by inserting the grooved end of the sprinkler piping into the opening of the coupling. The grooved sprinkler piping shall be inserted into the coupling until contact with the center leg of the gasket occurs. A visual check is required to verify that the coupling keys align with the groove in the sprinkler piping and engage with the spacer on the inlet end of the flexible hose.

## ! WARNING

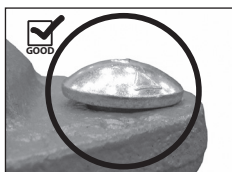
- The nut shall be tightened until metal-to-metal contact occurs at the bolt pads, as indicated in steps 5 and 6.
- **DO NOT** continue to tighten the nut after metal-to-metal bolt pad contact is achieved.

Failure to follow instructions for tightening hardware could result in:

- Damage to the assembled joint (damaged or broken bolt pads or fractures to housings)
- Bolt damage or fracture
- Joint leakage and property damage
- A negative impact on system integrity
- Personal injury or death

## NOTICE

- During tightening, support the hose near the Style 108 Coupling to verify that the inlet end of the Victaulic® VicFlex™ Model V32 K-Factored Sprinkler Assembly remains straight and aligned with the coupling.



OVAL NECK OF BOLT SEATED PROPERLY



OVAL NECK OF BOLT NOT SEATED PROPERLY

5. Using an impact tool or a standard socket wrench with an  $\frac{1}{16}$ -inch (for Imperial nuts)/ 17-mm (for Metric nuts) deep-well socket, tighten the nut until metal-to-metal contact occurs at the bolt pads. **MAXIMUM ALLOWABLE BOLT TORQUE IS 55 ft-lbs/75 N•m.** Verify that the oval neck of the bolt seats properly in the bolt hole. **DO NOT** continue to tighten the nut after the visual inspection requirements, shown on the following page, are achieved. **If you suspect that any hardware has been over-tightened (as indicated by a bend in the bolt, bulging of the nut at the bolt pad interface, or damage to the bolt pad, etc.), the entire coupling assembly shall be replaced immediately.** Refer to the I-IMPACT for impact tool usage/selection guidelines, which can be downloaded by scanning the QR code on the following page.

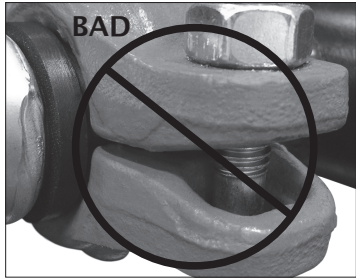
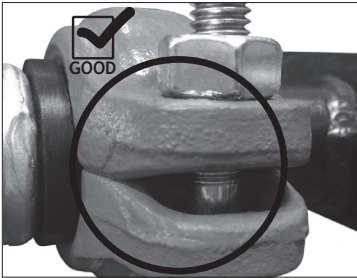




## WARNING

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

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



6. Visually inspect the bolt pads at each joint to verify that metal-to-metal contact is achieved, in accordance with step 5 on the previous page.

## NOTICE

- Refer to pages 137 – 138 for flexible hose reassembly instructions.

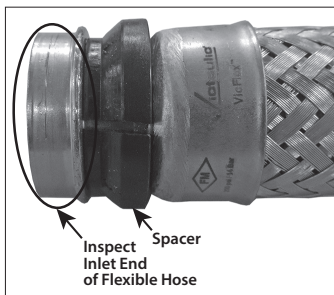
# INSTRUCTIONS FOR THE INITIAL USE OF A VICTAULIC® FIRELOCK™ NO. 101 90° ELBOW OR NO. 102 STRAIGHT TEE INSTALLATION-READY™ FITTING WITH A VICTAULIC® VICFLEX™ FLEXIBLE HOSE (1-INCH/DN25 IGS™ CONNECTION)

## NOTICE

- The following procedure applies only to 1-inch/DN25 No. 101 90° Elbows and No. 102 Straight Tees (IGS™ connection).
- No. 101 90° Elbows and No. 102 Straight Tees do not ship preassembled to the Series AH1-CC, AH1-CC-LP, AH2-CC, AH2-CC-LP or AH2-CC-300 Flexible Hose.
- The No. 101 or No. 102 does not need to be fully disassembled for initial installation onto the inlet end of the Series AH1-CC, AH1-CC-LP, AH2-CC, AH2-CC-LP or AH2-CC-300 Flexible Hose.



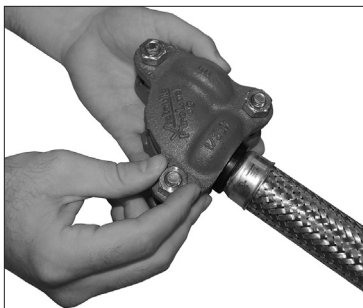
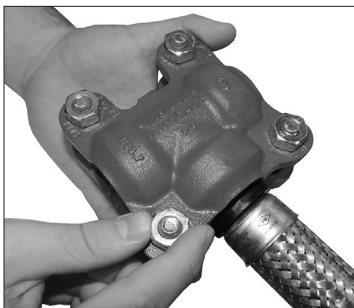
1. Loosen the nut of the Style 108 Coupling. Remove the Style 108 Coupling from the end of the Series AH1-CC, AH1-CC-LP, AH2-CC, AH2-CC-LP or AH2-CC-300 Flexible Hose.



2. Inspect the inlet end of the Series AH1-CC or AH2-CC Flexible Hose to verify that there is no damage (dents, crushed edges, etc.). A new, Victaulic®-supplied Series AH1-CC, AH1-CC-LP, AH2-CC, AH2-CC-LP or AH2-CC-300 Flexible Hose shall be used if any damage is present.
3. Verify that the spacer is oriented on the inlet end of the Series AH1-CC, AH1-CC-LP, AH2-CC, AH2-CC-LP or AH2-CC-300 Flexible Hose, as shown to the left.

4. Loosen and remove the hardware from the side of the No. 101 90° Elbow or No. 102 Straight Tee that is intended to connect with the inlet of the Series AH1-CC, AH1-CC-LP, AH2-CC, AH2-CC-LP OR AH2-CC-300 Flexible Hose.



**NO. 101****NO. 102**

**5.** Insert the inlet end of the Series AH1-CC, AH1-CC-LP, AH2-CC, AH2-CC-LP or AH2-CC-300 Flexible Hose into the No. 101 90° Elbow or No. 102 Straight Tee. Verify that the gasket is seated fully in the gasket pocket of each housing and that the housings' keys engage with the spacer on the inlet end of the Series AH1-CC, AH1-CC-LP, AH2-CC, AH2-CC-LP, or AH2-CC-300 Flexible Hose.

**5a.** Reinstall the two bolts and nuts that were removed in step 4. **NOTE:** Verify that the oval neck of each bolt seats properly in the bolt holes. **DO NOT** tighten the nuts completely. The bolt pads need to be set at a gap for installation of the fitting. The nuts shall be flush with the top of each bolt to provide the proper gap. Use caution when handling the fitting/hose assembly (the fitting may not be secured completely to the inlet end of the Series AH1-CC, AH1-CC-LP, AH2-CC, AH2-CC-LP or AH2-CC-300 Flexible Hose).

**6.** Follow the steps in the I-101/103 or I-102/104 installation instructions for the required tightening sequence. **NOTE:** During tightening, verify that the inlet end of the Series AH1-CC, AH1-CC-LP, AH2-CC, AH2-CC-LP or AH2-CC-300 Flexible Hose remains straight and aligned with the opening of the No. 101 90° Elbow or No. 102 Straight Tee. The I-101/103 or I-102/104 can be accessed and downloaded by scanning the applicable QR code below. In addition, these instructions contain important reassembly instructions and shall be referenced any time a No. 101 90° Elbow or No. 102 Straight Tee is removed from the sprinkler piping and reused.



**SCAN QR CODE FOR ACCESS  
TO THE FULL I-101/103  
INSTALLATION INSTRUCTIONS  
ON VICTAULIC.COM**

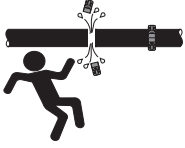


**SCAN QR CODE FOR ACCESS  
TO THE FULL I-102/104  
INSTALLATION INSTRUCTIONS ON  
VICTAULIC.COM**



# INSTRUCTIONS FOR REASSEMBLY OF A SERIES AH1-CC, AH1-CC-LP, AH2-CC, AH2-CC-LP, OR AH2-CC-300 VICTAULIC® VICFLEX™ FLEXIBLE HOSE

## WARNING



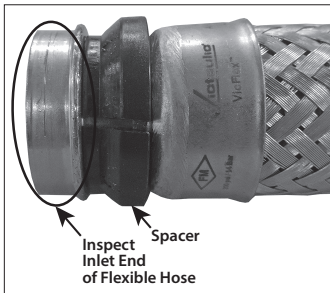
- Always verify that the piping system has been completely depressurized and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic® products.

- Confirm that any equipment, branch lines, or sections of piping that may have been isolated for/during testing or due to valve closures/positioning are identified, depressurized, and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic® products.

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

1. Verify that the system is depressurized and drained completely before attempting to remove a Series AH1-CC, AH1-CC-LP, AH2-CC, AH2-CC-LP, or AH2-CC-300 Flexible Hose from the sprinkler piping.
2. While supporting the Style 108 Coupling, loosen the nut until backed off no further than flush with the end of the bolt. Carefully remove the flexible hose/coupling assembly from the sprinkler piping.
3. Fully disassemble the Style 108 Coupling from the inlet end of the Series AH1-CC, AH1-CC-LP, AH2-CC, AH2-CC-LP, or AH2-CC-300 Flexible Hose by removing the nut, bolt gasket, and linkage from the housing. Inspect all components for any damage or wear. If any damage or wear is present, use a new Victaulic®-supplied coupling assembly.
4. Verify that the outside surface of the sprinkler piping, between the groove and the end of the sprinkler piping, is generally free from indentations, projections, weld seam anomalies, and roll marks to ensure a leak-tight seal. All oil, grease, loose paint, dirt, and cutting particles shall be removed.

The sprinkler piping's outside diameter ("OD"), groove dimensions, and maximum allowable flare diameter shall be within the tolerances published in current Victaulic® IGS™ specifications, publication 25.14, which can be downloaded at [victaulic.com](http://victaulic.com).



5. Inspect the end of the Series AH1-CC, AH1-CC-LP, AH2-CC, AH2-CC-LP, or AH2-CC-300 Flexible Hose to verify that there is no damage (dents, crushed edges, etc.). A new, Victaulic®-supplied hose assembly shall be used if any damage is present.
6. Verify that the spacer is oriented on the inlet end of the Series AH1-CC, AH1-CC-LP, AH2-CC, AH2-CC-LP, or AH2-CC-300 Flexible Hose, as shown to the left.



## CAUTION

- A thin coat of a compatible lubricant shall be used to help prevent the gasket from pinching, rolling, or tearing during reassembly.
- DO NOT use excessive lubricant on the gasket sealing lips and exterior.

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



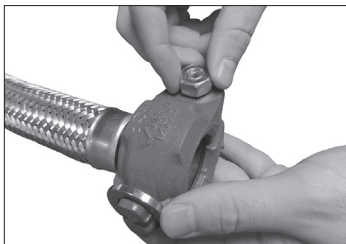
7. Apply a thin coat of a compatible lubricant, such as Victaulic® Lubricant or an EPDM-compatible lubricant, to the gasket sealing lips and exterior. Silicone grease may be used (silicone spray is not a compatible lubricant). It is normal for the gasket to have a hazy white appearance after it has been in service.



8. Place the lubricated gasket onto the inlet end of the flexible hose, then place the Style 108 Coupling housings over the gasket. Verify that the gasket is seated fully in the gasket pocket of each housing and that the housings' keys engage with the spacer.



9. Install the linkage onto the housings, as shown to the left.



10. Install the bolt, and thread a nut onto the bolt. **NOTE:** Verify that the oval neck of the bolt seats properly in the bolt hole. DO NOT tighten the nut completely. The bolt pads need to be set at a gap for reinstallation of the coupling. The nut shall be flush with the top of the bolt to provide the proper gap.

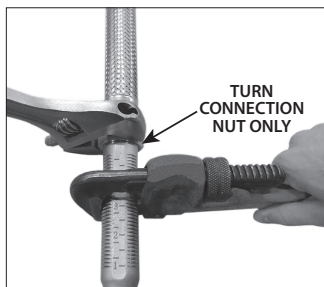
11. Follow all steps on pages 133 – 134.

# Connecting the Sprinkler Reducing Nipple to the Flexible Hose

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## CONNECTING THE SPRINKLER REDUCING NIPPLE TO THE FLEXIBLE HOSE (AB1/AB2/AB3/AB4/AB5/AB7/AB8/AB10/ABBA/ABMM)

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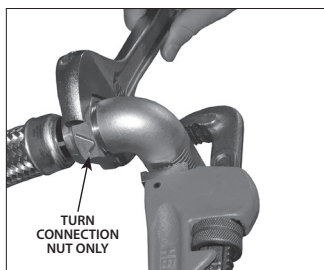


1. Confirm that the seal inside the nut of the flexible hose is in place and is free from damage prior to installation. Connect the nut to the sprinkler reducing nipple. **SHORT 90° ELBOW REDUCERS ARE TYPICALLY USED WITH CONCEALED SPRINKLERS.**

- DO NOT use pipe joint compound or PTFE thread sealant tape on the fine threads of the sprinkler reducing nipple. The seal inside the nut of the flexible hose provides the leak-proof connection.
- Tighten the connection nut to a torque of 40 ft-lbs/54 N•m (approximately ½ to ¾ of a turn past hand-tight). **NOTE:** To prevent damage to the seal, tighten the assembly by applying torque only to the connection nut and DO NOT exceed the specified torque.

## CONNECTING THE SPRINKLER REDUCING NIPPLE TO THE FLEXIBLE HOSE (AB11/AB12)

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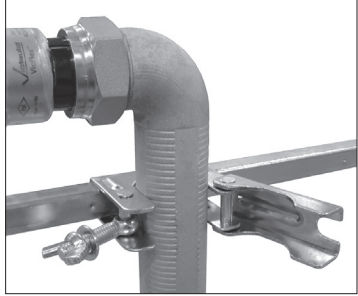
1. Confirm that the seal inside the nut of the flexible hose is in place and is free from damage prior to installation. Connect the nut to the sprinkler reducing nipple. **SHORT 90° ELBOW REDUCERS ARE TYPICALLY USED WITH CONCEALED SPRINKLERS.**

- DO NOT use pipe joint compound or PTFE thread sealant tape on the fine threads of the sprinkler reducing nipple. The seal inside the nut of the flexible hose provides the leak-proof connection.
- Tighten the connection nut to hand-tight plus half a turn (do not exceed 40 ft-lbs/54 N•m of torque on the connection nut). **NOTE:** To prevent damage to the seal, tighten the assembly by applying torque only to the connection nut.

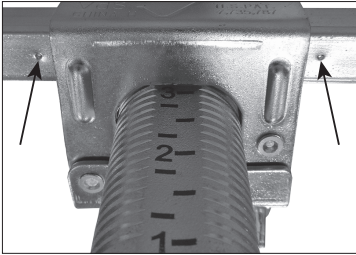
# Sprinkler Reducing Nipple Installation

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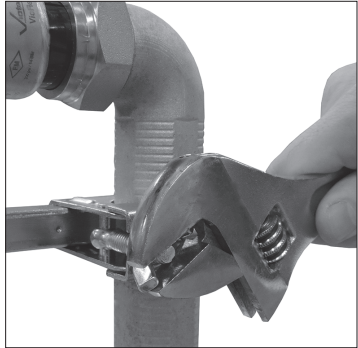
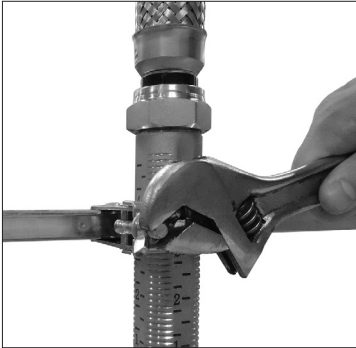
# SPRINKLER REDUCING NIPPLE INSTALLATION FOR STYLE AB1/AB7/AB10/AB11 BRACKETS



1. Move the center gate assembly of the Style AB1/AB7/AB10/AB11 Bracket to the desired location. Loosen the wing nut to open the center gate assembly, then slide the sprinkler reducing nipple into the center gate assembly. **NOTE:** The pivot screw of the center gate assembly is staked to resist removal of the wing nut.

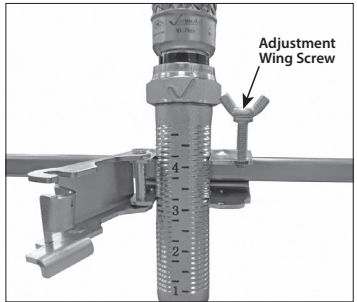
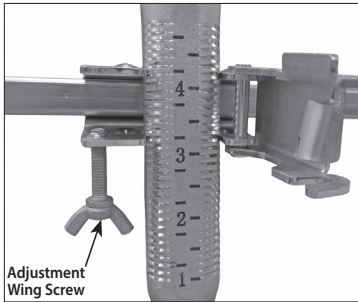


For center-of tile installations, position the center gate assembly between the two reference marks on the square bar, as shown to the left.



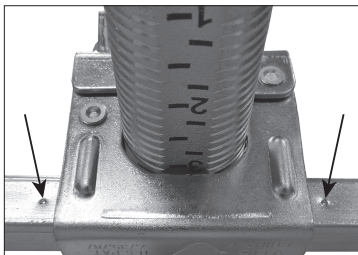
2. Close the center gate assembly around the sprinkler reducing nipple. Swing the pivot screw and washer into the slot on the gate, and tighten the wing nut to a torque of 50 inch-lbs/6 N•m (approximately hand-tight, plus  $\frac{1}{2}$  to  $\frac{3}{4}$  of a turn). **NOTE:** Verify that the washer is seated under the head of the wing nut.

# SPRINKLER REDUCING NIPPLE INSTALLATION FOR THE STYLE AB2 BRACKET

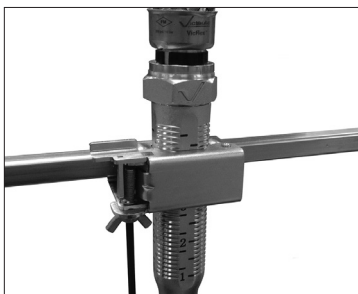


1. Move the center gate assembly of the Style AB2 Bracket to the desired location. Using a T25 drive bit, loosen the adjustment wing screw, then push open the center gate assembly. The center gate assembly may be rotated on the square bar for ease of installation. For vertical adjustment, rotate the center gate assembly on the square bar so that the adjustment wing screw is facing downward. Slide the sprinkler reducing nipple into the center gate assembly.

**NOTE:** The adjustment wing screw of the center gate assembly is staked to resist removal.

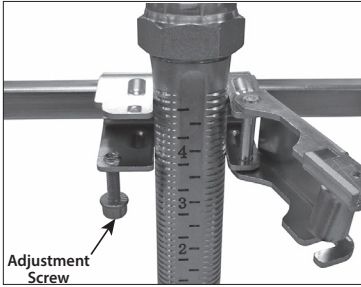


For center-of tile installations, position the center gate assembly between the two reference marks on the square bar, as shown to the left.



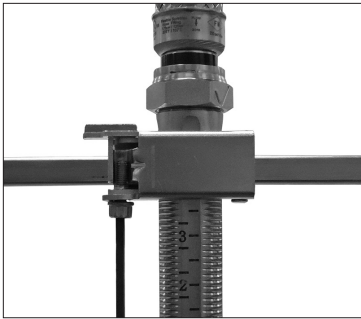
2. Close the gate around the sprinkler reducing nipple. The gate will snap together tightly around the sprinkler reducing nipple. Using a T25 drive bit, tighten the adjustment wing screw to a torque of 75 inch-lbs/8.5 N•m (until adjustment wing screw makes metal-to-metal contact with bottom of gate). **NOTE:** The sprinkler reducing nipple can be adjusted after the drywall is installed by using the adjustment wing screw on the center gate assembly (adjustment wing screw must be facing downward to make this vertical adjustment).

# SPRINKLER REDUCING NIPPLE INSTALLATION FOR STYLE AB4/AB5/AB8 BRACKETS



1. Move the center gate assembly of the Style AB4 or AB5 Bracket to the desired location. Using a T25 drive bit, loosen the adjustment screw, then push open the center gate assembly. Slide the sprinkler reducing nipple into the center gate assembly.

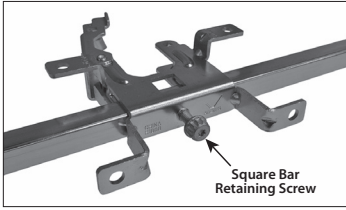
**NOTE:** The adjustment screw of the center gate assembly is staked to resist removal.



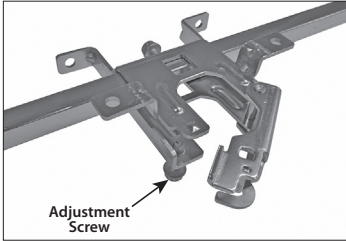
2. Close the gate around the sprinkler reducing nipple. The gate will snap together tightly around the sprinkler reducing nipple. Using a T25 drive bit, tighten the adjustment screw to a torque of 75 inch-lbs/8.5 N•m (until adjustment screw makes metal-to-metal contact with bottom of gate). **NOTE:** The sprinkler reducing nipple can be adjusted after the drywall is installed by using the adjustment screw on the center gate assembly.



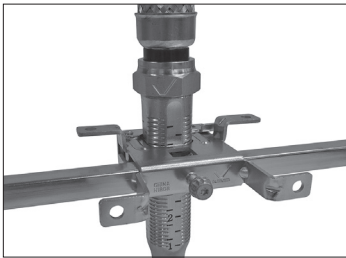
# SPRINKLER REDUCING NIPPLE INSTALLATION FOR STYLE ABBA/ABMM BRACKETS



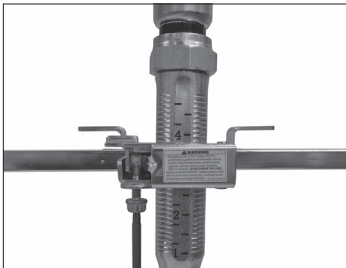
**1. For floor-above-mount, cantilever-mount, and temporary fire protection configurations:** Move the bracket body to the desired location on the square bar. **NOTE:** The square bar retaining screw may need to be loosened with a T25 Torx\* recessed drive bit to allow the bracket body to slide on the square bar.



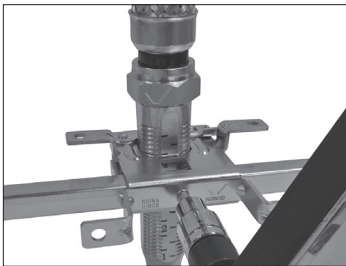
**2.** Using a T25 Torx\* recessed drive bit, loosen the adjustment screw, then push open the gate. **NOTE:** The adjustment screw is staked to resist removal.



**3.** Slide the sprinkler reducing nipple into the bracket body, then close the gate. Close the gate around the sprinkler reducing nipple. **NOTE:** The gate will snap together tightly around the sprinkler reducing nipple.



**4.** Using a T25 Torx\* recessed drive bit, tighten the adjustment screw to a torque of 80 inch-lbs/9.0 N•m (until adjustment screw makes metal-to-metal contact with bottom of gate). **NOTE:** The sprinkler reducing nipple can be adjusted after the wall or ceiling is installed by using this adjustment screw.



**5.** Using a T25 Torx\* recessed drive bit, tighten the square bar retaining screw to a torque of 72 inch-lbs/8.1 N•m.

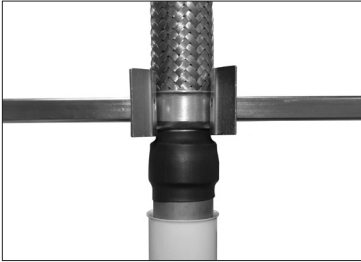
\* Torx is a registered trademark of Acument Global Technologies

# SPRINKLER REDUCING NIPPLE INSTALLATION FOR STYLE VB2/VB3/VB4 BRACKETS

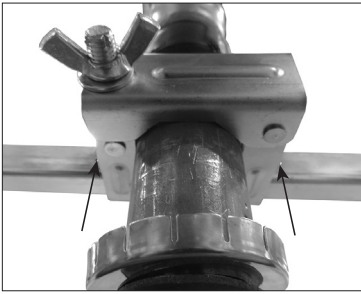
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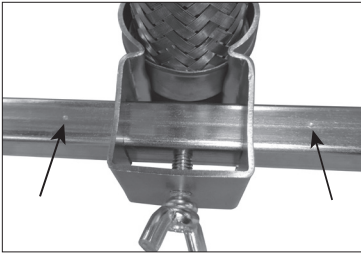
**1a. (VB2/VB3)** Move the center gate assembly of the Style VB2/VB3 Bracket to the desired location. Loosen the wing nut to open the center gate assembly, then slide the sprinkler reducing nipple into the center gate assembly, as shown above. **NOTE:** The pivot screw of the center gate assembly is staked to resist removal of the wing nut.



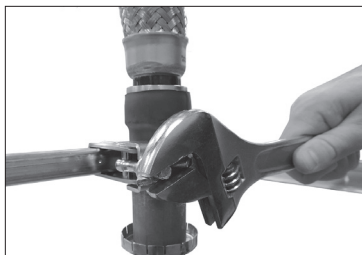
**1b. (VB4)** Remove the button-head cap screw from the center bracket assembly. Snap the bracket onto the weld fitting, as shown above. Verify that the slot of the bracket aligns with the lip on the weld fitting.



**2a. (VB2/VB3)** For center-of tile installations, position the center gate assembly between the two reference marks on the square bar, as shown to the left.



**2b. (VB4)** For center-of tile installations, position the center gate assembly between the two reference marks on the square bar, as shown to the left. Hand-tighten the wing screw to maintain this position.



**3a. (VB2/VB3)** Close the center gate assembly around the sprinkler reducing nipple. Swing the pivot screw and washer into the slot on the gate. Tighten the wing nut to a torque of 50-inch-lbs/6 N•m (approximately hand-tight, plus ½ to ¾ of a turn), as shown above. **NOTE:** Verify that the washer is seated under the head of the wing nut.



**3b. (VB4)** Replace the button-head cap screw that was removed in step 3b. Tighten the button-head cap screw to a torque of 15 inch-lb/6 N•m (approximately 1 to 2 turns past hand tight), as shown to the left.



**3c. (VB4)** Completely tighten the wing screw to a torque of 15 inch-lb/6 N•m (approximately hand-tight, plus ½ to ¾ of a turn).

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# Sprinkler Installation

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# SPRINKLER INSTALLATION FOR AB1, AB2, AB3, AB4, AB5, AB7, AB10, AB11, AB12, ABBA, AND ABMM BRACKETS

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Install the sprinkler by following the manufacturer's installation instructions. For Victaulic sprinklers, refer to the I-40 Victaulic® FireLock™ Automatic Sprinklers Installation and Maintenance Instructions.

**NOTE:** To prevent damage to the sprinkler, verify that the sprinkler wrench engages ONLY the wrench boss of the sprinkler. DO NOT engage the sprinkler wrench on the frame, deflector, or bulb. DO NOT exceed the specified number of turns.

## CEILING TILE INSTALLATION FOR AB1 AND AB2 BRACKETS

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VicFlex Style AB1 and Style AB2 Brackets allow for the installation of most ceiling tiles after the bracket and VicFlex flexible hose have been installed. The following will aid in ceiling tile installation:

- Install bracket on main tee ceiling grid (or ceiling t-bar height that is greater than 1  $\frac{3}{8}$ -inches/35-mm)
- Cut largest recommended hole, as stated in the sprinkler manufacturer's installation instructions
- Install sprinkler at its maximum extension

Ceiling tile installation shall be evaluated when utilizing concealed sprinklers in combination with ceiling tile thicknesses equal to or greater than  $\frac{3}{4}$ -inch/19-mm OR a ceiling t-bar height that is equal to or less than 1  $\frac{3}{8}$ -inches/35-mm.

# **Victaulic® VicFlex™ Tamper-Evident Labels**

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## **Application Instructions**

# OVERVIEW

Victaulic® VicFlex™ tamper-evident labels are available for applications where the building stakeholders require an additional means of deterring unauthorized personnel from performing work on an existing sprinkler system. In addition, these warning labels are applied on every bracket assembly as required by NFPA 13 and can also be applied as tamper-evident labels.

This label may be applied to both of the AB7, AB1, AB2, or AB10 end brackets, as required by the building stakeholders, after the sprinkler system has been completed. A broken or tampered seal is an indication that the VicFlex™ product has been moved from its intended location.

Additional copies of these labels are available through your Victaulic® sales representative or through the Victaulic® website, victaulic.com. Always refer to the instructions supplied with the bracket for complete product installation requirements.

 **WARNING**



- Read and understand all instructions before attempting to install any Victaulic products.aintenance of any Victaulic products.
- Wear safety glasses, hardhat, and foot protection.
- The installer shall understand common industry safety standards and potential consequences of improper product installation.

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

## TAMPER-EVIDENT LABEL FOR THE STYLE AB7 END BRACKET

6075 Rev. D

Z0004GTMP

A WARNING

Relocation of this VicFlex™ product SHALL be performed by qualified personnel familiar with the system's original design criteria, sprinkler listings/approvals, and state and local codes (including NFPA 13 standards). **DO NOT REMOVE THIS LABEL.** Failure to relocate this VicFlex™ product properly could affect its performance during a fire, resulting in death or serious personal injury and property damage.



A broken seal is an indication that this VicFlex™ product has been moved from its intended location.


**A WARNING**

Relocation of this VicFlex™ product SHALL be performed by qualified personnel familiar with the system's original design criteria, sprinkler listings/approvals, and state and local codes (including NFPA 13 standards). **DO NOT REMOVE THIS LABEL.** Failure to relocate this VicFlex™ product properly could affect its performance during a fire, resulting in death or serious personal injury and property damage.

6075 Rev. D

Z0004GTMP

## TAMPER-EVIDENT LABEL FOR THE STYLE AB1, AB2, OR AB10 END BRACKET

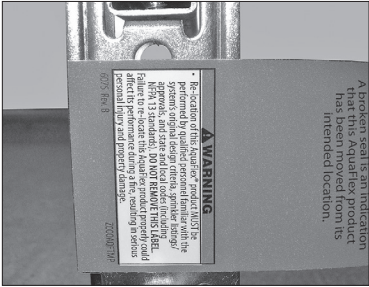
 **WARNING**

- Relocation of this VicFlex™ product SHALL be performed by qualified personnel familiar with the system's original design criteria, sprinkler listings/approvals, and state and local codes (including NFPA 13 standards). **DO NOT REMOVE THIS LABEL.** Failure to relocate this VicFlex™ product properly could affect its performance during a fire, resulting in death or serious personal injury and property damage.

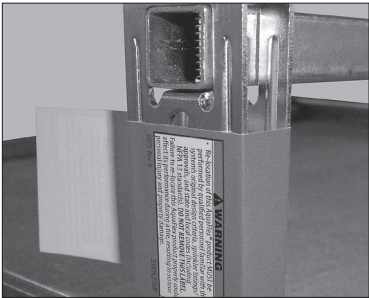
9295 Rev. B  
Z109295SLBL



# APPLYING THE TAMPER-EVIDENT LABEL TO THE STYLE AB7 END BRACKET



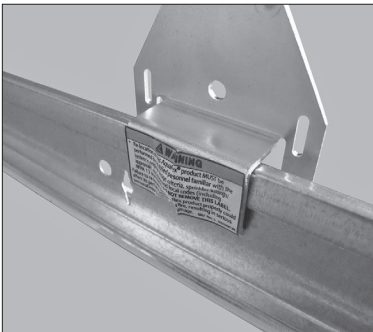
1. Align the edge of the larger tamper-evident label (part code Z000AQFTMP) with the edge of the Style AB7 end bracket. The label shall be affixed with the warning block facing outward (away from the center gate).



2. Wrap the label tightly around to the other side of the Style AB7 end bracket.



3. Finish wrapping the label around the Style AB7 end bracket so that the warning blocks overlap, as shown. Repeat these steps for the other Style AB7 end bracket.



4. Align the edge of the smaller tamper-evident label (part code Z000AQLLBL) with the edge of the Style AB1, AB2, or AB10 end bracket, as shown in the photo to the left, and cover the sheet metal screw. Ensure the label is adhered completely to the flat section of the end bracket.

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# Minimum Bend Radius Guides

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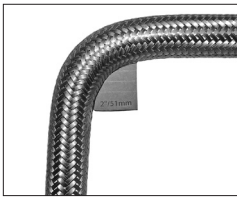
# MINIMUM BEND RADIUS GUIDE USAGE

## WARNING

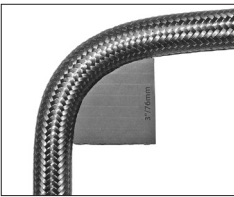


- Read and understand all instructions before attempting to install any Victaulic® VicFlex™ products.
  - Wear safety glasses, hardhat, and foot protection.
  - These installation instructions are intended for an experienced, trained installer.
  - The user shall understand the purpose of these products, common industry standards for safety, and the potential consequences of improper product installation.
- Failure to follow these instructions could cause improper sprinkler operation and product failure, resulting in death or serious personal injury and property damage.

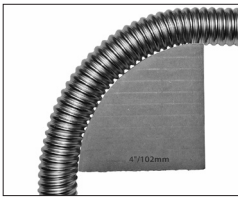
Shipping boxes for certain Victaulic® VicFlex™ flexible hoses contain a template that can be cut out and used to check the minimum bend radius for flexible hoses. Always follow all instructions in this handbook for the applicable product being installed, and refer to the flexible hose bend radius examples shown below. Place the guide on the inside of the bend, as shown below.






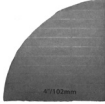
2-INCH/51-MM MINIMUM BEND RADIUS



3-INCH/76-MM MINIMUM BEND RADIUS



4-INCH/102-MM MINIMUM BEND RADIUS

			
Bend Radius Guide for Determining a 2-inch/51-mm Minimum Bend Radius	Bend Radius Guide for Determining a 3-inch/76-mm Minimum Bend Radius	Bend Radius Guide for Determining a 3-inch/76-mm Minimum Bend Radius	Bend Radius Guide for Determining a 4-inch/102-mm Minimum Bend Radius
AH2 AH2-CC AH2-LP AH2-CC-LP VS1	AH1 AH1-CC AH1-LP AH1-CC-LP AH3*	AH2 AH2-CC AH2-LP AH2-CC-LP AH2-300 AH2-CC-300 AH4*	AH5

\* SERIES AH3, AH3-LP, AH4, AND AH4-LP – REGIONAL AVAILABILITY ONLY



# Technical Data

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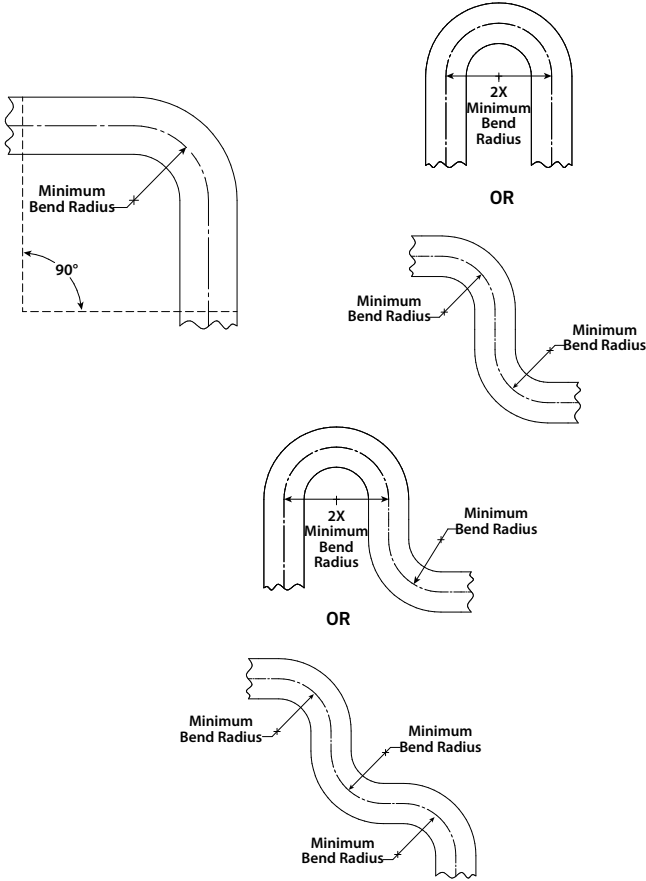
## WARNING

- It is the system designer's responsibility to verify suitability of stainless steel flexible hose for use with the intended fluid media within the piping system and external environment.

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

# FLEXIBLE HOSE BEND CHARACTERISTICS

**NOTE:** Care shall be taken to avoid torquing the flexible hose.



## MAXIMUM WORKING PRESSURE RATING OF FLEXIBLE HOSES

Maximum Working Pressure Rating	Approvals
200 psi/14 Bar/1379 kPa	FM
175 psi/12 Bar/1207 kPa	UL
16 Bar/1600 kPa/232 psi	VdS and LPCB
1.4 MPa/1400 kPa/203 psi	CCC
300 psi/21 Bar/2068 kPa	AH2-300, AH2-CC-300

**NOTE:** Maximum working pressure rating for the FM Approval of the Series AQD is 175 psi/12 Bar/1207 kPa.



# MAXIMUM AMBIENT TEMPERATURE RATING OF FLEXIBLE HOSES

Generally, the maximum ambient temperature rating of Victaulic® VicFlex™ hoses is 225°F/107°C.

Exceptions are the following:

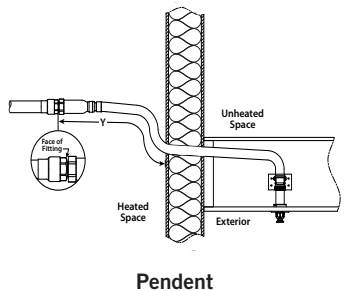
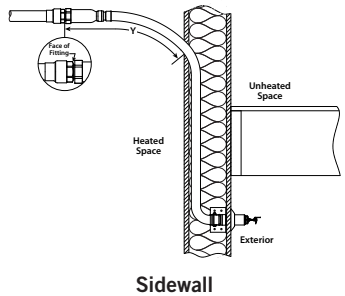
- 150° F/ 66° C (UL) with AH2-300 and AH2-CC-300 hose models.
- 150° F/66° C (UL/FM) when the AH2 or AH2-CC Flexible Hose is used for the seal of the Style AB6 Bracket Assembly.

**NOTE:** When using the optional silicone seal, the AB6 bracket paired with either the AH2 or AH2-CC Flexible Hose will have a maximum ambient temperature of 225° F/107° C. Additionally, the optional silicone seal cannot be used with panel configurations that have corrugation heights greater than ¼ inch/3.2 mm.

## AMBIENT TEMPERATURE FOR WET PIPING SYSTEMS INSTALLED WITH STYLE VS1 DRY SPRINKLERS

The following table is used when the ambient temperature is maintained between 40° F/4° C and 60° F/16° C around the wet piping system.

Ambient Temperature Exposed to Discharge End of Sprinkler °F/°C	Exposed Minimum Barrel Length "Y" inches/mm		
	40°F 4°C	50°F 10°C	60°F 16°C
40	0	0	0
4	0	0	0
30	0	0	0
-1	0	0	0
20	4	0	0
-7	100	0	0
10	8	1	0
-12	200	25	0
0	12	3	0
-18	300	75	0
-10	14	4	1
-23	350	100	25
-20	14	6	3
-29	350	150	75
-30	16	8	4
-34	400	200	100
-40	18	8	4
-40	450	200	100
-50	20	10	6
-46	500	250	150
-60	20	10	6
-51	500	250	150








**NOTE:** Exposed minimum barrel lengths are inclusive up to 30-mph/48-kph wind velocities.



# LISTING AND APPROVAL INFORMATION – FLEXIBLE HOSE AND BRACKET COMBINATIONS (AH1/AH1-LP)





The following table provides listing and approval information related to flexible hose and bracket combinations.

Approval for Hose/Bracket Combination	Series AH1	Series AH1-LP
	AB1 AB2 AB4 AB5 AB10	AB11
	AB1 AB2 AB3 AB4 AB5 AB7 AB10 AB12 ABBA ABMM	AB5 AB11 AB12 ABBA ABMM
	AB1 AB2 AB4 AB5 AB7 AB10 AB12	AB5 AB11 AB12
	AB1 AB2 AB3 AB4 AB5 AB7 AB10	-
	AB1 AB2 AB5 AB7 AB10	-








# LISTING AND APPROVAL INFORMATION – FLEXIBLE HOSE AND BRACKET COMBINATIONS (AH1-CC/AH1-CC-LP)

The following table provides listing and approval information related to flexible hose and bracket combinations.

Approval for Hose/Bracket Combination	Series AH1-CC	Series AH1-CC-LP
	AB1 AB2 AB4 AB5 AB10	–
	AB1 AB2 AB3 AB4 AB5 AB7 AB10 AB12 ABBA ABMM	AB5 AB11 AB12 ABBA ABMM
	AB1 AB2 AB4 AB5 AB7 AB10 AB12	AB5 AB11 AB12
	AB1 AB2 AB3 AB4 AB5 AB7 AB10 AB12	–





# LISTING AND APPROVAL INFORMATION – FLEXIBLE HOSE AND BRACKET COMBINATIONS (AH2/AH2-LP)

The following table provides listing and approval information related to flexible hose and bracket combinations.

Approval for Hose/Bracket Combination	Series AH2	Series AH2-LP
	AB1 AB2 AB4 AB5 AB6 AB10	AB11
	AB1 AB2 AB3 AB4 AB5 AB6 AB7 AB10 AB12 ABBA ABMM	AB5 AB11 AB12 ABBA ABMM
	AB1 AB2 AB4 AB5 AB7 AB10 AB12	AB5 AB11 AB12
	AB1 AB2 AB3 AB4 AB5 AB7 AB10 AB12	-
	AB1 AB2 AB5 AB7 AB10	-

# LISTING AND APPROVAL INFORMATION – FLEXIBLE HOSE AND BRACKET COMBINATIONS (AH2-CC/AH2-CC-LP)



The following table provides listing and approval information related to flexible hose and bracket combinations.




Approval for Hose/Bracket Combination	Series AH2-CC	Series AH2-CC-LP
	AB1 AB2 AB4 AB5 AB6 AB10	AB11
	AB1 AB2 AB3 AB4 AB5 AB6 AB7 AB10 AB12 ABBA ABMM AQD-M	AB5 AB11 AB12 ABBA ABMM
	AB1 AB2 AB4 AB5 AB7 AB10 AB12	AB5 AB11 AB12
	AB1 AB2 AB3 AB4 AB5 AB7 AB10	-



# LISTING AND APPROVAL INFORMATION – FLEXIBLE HOSE AND BRACKET COMBINATIONS (AH2-CC-300/AH2-300 AND AH3/AH3-LP)




The following table provides listing and approval information related to flexible hose and bracket combinations.

Approval for Hose/Bracket Combination	Series AH2-CC-300	Series AH2-300
	AB1	AB1
	AB2	AB2
	AB3	AB3
	AB4	AB4
	AB5	AB5
	AB7	AB7
	AB10	AB10
	AB12	AB12
	ABBA	ABBA
	ABMM	ABMM
	AB2	AB2

Approval for Hose/Bracket Combination	Series AH3	Series AH3-LP
	AB2	AB5
	AB3	AB11
	AB5	AB12
	AB7	ABBA
	AB12	ABMM
	ABBA	
	ABMM	
	AB1	AB5
	AB2	AB11
	AB4	AB12
	AB5	
	AB7	
	AB10	
	AB1	
	AB2	
	AB5	
	AB7	
	AB10	


# LISTING AND APPROVAL INFORMATION – FLEXIBLE HOSE AND BRACKET COMBINATIONS (AH4/AH4-LP)


The following table provides listing and approval information related to flexible hose and bracket combinations.

Approval for Hose/Bracket Combination	Series AH4	Series AH4-LP
	AB1 AB2 AB3 AB4 AB5 AB7 AB10 AB12 ABBA ABMM	AB5 AB11 AB12 ABBA ABMM
	AB1 AB2 AB4 AB5 AB7 AB10 AB12	AB5 AB11 AB12
	AB1 AB2 AB10	-


# LISTING AND APPROVAL INFORMATION – FLEXIBLE HOSE AND BRACKET COMBINATIONS (AH5 AND VS1)

The following table provides listing and approval information related to flexible hose and bracket combinations.


<b>Approval for Hose/Bracket Combination</b>	<b>Series AH5</b>
	AB7

<b>Approval for Hose/Bracket Combination</b>	<b>Style VS1 Dry Sprinkler</b>
	VB1
	VB2
	VB3
	VB4
	VB1
	VB2
	VB3
	VB4

**LISTING AND APPROVAL INFORMATION –  
 SPRINKLER FITTINGS FOR CLEANROOM  
 APPLICATIONS AND CEILING GRID  
 MANUFACTURER COMBINATIONS  
 (AQC-U AND C-AQC)**

Approval for Sprinkler Fitting for Cleanroom Applications and Ceiling Grid Manufacturer Combinations	Series AQC-U	Series C-AQC
	M+W Zander Facility Engineering BmbH Ceiling Type  SBB Gorilla Grid Ceiling  Channel Systems  Clin Ceilings  Daldrop SBB  Gordon Ceilings	M+W Zander Facility Engineering (Model 55/130)  Suzhou Prophen Cleanroom Ceiling (Model CK2000)  Tenryo Technology Cleanroom System (Model T-grid)  Topline Cleanroom Ceiling (Model C/G)  Topwell Cleanroom Ceiling Grid System (Model A090-97)

**LISTING AND APPROVAL INFORMATION–  
 SPRINKLER FITTINGS FOR DUCT APPLICATIONS  
 AND DUCT MATERIAL COMBINATIONS  
 (AQD AND AQD-M)**

Approval for Sprinkler Fitting for Duct Applications and Duct Material Combinations	Series AQD	Series AQD-M
	Round or Square Fiberglass-Reinforced Plastic (FRP) or Metal Duct Applications	Round or Square Metal Duct Applications

# FLEXIBLE HOSE MINIMUM BEND RADIUS

Flexible Hose	Agency				
	 US LISTED	 APPROVED	 G412024	 104I	
Series AH1	3 inches 76 mm	7 inches 178 mm	76 mm 3 inches	76 mm 3 inches	178 mm 7 inches
Series AH1-CC	3 inches 76 mm	7 inches 178 mm	76 mm 3 inches	76 mm 3 inches	-
Series AH1-CC-LP	-	7 inches 178 mm	76 mm 3 inches	-	-
Series AH1-LP	3 inches 76 mm	7 inches 178 mm	76 mm 3 inches	-	-
Series AH2	2 inches 50 mm	7 inches 178 mm	76 mm 3 inches	76 mm 3 inches	178 mm 7 inches
Series AH2-3	2 inches 50 mm	-	-	-	-
Series AH2-CC	2 inches 50 mm	7 inches 178 mm	76 mm 3 inches	76 mm 3 inches	-
Series AH2-CC-3	2 inches 50 mm	-	-	-	-
Series AH2-CC-LP	2 inches 50 mm	7 inches 178 mm	76 mm 3 inches	-	-
Series AH2-CC-LP-3	2 inches 50 mm	-	-	-	-
Series AH2-LP	2 inches 50 mm	7 inches 178 mm	76 mm 3 inches	-	-
Series AH2-300	-	8 inches 203 mm	-	-	-
Series AH2-CC-300	3 inches 76 mm	8 inches 203 mm	-	-	-
Series AH2-638	-	7 inches 178 mm	-	-	-
Series AH3	-	7 inches 178 mm	76 mm 3 inches	-	178 mm 7 inches
Series AH3-LP	-	7 inches 178 mm	76 mm 3 inches	-	-
Series AH4	-	7 inches 178 mm	76 mm 3 inches	-	178 mm 7 inches
Series AH4-LP	-	7 inches 178 mm	76 mm 3 inches	-	-
Series AH5	4 inches 102 mm	-	-	-	-
Style AQC-U	-	7 inches 178 mm	-	-	-
Style C-AQC	-	7 inches 178 mm	-	-	178 mm 7 inches
Style AQD	-	6 inches 152 mm	-	-	-
Style AQD-M	-	7 inches 178 mm	-	-	-
Style VS1	2 inches 50 mm	7 inches 178 mm	-	-	-





# BRANCHLINE CONNECTION

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The following table provides the type of branchline connection for applicable hose type/ approvals.

Connection Size	Hose/Approval Type
¾"/DN20 BSPT	VdS only
1"/DN25 NPT/BSPT	UL, FM, VdS, LPCB, CCC
1"/DN25 IGS (CC Hoses)	UL, FM, VdS, LPCB
1¼"/DN32 BSPT	LPCB with AH2 only

# SERIES AH1/AH1-CC FLEXIBLE HOSE FRICTION LOSS DATA (FM)

## NOTICE

- The following table contains FM friction loss data. Always refer to the applicable “Listing and Approval Information – Flexible Hose and Bracket Combinations” section to verify the listings/approvals for the particular flexible hose/bracket combination.

Model	Length of Flexible Hose inches/ mm	Outlet Size <sup>1</sup> inches	Equivalent Length of 1-inch/33.7-mm Schedule 40 Pipe <sup>2</sup> feet/ meters	Maximum Number of 90° Bends <sup>3</sup>
AH1-31 AH1-CC-31	31 790	½	35.7 10.9	2
		¾	32.9 10.0	
AH1-36 AH1-CC-36	36 915	½	42.1 12.8	2
		¾	39.2 11.9	
AH1-48 AH1-CC-48	48 1220	½	57.5 17.5	3
		¾	54.4 16.6	
AH1-60 AH1-CC-60	60 1525	½	72.9 22.2	4
		¾	69.5 21.18	
AH1-72 AH1-CC-72	72 1830	½	88.4 26.9	4
		¾	84.7 25.8	

<sup>1</sup> ¾-inch/DN20 outlet data shown with K14.0 - For other K-factor friction loss data, refer to Victaulic® submittal 10.95.

<sup>2</sup> 7-inch/178-mm minimum bend radius (tested with standard 5¾-inch/146-mm length straight reducer).

<sup>3</sup> A higher number of bends may be permitted, provided the sum of degrees is equal to or less than the total maximum allowable degrees of bends (e.g. Two 90° bends equal 180°. Three 90° bends equal 270°). The minimum bend radius and maximum number of 90° offset (bends), stated in these installation instructions, refer to the final installed condition of the hose.

- For friction loss data for elbows, refer to Victaulic® submittal 10.95.
- When using a No. 101 90° Elbow or a No. 102 Straight Tee in place of a Style 108 Coupling on the end of a Series AH1-CC Flexible Hose, the friction loss data shown above shall be added to the No. 101 or No. 102 friction loss data published in Victaulic® submittal 10.54.

**NOTE:** Differences in equivalent lengths are due to varying test methods, per FM 1637 standards. Refer to these standards for additional information regarding friction loss test methods.



# SERIES AH1-LP/AH1-CC-LP FLEXIBLE HOSE FRICTION LOSS DATA (FM)

## NOTICE

- The following table contains FM friction loss data. Always refer to the applicable "Listing and Approval Information – Flexible Hose and Bracket Combinations" section to verify the listings/approvals for the particular flexible hose/bracket combination.

Model	Length of Flexible Hose inches/ mm	Outlet Size <sup>1</sup> inches/Metric	Equivalent Length of 1-inch/DN25 Schedule 40 Pipe <sup>2</sup> feet/ meters	Maximum Number of 90° Bends <sup>3</sup>
AH1-31-LP AH1-CC-31-LP	31 790	½ DN15	31.4 9.6	2
		¾ DN20	32.3 9.8	
AH1-36-LP AH1-CC-36-LP	36 915	½ DN15	37.7 11.5	2
		¾ DN20	38.8 11.8	
AH1-48-LP AH1-CC-48-LP	48 1220	½ DN15	52.8 16.1	3
		¾ DN20	54.4 16.6	
AH1-60-LP AH1-CC-60-LP	60 1525	½ DN15	67.8 20.7	4
		¾ DN20	70.1 21.4	
AH1-72-LP AH1-CC-72-LP	72 1830	½ DN15	82.9 25.3	4
		¾ DN20	85.7 26.1	

<sup>1</sup> ¾-inch/DN20 outlet data shown with K14.0 - For other K-factor friction loss data, refer to Victaulic® submittal 10.95.

<sup>2</sup> 7-inch/178-mm minimum bend radius.

<sup>3</sup> A higher number of bends may be permitted, provided the sum of degrees is equal to or less than the total maximum allowable degrees of bends. (e.g. Two 90° bends equal 180°. Three 90° bends equal 270°). The minimum bend radius and maximum number of 90° offset (bends), stated in these installation instructions, refer to the final installed condition of the hose.

**NOTE:** Differences in equivalent lengths are due to varying test methods, per UL 2443 and FM 1637 standards. Refer to these standards for additional information regarding friction loss test methods.



# SERIES AH2/AH2-CC FLEXIBLE HOSE FRICTION LOSS DATA (FM)

## NOTICE

- The following table contains FM friction loss data. Always refer to the applicable “Listing and Approval Information – Flexible Hose and Bracket Combinations” section to verify the listings/approvals for the particular flexible hose/bracket combination.

Model	Length of Flexible Hose inches/mm	Outlet Size <sup>1</sup> inches/Metric	Equivalent Length of 1-inch/DN25 Schedule 40 Pipe <sup>2</sup> feet/meters	Maximum Number of 90° Bends <sup>3</sup>
AH2-31 AH2-CC-31	31 790	½ DN15	13.8 4.2	2
		¾ DN20	14.9 4.5	
AH2-36 AH2-CC-36	36 915	½ DN15	16.6 5.1	2
		¾ DN20	19.4 5.9	
AH2-48 AH2-CC-48	48 1220	½ DN15	23.4 7.1	3
		¾ DN20	30.3 9.2	
AH2-60 AH2-CC-60	60 1525	½ DN15	30.2 9.2	4
		¾ DN20	33.9 10.3	
AH2-72 AH2-CC-72	72 1830	½ DN15	37.0 11.3	4
		¾ DN20	37.5 11.4	

<sup>1</sup> ¾-inch/DN20 outlet data shown with K14.0 - For other K-factor friction loss data, refer to Victaulic® submittal 10.85.

<sup>2</sup> 7-inch/178-mm minimum bend radius (tested with standard 5 ¾-inch/146-mm length straight reducer).

<sup>3</sup> A higher number of bends may be permitted, provided the sum of degrees is equal to or less than the total maximum allowable degrees of bends. (e.g. Two 90° bends equal 180°. Three 90° bends equal 270°). The minimum bend radius and maximum number of 90° offset (bends), stated in these installation instructions, refer to the final installed condition of the hose.

**NOTE:** Differences in equivalent lengths are due to varying test methods, per the FM 1637 standard. Refer to this standard for additional information regarding friction loss test methods.

When using a No. 101 90° Elbow or a No. 102 Straight Tee in place of a Style 108 Coupling on the end of a Series AH2-CC Flexible Hose, the friction loss data shown above shall be added to the No. 101 or No. 102 friction loss data published in Victaulic® submittal 10.54.



# SERIES AH2-LP/AH2-CC-LP FLEXIBLE HOSE FRICTION LOSS DATA (FM)

## NOTICE

- The following table contains FM friction loss data. Always refer to the applicable "Listing and Approval Information – Flexible Hose and Bracket Combinations" section to verify the listings/approvals for the particular flexible hose/bracket combination.

Model	Length of Flexible Hose inches/mm	Outlet Size <sup>1</sup> inches/Metric	Equivalent Length of 1-inch/DN25 Schedule 40 Pipe <sup>2</sup> feet/meters	Maximum Number of 90° Bends <sup>3</sup>
AH2-LP-31 AH2-CC-LP-31	31 790	1/2 DN15	13.7 4.2	2
		3/4 DN20	13.5 4.1	
AH2-LP-36 AH2-CC-LP-36	36 915	1/2 DN15	17.0 5.2	2
		3/4 DN20	16.8 5.1	
AH2-LP-48 AH2-CC-LP-48	48 1220	1/2 DN15	25.0 7.6	3
		3/4 DN20	24.7 7.5	
AH2-LP-60 AH2-CC-LP-60	60 1525	1/2 DN15	33.0 10.1	4
		3/4 DN20	32.7 10.0	
AH2-LP-72 AH2-CC-LP-72	72 1830	1/2 DN15	41.1 12.5	4
		3/4 DN20	40.7 12.4	

<sup>1</sup> 3/4-inch/DN20 outlet data shown with K14.0 - For other K-factor friction loss data, refer to Victaulic® submittal 10.85.

<sup>2</sup> 7-inch/178-mm minimum bend radius.

<sup>3</sup> A higher number of bends may be permitted, provided the sum of degrees is equal to or less than the total maximum allowable degrees of bends (e.g. Two 90° bends equal 180°. Three 90° bends equal 270°). The minimum bend radius and maximum number of 90° offset (bends), stated in these installation instructions, refer to the final installed condition of the hose.

**NOTE:** Differences in equivalent lengths are due to varying test methods, per the FM 1637 standard. Refer to this standard for additional information regarding friction loss test methods.



# SERIES AH2-300/AH2-CC-300 FLEXIBLE HOSE FRICTION LOSS DATA (FM)

## NOTICE

- The following table contains FM friction loss data. Always refer to the applicable “Listing and Approval Information – Flexible Hose and Bracket Combinations” section to verify the listings/approvals for the particular flexible hose/bracket combination.

Model	Length of Flexible Hose inches/mm	Outlet Size <sup>1</sup> inches/Metric	Equivalent Length of 1-inch/DN25 Schedule 40 Pipe feet/meters <sup>2</sup>	Maximum Number of 90° Bends <sup>3</sup>
AH2-300-31 AH2- CC-300-31	31 790	½ DN15	13.8 4.2	2
		¾ DN20	14.9 4.5	
AH2-300-36 AH2- CC-300-36	36 915	½ DN15	16.6 5.1	2
		¾ DN20	19.4 5.9	
AH2-300-48 AH2- CC-300-48	48 1220	½ DN15	23.4 7.1	3
		¾ DN20	30.3 9.2	
AH2-300-60 AH2- CC-300-60	60 1525	½ DN15	30.2 9.2	4
		¾ DN20	33.9 10.3	
AH2-300-72 AH2- CC-300-72	72 1830	½ DN15	37.0 11.3	4
		¾ DN20	37.5 11.4	

<sup>1</sup> ¾-inch outlet data shown with K14.0 - For other K-factor friction loss data, refer to Victaulic® submittal 10.84.

<sup>2</sup> 8-inch/203-mm minimum bend radius (tested with standard 5¾-inch/146-mm length straight reducer).

<sup>3</sup> A higher number of bends may be permitted, provided the sum of degrees is equal to or less than the total maximum allowable degrees of bends (e.g. Two 90° bends equal 180°. Three 90° bends equal 270°). The minimum bend radius and maximum number of 90° offset (bends), stated in these installation instructions, refer to the final installed condition of the hose.

**NOTE:** Difference in equivalent lengths are due to varying test methods, per the FM 1637 standard. Refer to this standard for additional information regarding friction loss test methods.

- For friction loss data for elbows, refer to Victaulic® submittal 10.85.



# SERIES AH2-AB6/AH2-CC-AB6 FRICTION LOSS DATA (FM)

## NOTICE

- The following table contains FM friction loss data. Always refer to the applicable "Listing and Approval Information – Flexible Hose and Bracket Combinations" section to verify the listings/approvals for the particular flexible hose/bracket combination.

Model	Length of Flexible Hose inches/mm	Sprinkler K-factor	Equivalent Length of 1-inch/DN25 Schedule 40 Pipe feet/meters	Maximum Number of 90° Bends
AH2-31-AB6 AH2-CC-31-AB6	31 790	K5.6	13.8 4.2	2
		K8.0	20.7 6.3	
AH2-36-AB6 AH2-CC-36-AB6	36 915	K5.6	16.6 5.1	2
		K8.0	25.0 7.6	
AH2-48-AB6 AH2-CC-48-AB6	48 1220	K5.6	23.4 7.1	3
		K8.0	35.5 10.8	
AH2-60-AB6 AH2-CC-60-AB6	60 1525	K5.6	30.2 9.2	4
		K8.0	39.6 12.1	
AH2-72-AB6 AH2-CC-72-AB6	72 1830	K5.6	37.0 11.3	4
		K8.0	43.5 13.3	



# SERIES AH3/AH3-LP FLEXIBLE HOSE FRICTION LOSS DATA (FM)

## NOTICE

- The following table contains FM friction loss data. Always refer to the applicable “Listing and Approval Information – Flexible Hose and Bracket Combinations” section to verify the listings/approvals for the particular flexible hose/bracket combination.

Model	Length of Flexible Hose inches/mm	Outlet Size <sup>1</sup> inches/ Metric	Equivalent Length of 1-inch/DN25 Schedule 40 Pipe <sup>2</sup> feet/meters		Maximum Number of 90° Bends <sup>3</sup>
			Series AH3	Series AH3-LP	
AH3-31 AH3-31-LP	31 790	½ DN15	33.8 10.3	53.8 16.3	2
		¾ DN20	34.2 10.4	69.8 21.2	
		¾ DN20	44.1 13.4	76.5 23.3	
AH3-36 AH3-36-LP	36 915	½ DN15	43.0 13.1	60.0 18.2	2
		¾ DN20	44.1 13.4	76.5 23.3	
		¾ DN20	44.1 13.4	76.5 23.3	
AH3-48 AH3-48-LP	48 1220	½ DN15	65.2 19.9	75.0 22.8	3
		¾ DN20	67.8 20.7	92.5 28.1	
		¾ DN20	67.8 20.7	92.5 28.1	
AH3-60 AH3-60-LP	60 1525	½ DN15	87.4 26.6	90.0 27.4	4
		¾ DN20	91.6 27.9	108.6 33.1	
		¾ DN20	91.6 27.9	108.6 33.1	
AH3-72 AH3-72-LP	72 1830	½ DN15	109.7 33.4	105.2 32.0	4
		¾ DN20	115.5 35.2	124.9 38.0	
		¾ DN20	115.5 35.2	124.9 38.0	

<sup>1</sup> For the Series AH3 Flexible Hose, the ¾-inch/DN20 outlet data is shown with K14.0. For the Series AH3-LP Flexible Hose, the ¾-inch/DN20 outlet data is shown with K11.2. For other K-factor friction loss data, refer to Victaulic® submittal 10.94.

<sup>2</sup> 7-inch/178-mm minimum bend radius (tested with standard 5¾-inch/146-mm length straight reducer).

<sup>3</sup> A higher number of bends may be permitted, provided the sum of degrees is equal to or less than the total maximum allowable degrees of bends (e.g. Two 90° bends equal 180°. Three 90° bends equal 270°). The minimum bend radius and maximum number of 90° offset (bends), stated in these installation instructions, refer to the final installed condition of the hose.

- For friction loss data for elbows, refer to Victaulic® submittal 10.94.





# SERIES AH4/AH4-LP FLEXIBLE HOSE FRICTION LOSS DATA (FM)

## NOTICE

- The following table contains FM friction loss data. Always refer to the applicable "Listing and Approval Information – Flexible Hose and Bracket Combinations" section to verify the listings/approvals for the particular flexible hose/bracket combination.

Model <sup>1</sup>	Length of Flexible Hose inches/mm	Outlet Size <sup>2</sup> inches/Metric	Equivalent Length of 1-inch/DN25 Schedule 40 Pipe <sup>3</sup> feet/meters		Maximum Number of 90° Bends <sup>4</sup>
			Series AH4	Series AH4-LP	
AH4-31 AH4-LP-31	31 790	½ DN15	20.6 6.3	21.7 6.6	2
		¾ DN20	16.3 5.0	19.9 6.1	
AH4-36 AH4-LP-36	36 915	½ DN15	29.7 9.0	29.8 9.0	2
		¾ DN20	21.8 6.7	24.2 7.4	
AH4-48 AH4-LP-48	48 1220	½ DN15	27.5 8.3	29.2 8.9	3
		¾ DN20	28.3 8.6	29.9 9.1	
AH4-60 AH4-LP-60	60 1525	½ DN15	35.7 10.9	37.2 11.3	4
		¾ DN20	34.9 10.6	30.3 9.2	
AH4-72 AH4-LP-72	72 1830	½ DN15	45.9 14.0	47.5 14.5	4
		¾ DN20	41.5 12.6	38.6 11.7	

<sup>1</sup> SERIES AH4 - REGIONAL AVAILABILITY ONLY.

<sup>2</sup> ¾-inch/DN20 outlet data shown with K14.0 - For other K-factor friction loss data, refer to Victaulic® submittal 10.82.

<sup>3</sup> 7-inch/178-mm minimum bend radius (tested with standard 5¾-inch/146-mm length straight reducer).

<sup>4</sup> A higher number of bends may be permitted, provided the sum of degrees is equal to or less than the total maximum allowable degrees of bends (e.g. Two 90° bends equal 180°. Three 90° bends equal 270°). The minimum bend radius and maximum number of 90° offset (bends), stated in these installation instructions, refer to the final installed condition of the hose.

**NOTE:** Differences in equivalent lengths are due to varying test methods, per the FM 1637 Standard. Refer to this standard for additional information regarding friction loss test methods.

- For friction loss data for elbows, refer to Victaulic® submittal 10.85.



# STYLE AQC-U FLEXIBLE HOSE SPRINKLER FITTING FRICTION LOSS DATA (FM)

## NOTICE

- The following table contains FM friction loss data. Always refer to the applicable “Listing and Approval Information – Flexible Hose and Bracket Combinations” section to verify the listings/approvals for the particular flexible hose/bracket combination.

Model	Length of Flexible Hose inches/ mm	Outlet Size inches/ Metric	Equivalent Length of 1-inch/DN25 Schedule 40 Pipe feet/meters	Maximum Number of 90° Bends
AQC-U-36	36 915	½ DN15	24.0 7.3	2
AQC-U-48	48 1220	½ DN15	31.5 9.6	3
AQC-U-72	72 1830	½ DN15	46.6 14.2	4



# STYLE C-AQC FLEXIBLE HOSE SPRINKLER FITTING FRICTION LOSS DATA (FM)

## NOTICE

- The following table contains FM friction loss data. Always refer to the applicable "Listing and Approval Information – Flexible Hose and Bracket Combinations" section to verify the listings/approvals for the particular flexible hose/bracket combination.

Model	Length of Flexible Hose inches/ mm	Outlet Size inches/ Metric	Equivalent Length of 1-inch/DN25 Schedule 40 Pipe feet/meters	Maximum Number of 90° Bends
AQC-U-39	39 1000	½ DN15	11.00 3.35	1
AQC-U-47	47 1200	½ DN15	16.4 5.00	2
AQC-U-59	59 1500	½ DN15	24.4 7.44	3



# STYLE AQD-M FLEXIBLE HOSE SPRINKLER FITTING FRICTION LOSS DATA (FM)

## NOTICE

- The following table contains FM friction loss data. Always refer to the applicable “Listing and Approval Information – Flexible Hose and Bracket Combinations” section to verify the listings/approvals for the particular flexible hose/bracket combination.

Model	Length of Flexible Hose inches/mm	Outlet Size inches/ Metric	Equivalent Length of 1-inch/DN25 Schedule 40 Pipe feet/meters	Maximum Number of 90° Bends
AQD-M-48	48 1220	½ DN15	23.4 7.1	3



# STYLE AQD FLEXIBLE HOSE SPRINKLER FITTING FRICTION LOSS DATA (FM)

## NOTICE

- The following table contains FM friction loss data. Always refer to the applicable "Listing and Approval Information – Flexible Hose and Bracket Combinations" section to verify the listings/approvals for the particular flexible hose/bracket combination.

Model	Length of Flexible Hose inches/mm	Outlet Size inches/ Metric	Equivalent Length of 1-inch/DN25 Schedule 40 Pipe feet/meters	Maximum Number of 90° Bends
AQD-36	36 915	½ DN15	26.3 8.0	1
AQD-48	48 1220	½ DN15	31.6 9.6	3
AQD-60	60 1525	½ DN15	35.3 10.8	4
AQD-72	72 1830	½ DN15	39.1 11.9	4



# SERIES AH1/AH1-CC FLEXIBLE HOSE FRICTION LOSS DATA (UL)

## NOTICE

- The following table contains UL friction loss data. Always refer to the applicable “Listing and Approval Information – Flexible Hose and Bracket Combinations” section to verify the listings/approvals for the particular flexible hose/bracket combination.

Model	Length of Flexible Hose inches/ mm	Outlet Size <sup>1</sup> inches/ Metric	Equivalent Length of 1-inch/DN25 Schedule 40 Pipe <sup>2</sup> feet/meters	Maximum Number of 90° Bends <sup>3</sup>
AH1-31 AH1-CC-31	31 790	½ DN15	41.0 12.5	3
		¾ DN20	39.0 11.9	
		¾ DN20	48.0 14.6	
AH1-36 AH1-CC-36	36 915	½ DN15	49.0 14.9	4
		¾ DN20	48.0 14.6	
		¾ DN20	59.0 18.0	
AH1-48 AH1-CC-48	48 1220	½ DN15	62.0 18.9	4
		¾ DN20	59.0 18.0	
		¾ DN20	73.0 22.3	
AH1-60 AH1-CC-60	60 1525	½ DN15	72.0 21.9	4
		¾ DN20	73.0 22.3	
		¾ DN20	87.0 26.5	
AH1-72 AH1-CC-72	72 1830	½ DN15	87.0 26.5	5
		¾ DN20	90.0 27.4	
		¾ DN20	90.0 27.4	

<sup>1</sup> ¾-inch outlet data shown with K14.0 - For other K-factor friction loss data, refer to Victaulic® submittal 10.95.

<sup>2</sup> 3-inch/76-mm minimum bend radius (tested and UL Listed only with standard 5¾-inch/146-mm length straight reducer). For the UL Listing, when the 48-inch/1220-mm length bracket is used with the Series AH1/AH1-CC Flexible Hose, the maximum sprinkler K-factor is K8.0 and the maximum spacing is 30 inches/762 mm.

<sup>3</sup> A higher number of bends may be permitted, provided the sum of degrees is equal to or less than the total maximum allowable degrees of bends (e.g. Two 90° bends equal 180°. Three 90° bends equal 270°). The minimum bend radius and maximum number of 90° offset (bends), stated in these installation instructions, refer to the final installed condition of the hose.

**NOTE:** Differences in equivalent lengths are due to varying test methods, per UL 2443 standards. Refer to these standards for additional information regarding friction loss test methods.

- For friction loss data for elbows, refer to Victaulic® submittal 10.95.
- When using a No. 101 90° Elbow or a No. 102 Straight Tee in place of a Style 108 Coupling on the end of a Series AH1-CC Flexible Hose, the friction loss data shown above shall be added to the No. 101 or No. 102 friction loss data published in Victaulic® submittal 10.54.



# SERIES AH1-LP FLEXIBLE HOSE FRICTION LOSS DATA (UL)

## NOTICE

- The following table contains UL friction loss data. Always refer to the applicable "Listing and Approval Information – Flexible Hose and Bracket Combinations" section to verify the listings/approvals for the particular flexible hose/bracket combination.

Model	Length of Flexible Hose inches/ mm	Outlet Size <sup>1</sup> inches/Metric	Equivalent Length of 1-inch/DN25 Schedule 40 Pipe <sup>2</sup> feet/meters	Maximum Number of 90° Bends <sup>3</sup>
AH1-31-LP	31 790	1/2 DN15	37.0 11.3	3
		3/4 DN20	44.0 13.4	
		1/2 DN15	47.0 14.3	
AH1-36-LP	36 915	3/4 DN20	53.0 16.2	4
		1/2 DN15	58.0 17.7	
		3/4 DN20	68.0 20.7	
AH1-48-LP	48 1220	1/2 DN15	70.0 21.3	4
		3/4 DN20	77.0 23.5	
		1/2 DN15	83.0 25.3	
AH1-60-LP	60 1525	3/4 DN20	99.0 30.2	5
		1/2 DN15	25.3	
		3/4 DN20	30.2	

<sup>1</sup> 3/4-inch/DN20 outlet data shown with K14.0 - For other K-factor friction loss data, refer to Victaulic® submittal 10.95. For the UL Listing, when the 48-inch/1220-mm length bracket is used with the Series AH1-LP Flexible Hose, the maximum sprinkler K-factor is K8.0 and the maximum spacing is 30 inches/762 mm.

<sup>2</sup> 3-inch/76-mm minimum bend radius.

<sup>3</sup> A higher number of bends may be permitted, provided the sum of degrees is equal to or less than the total maximum allowable degrees of bends (e.g. Two 90° bends equal 180°. Three 90° bends equal 270°). The minimum bend radius and maximum number of 90° offset (bends), stated in these installation instructions, refer to the final installed condition of the hose.

**NOTE:** Differences in equivalent lengths are due to varying test methods, per UL 2443 standards. Refer to these standards for additional information regarding friction loss test methods.



# SERIES AH2/AH2-CC FRICTION LOSS DATA (UL)

## NOTICE

- The following table contains UL friction loss data. Always refer to the applicable "Listing and Approval Information – Flexible Hose and Bracket Combinations" section to verify the listings/approvals for the particular flexible hose/bracket combination.

Model	Length of Flexible Hose inches/mm	Outlet Size <sup>1</sup> inches/Metric	Equivalent Length of 1-inch/DN25 Schedule 40 Pipe <sup>2</sup> feet/meters	Maximum Number of 90° Bends <sup>3</sup>
AH2-31-3 AH2-CC-31-3	31 790	1/2 DN15	15.0 4.6	3
		3/4 DN20	19.0 5.8	
AH2-31-4 AH2-CC-31-4	31 790	1/2 DN15	16.0 4.9	4
		3/4 DN20	20.0 6.1	
AH2-36-3 AH2-CC-36-3	36 915	1/2 DN15	18.0 5.5	3
		3/4 DN20	21.0 6.4	
AH2-36-5 AH2-CC-36-5	36 915	1/2 DN15	21.0 6.4	5
		3/4 DN20	23.0 7.0	
AH2-48-3 AH2-CC-48-3	48 1220	1/2 DN15	21.0 6.4	3
		3/4 DN20	26.0 7.9	
AH2-48-8 AH2-CC-48-8	48 1220	1/2 DN15	32.0 9.8	8
		3/4 DN20	37.0 11.3	
AH2-60-3 AH2-CC-60-3	60 1525	1/2 DN15	27.0 8.2	3
		3/4 DN20	27.0 8.2	
AH2-60-10 AH2-CC-60-10	60 1525	1/2 DN15	46.0 14.0	10
		3/4 DN20	46.0 14.0	
AH2-72-3 AH2-CC-72-3	72 1830	1/2 DN15	31.0 9.4	3
		3/4 DN20	30.0 9.1	
AH2-72-12 AH2-CC-72-12	72 1830	1/2 DN15	55.0 16.8	12
		3/4 DN20	60.0 18.3	

Refer to notes on the following page.





<sup>1</sup> ¾-inch/DN20 outlet data shown with K14.0 - For other K-factor friction loss data, refer to Victaulic® submittal 10.85.

<sup>2</sup> 2-inch/50-mm minimum bend radius (tested and UL listed only with standard 5¾-inch/146-mm length straight reducer).

<sup>3</sup> A higher number of bends may be permitted, provided the sum of degrees is equal to or less than the total maximum allowable degrees of bends (e.g. Two 90° bends equal 180°. Three 90° bends equal 270°). The minimum bend radius and maximum number of 90° offset (bends), stated in these installation instructions, refer to the final installed condition of the hose.

**NOTE:** Differences in equivalent lengths are due to varying test methods, per UL 2443 standards. Refer to these standards for additional information regarding friction loss test methods.

For friction loss data for elbows, refer to Victaulic® submittal 10.85.



# SERIES AH2-300/AH2-CC-300 FLEXIBLE HOSE FRICTION LOSS DATA (UL)

## NOTICE

- The following table contains UL friction loss data. Always refer to the applicable “Listing and Approval Information – Flexible Hose and Bracket Combinations” section to verify the listings/approvals for the particular flexible hose/bracket combination.

Model	Length of Flexible Hose inches/mm	Outlet Size <sup>1</sup> inches/Metric	Equivalent Length of 1-inch/DN25 Schedule 40 Pipe <sup>2</sup> feet/meters	Maximum Number of 90° Bends <sup>3</sup>
AH2-300 AH2-CC-300-31	31 790	1/2 DN15	17.0 5.2	3
		3/4 DN20	16.0 4.9	
AH2-300 AH2-CC-300-36	36 915	1/2 DN15	25.0 7.6	4
		3/4 DN20	22.0 6.7	
AH2-300 AH2-CC-300-48	48 1220	1/2 DN15	30.0 9.1	4
		3/4 DN20	28.0 8.5	
AH2-300 AH2-CC-300-60	60 1525	1/2 DN15	32.0 9.8	4
		3/4 DN20	31.0 9.4	
AH2-300 AH2-CC-300-72	72 1830	1/2 DN15	40.0 12.2	5
		3/4 DN20	36.0 11.0	

<sup>1</sup> 3/4-inch/DN20 outlet data shown with K14.0 - For other K-factor friction loss data, refer to Victaulic® submittal 10.85.

<sup>2</sup> 3-inch/76-mm minimum bend radius (tested and UL listed only with standard 5 3/4-inch/146-mm length straight reducer).

<sup>3</sup> A higher number of bends may be permitted, provided the sum of degrees is equal to or less than the total maximum allowable degrees of bends (e.g. Two 90° bends equal 180°. Three 90° bends equal 270°). The minimum bend radius and maximum number of 90° offset (bends), stated in these installation instructions, refer to the final installed condition of the hose.

**NOTE:** Differences in equivalent lengths are due to varying test methods, per UL 2443 standards. Refer to these standards for additional information regarding friction loss test methods.

For friction loss data for elbows, refer to Victaulic® submittal 10.85.



# SERIES AH2-LP/AH2-CC-LP FLEXIBLE HOSE FRICTION LOSS DATA (UL)

## NOTICE

- The following table contains UL friction loss data. Always refer to the applicable "Listing and Approval Information – Flexible Hose and Bracket Combinations" section to verify the listings/approvals for the particular flexible hose/bracket combination.

Model	Length of Flexible Hose inches/mm	Outlet Size <sup>1</sup> inches/Metric	Equivalent Length of 1-inch/DN25 Schedule 40 Pipe <sup>2</sup> feet/meters	Maximum Number of 90° Bends <sup>3</sup>
AH2-LP-31-3 AH2-CC-LP-31-3	31 790	1/2 DN15	18.0 5.5	3
		3/4 DN20	21.0 6.4	
AH2-LP-31-4 AH2-CC-LP-31-4	31 790	1/2 DN15	24.0 7.3	4
		3/4 DN20	24.0 7.3	
AH2-LP-36-3 AH2-CC-LP-36-3	36 915	1/2 DN15	19.0 5.8	3
		3/4 DN20	23.0 7.0	
AH2-LP-36-5 AH2-CC-LP-36-5	36 915	1/2 DN15	26.0 7.9	5
		3/4 DN20	28.0 8.5	
AH2-LP-48-3 AH2-CC-LP-48-3	48 1220	1/2 DN15	23.0 7.0	3
		3/4 DN20	30.0 9.1	
AH2-LP-48-8 AH2-CC-LP-48-8	48 1220	1/2 DN15	43.0 13.1	8
		3/4 DN20	42.0 12.8	
AH2-LP-60-3 AH2-CC-LP-60-3	60 1525	1/2 DN15	28.0 8.5	3
		3/4 DN20	31.0 9.4	
AH2-LP-60-10 AH2-CC-LP-60-10	60 1525	1/2 DN15	49.0 14.9	10
		3/4 DN20	50.0 15.2	
AH2-LP-72-3 AH2-CC-LP-72-3	72 1830	1/2 DN15	31.0 9.4	3
		3/4 DN20	36.0 10.8	
AH2-LP-72-12 AH2-CC-LP-72-12	72 1830	1/2 DN15	65.0 19.8	12
		3/4 DN20	63.0 19.2	

Refer to notes on the following page.



<sup>1</sup> ¾-inch/DN20 outlet data shown with K14.0 - For other K-factor friction loss data, refer to Victaulic submittal 10.85.

<sup>2</sup> 2-inch/50-mm minimum bend radius.

<sup>3</sup> A higher number of bends may be permitted, provided the sum of degrees is equal to or less than the total maximum allowable degrees of bends (e.g. Two 90° bends equal 180°. Three 90° bends equal 270°). The minimum bend radius and maximum number of 90° offset (bends), stated in these installation instructions, refer to the final installed condition of the hose.

**NOTE:** Differences in equivalent lengths are due to varying test methods, per UL 2443 standards. Refer to these standards for additional information regarding friction loss test methods.

- When using a No. 101 90° Elbow or a No. 102 Straight Tee in place of a Style 108 Coupling on the end of a Series AH2-CC-LP Flexible Hose, the friction loss data shown above shall be added to the No. 101 or No. 102 friction loss data published in Victaulic® submittal 10.54.
- For the UL Listing, when the 48-inch/1220-mm length bracket is used with the Series AH2-LP or AH2-CC-LP Flexible Hose, the maximum sprinkler K-factor is K8.0 and the maximum spacing is 30 inches/762 mm.



# SERIES AH2-AB6/AH2-CC-AB6 FLEXIBLE HOSE FRICTION LOSS DATA (UL)

## NOTICE

- The following table contains UL friction loss data. Always refer to the applicable "Listing and Approval Information – Flexible Hose and Bracket Combinations" section to verify the listings/approvals for the particular flexible hose/bracket combination.

Model	Length of Flexible Hose inches/mm	Equivalent Length of 1-inch/DN25 Schedule 40 Pipe <sup>2</sup> feet/meters	Maximum Number of 90° Bends <sup>3</sup>
AH2-31-3-AB6 AH2-CC-31-3-AB6	31 790	21.0 6.4	3
AH2-31-4-AB6 AH2-CC-31-4-AB6	31 790	26.0 7.9	4
AH2-36-3-AB6 AH2-CC-36-3-AB6	36 915	22.0 6.7	3
AH2-36-5-AB6 AH2-CC-36-5-AB6	36 915	28.0 8.5	5
AH2-48-3-AB6 AH2-CC-48-3-AB6	48 1220	24.0 7.3	3
AH2-48-8-AB6 AH2-CC-48-8-AB6	48 1220	37.0 11.3	8
AH2-60-3-AB6 AH2-CC-60-3-AB6	60 1525	29.0 8.8	3
AH2-60-10-AB6 AH2-CC-60-10-AB6	60 1525	50.0 15.2	10
AH2-72-3-AB6 AH2-CC-72-3-AB6	72 1830	34 10.4	3
AH2-72-12-AB6 AH2-CC-72-12-AB6	72 1830	59.0 18.0	12



# SERIES AH5 FLEXIBLE HOSE FRICTION LOSS DATA (UL)

## NOTICE

- The following table contains UL friction loss data. Always refer to the applicable “Listing and Approval Information – Flexible Hose and Bracket Combinations” section to verify the listings/approvals for the particular flexible hose/bracket combination

Model	Length of Flexible Hose inches/mm	Outlet Size <sup>1</sup> inches/Metric	Equivalent Length of 1-inch/DN25 Schedule 40 Pipe <sup>2</sup> feet/meters	Maximum Number of 90° Bends <sup>3</sup>
AH5-24	28 700	1/2 DN15	18 5.5	2
		3/4 DN20	32 9.8	
		1/2 DN15	27 8.2	
AH5-31	31 790	3/4 DN20	33 10.1	2
		1/2 DN15	44 13.4	
		3/4 DN20	48 14.6	
AH5-36	40 1000	1/2 DN15	53 16.2	3
		3/4 DN20	55 16.8	
		1/2 DN15	68 20.7	
AH5-48	48 1220	3/4 DN20	63 19.2	3
		1/2 DN15	73 22.3	
		3/4 DN20	76 23.2	
AH5-60	61 1540	1/2 DN15	73 22.3	3
		3/4 DN20	76 23.2	
		1/2 DN15	73 22.3	
AH5-72	72 1830	3/4 DN20	76 23.2	3
		1/2 DN15	73 22.3	
		3/4 DN20	76 23.2	

<sup>1</sup> The 3/4-inch/DN20 outlet data is shown with K14.0. For other K-factor friction loss data, refer to Victaulic® submittal 10.89.

<sup>2</sup> 4-inch/102-mm minimum bend radius (tested with standard 5 3/4-inch/146-mm length straight reducer).

<sup>3</sup> A higher number of bends may be permitted, provided the sum of degrees is equal to or less than the total maximum allowable degrees of bends (e.g. Two 90° bends equal 180°. Three 90° bends equal 270°). The minimum bend radius and maximum number of 90° offset (bends), stated in these installation instructions, refer to the final installed condition of the hose.

**NOTE:** Differences in equivalent lengths are due to varying test methods, per the UL 2443 standard. Refer to this standard for additional information regarding friction loss test methods. For friction loss data for elbows, refer to Victaulic® submittal 10.89.



# SERIES AH1, AH1-CC, AH1-LP, AND AH1-CC-LP FLEXIBLE HOSE FRICTION LOSS DATA (VDS)

## NOTICE

- The following table contains VDS friction loss data. Always refer to the applicable "Listing and Approval Information – Flexible Hose and Bracket Combinations" section to verify the listings/approvals for the particular flexible hose/bracket combination.

Length of Flexible Hose mm/ inches	Outlet Size Metric/ inches	Equivalent Length of Steel Pipe in meters/ feet According to EN 10255 DN20 (26,9 x 2,65)	Maximum Number of 90° Bends at 76.2-mm/3-inch Bend Radius
790	DN15/½	3.2	3
31	DN20/¾	10.5	
915	DN15/½	3.7	3
36	DN20/¾	12.1	
1220	DN15/½	4.9	3
48	DN20/¾	16.1	
1525	DN15/½	6.1	4
60	DN20/¾	20.0	
1830	DN15/½	7.3	4
72	DN20/¾	24.0	

Only VdS Approved pendent spray sprinklers of 10-mm, 15-mm, and 20-mm nominal diameters with K-factors of 57, 80, and 115 shall be used.

- Tested with a 5¾-inch/146-mm length straight reducer.
- When using a No. 101 90° Elbow or a No. 102 Straight Tee in place of a Style 108 Coupling on the end of a Series AH1-CC or AH2-CC Flexible Hose, the friction loss data shown above shall be added to the No. 101 or No. 102 friction loss data published in Victaulic® submittal 10.54.
- Flexible Hoses are VdS Approved for use in wet systems only.

**NOTE:** The VdS Approval applies only for use with specific suspended ceiling systems. Refer to the "Construction Requirements" section of this handbook.

- Other manufacturers' ceiling systems, with comparable or better performance, can be considered for approval.
- VdS standards for safety include, but are not limited to: pressure cycling, corrosion resistance, flow characteristics, vibration resistance, leakage, mechanical strength, and hydrostatic strength.
- Differences in equivalent lengths are due to varying test methods, per FM 1637 and VdS standards. Refer to these standards for additional information regarding friction loss test methods.



# SERIES AH2, AH2-CC, AH2-LP, AND AH2-CC-LP FLEXIBLE HOSE FRICTION LOSS DATA (VDS)

## NOTICE

- The following table contains VdS friction loss data. Always refer to the applicable “Listing and Approval Information – Flexible Hose and Bracket Combinations” section to verify the listings/approvals for the particular flexible hose/bracket combination.

Length of Flexible Hose mm/ inches	Outlet Size Metric/ inches	Series AH2, AH2-CC, AH2-LP and AH2-CC	
		Equivalent Length of Steel Pipe in meters/feet According to EN 10255 DN25 (33,7 x 3,25)	Maximum Number of 90° Bends at 76.2-mm/3-inch Bend Radius
790 31	DN15/½	10.4	3
	DN20/¾	34.1	
915 36	DN15/½	13.4	3
	DN20/¾	44.0	
1220 48	DN15/½	16.2	3
	DN20/¾	53.1	
1525 60	DN15/½	19.2	4
	DN20/¾	63.0	
1830 72	DN15/½	22.8	4
	DN20/¾	74.8	

Only VdS Approved pendent spray sprinklers of 10-mm, 15-mm, and 20-mm nominal diameters with K-factors of 57, 80, and 115 shall be used.

- Tested with a 5¾-inch/146-mm length straight reducer.
- When using a No. 101 90° Elbow or a No. 102 Straight Tee in place of a Style 108 Coupling on the end of a Series AH1-CC or AH2-CC Flexible Hose, the friction loss data shown above shall be added to the No. 101 or No. 102 friction loss data published in Victaulic® submittal 10.54.
- Flexible Hoses are VdS Approved for use in wet systems only.

**NOTE:** The VdS Approval applies only for use with specific suspended ceiling systems. Refer to the “Construction Requirements” section of this handbook.

- Other manufacturers’ ceiling systems, with comparable or better performance, can be considered for approval.
- VdS standards for safety include, but are not limited to: pressure cycling, corrosion resistance, flow characteristics, vibration resistance, leakage, mechanical strength, and hydrostatic strength.
- Differences in equivalent lengths are due to varying test methods, per FM 1637 and VdS standards. Refer to these standards for additional information regarding friction loss test methods.





# SERIES AH3, AH3-LP AND AH4 FLEXIBLE HOSE FRICTION LOSS DATA (VDS)

## NOTICE

- The following table contains VdS friction loss data. Always refer to the applicable "Listing and Approval Information – Flexible Hose and Bracket Combinations" section to verify the listings/approvals for the particular flexible hose/bracket combination.

Length of Flexible Hose mm/ inches	Outlet Size Metric/ inches	Series AH3/ AH3-LP	Series AH4	Maximum Number of 90° Bends at 76.2-mm/3-inch Bend Radius
		Equivalent Length of Steel Pipe in meters/feet According to EN 10255 DN20 (26,9 x 2,65)	Equivalent Length of Steel Pipe in meters/feet According to EN 10255 DN20 (26,9 x 2,65)	
790 31	DN15/1/2	5.9	5.5	3
	DN20/3/4	19.4	18.0	
915 36	DN15/1/2	6.9	6.4	3
	DN20/3/4	22.5	21.0	
1220 48	DN15/1/2	9.2	8.5	3
	DN20/3/4	30.0	27.9	
1525 60	DN15/1/2	11.4	10.7	4
	DN20/3/4	37.5	35.1	
1830 72	DN15/1/2	13.7	12.8	4
	DN20/3/4	45.0	42.0	

### SERIES AH3, AH3-LP, and AH4 – REGIONAL AVAILABILITY ONLY

- Only VdS Approved pendent spray sprinklers of 10-mm, 15-mm, and 20-mm nominal diameters with K-factors of 57, 80, and 115 shall be used.
- Tested with a 5¾-inch/146-mm length straight reducer.
- When using a No. 101 90° Elbow or a No. 102 Straight Tee in place of a Style 108 Coupling on the end of a Series AH1-CC or AH2-CC Flexible Hose, the friction loss data shown above shall be added to the No. 101 or No. 102 friction loss data published in Victaulic® submittal 10.54.
- Flexible Hoses are VdS Approved for use in wet systems only.

**NOTE:** The VdS Approval applies only for use with specific suspended ceiling systems. Refer to the "Construction Requirements" section of this handbook. Other manufacturers' ceiling systems, with comparable or better performance, can be considered for approval.

- VdS standards for safety include, but are not limited to: pressure cycling, corrosion resistance, flow characteristics, vibration resistance, leakage, mechanical strength, and hydrostatic strength.
- Differences in equivalent lengths are due to varying test methods, per FM 1637 and VdS standards. Refer to these standards for additional information regarding friction loss test methods.



# SERIES AH1, AH1-CC, AH2, AND AH2-CC FLEXIBLE HOSE FRICTION LOSS DATA (LPCB)

## NOTICE

- The following table contains LPCB friction loss data. Always refer to the applicable “Listing and Approval Information – Flexible Hose and Bracket Combinations” section to verify the listings/approvals for the particular flexible hose/bracket combination.

Length of Flexible Hose mm/inches	Outlet Size Metric/ inches	Series AH1/AH1-CC <sup>1</sup>	Series AH2/AH2-CC <sup>2</sup>	Maximum Number of 90° Bends
		Equivalent Length of Steel Pipe in meters/feet According to EN 10255 DN25 (33,7 x 3/25)	Equivalent Length of Steel Pipe in meters/feet According to EN 10255 DN25 (33,7 x 3,25)	
790 31	DN15/1/2	13.6	1.8	2
	DN20/3/4	44.6	6.0	
915 36	DN15/1/2	16.9	3.6	3
	DN20/3/4	55.4	11.9	
1220 48	DN15/1/2	19.9	4.3	3
	DN20/3/4	65.1	14.0	
1525 60	DN15/1/2	24.5	4.1	3
	DN20/3/4	80.2	13.6	
1830 72	DN15/1/2	28.5	5.5	3
	DN20/3/4	93.4	18.1	

<sup>1</sup> Hose Type 2 and Size: DN20/0.8-inch Nominal ID, per LPS 1261.

<sup>2</sup> Hose Type 2 and Size: DN25/1-inch Nominal ID, per LPS 1261.

Series AH1 (104I/01), Series AH2 (104I/02), Series AH1-CC (104I/03), and Series AH2-CC (104I/04) Flexible Hoses are LPCB Approved for use in wet systems only.

Only LPCB Approved pendent spray sprinklers of 10-mm, 15-mm, and 20-mm nominal diameters with K-factors of 57 and 80 shall be used.

Tested with a 5¾-inch/146-mm length straight reducer.

When using a No. 101 90° Elbow or a No. 102 Straight Tee in place of a Style 108 Coupling on the end of a Series AH1-CC or AH2-CC Flexible Hose, the friction loss data shown above shall be added to the No. 101 or No. 102 friction loss data published in Victaulic® submittal 10.54.



# SERIES AH1 FLEXIBLE HOSE FRICTION LOSS DATA (CCC)

## NOTICE

- The following table contains CCC friction loss data. Always refer to the applicable "Listing and Approval Information – Flexible Hose and Bracket Combinations" section to verify the listings/approvals for the particular flexible hose/bracket combination.

Model	Length of Flexible Hose mm/inches	Equivalent Length - meters/feet	
		Straight Configuration	Bend Configuration
AH1-31	790	4.78	5.80
	31	15.7	19.0
AH1-36	915	5.59	10.15
	36	18.3	33.3
AH1-48	1120	9.75	16.25
	48	32.0	53.3
AH1-60	1525	12.15	22.94
	60	39.9	75.3
AH1-72	1830	14.26	25.98
	72	46.8	85.2

178-mm/7-inch minimum bend radius.

Friction loss data is in accordance with GB5135.16. Corresponding flow rate is 113.55 liters per minute/30 gallons per minute.



# SERIES AH2 FLEXIBLE HOSE FRICTION LOSS DATA (CCC)

## NOTICE

- The following table contains CCC friction loss data. Always refer to the applicable "Listing and Approval Information – Flexible Hose and Bracket Combinations" section to verify the listings/approvals for the particular flexible hose/bracket combination.

Model	Length of Flexible Hose mm/inches	Equivalent Length - meters/feet	
		Straight Configuration	Bend Configuration
AH2-31	790	0.87	2.70
	31	2.9	8.9
AH2-36	915	1.00	2.80
	36	3.3	9.2
AH2-48	1120	2.23	4.66
	48	7.3	15.3
AH2-60	1525	2.90	6.50
	60	9.5	21.3
AH2-72	1830	3.31	7.16
	72	10.9	23.5

178-mm/7-inch minimum bend radius.

# SERIES AH3 FLEXIBLE HOSE FRICTION LOSS DATA (CCC)

## NOTICE

- The following table contains CCC friction loss data. Always refer to the applicable "Listing and Approval Information – Flexible Hose and Bracket Combinations" section to verify the listings/approvals for the particular flexible hose/bracket combination.

Model	Length of Flexible Hose mm/inches	Equivalent Length - meters/feet	
		Straight Configuration	Bend Configuration
AH3-31	790	5.19	7.91
	31	17.0	26.0
AH3-36	915	6.17	9.92
	36	20.2	32.6
AH3-48	1120	8.93	14.55
	48	29.3	47.7
AH3-60	1525	11.10	20.03
	60	36.4	65.7
AH3-72	1830	13.43	23.64
	72	44.1	77.6

178-mm/7 inch minimum bend radius.



# SERIES AH4 FLEXIBLE HOSE FRICTION LOSS DATA (CCC)

## NOTICE

- The following table contains CCC friction loss data. Always refer to the applicable “Listing and Approval Information – Flexible Hose and Bracket Combinations” section to verify the listings/approvals for the particular flexible hose/bracket combination.

Model <sup>1</sup>	Length of Flexible Hose inches/mm	Outlet Size <sup>2</sup> inches/Metric	Equivalent Length of 1-inch/DN25 Schedule 40 Pipe <sup>3</sup> feet/meters	Maximum Number of 90° Bends <sup>4</sup>
			Series AH4	
AH4-31	31 790	½ DN15	20.6 6.3	2
		¾ DN20	16.3 5.0	
AH4-36	36 915	½ DN15	29.7 9.0	2
		¾ DN20	21.8 6.7	
AH4-48	48 1220	½ DN15	27.5 8.3	3
		¾ DN20	28.3 8.6	
AH4-60	60 1525	½ DN15	35.7 10.9	4
		¾ DN20	34.9 10.6	
AH4-72	72 1830	½ DN15	45.9 14.0	4
		¾ DN20	41.5 12.6	

<sup>1</sup> SERIES AH4 - REGIONAL AVAILABILITY ONLY.

<sup>2</sup> ¾-inch/DN20 outlet data shown with K14.0 - For other K-factor friction loss data, refer to Victaulic® submittal 10.82.

<sup>3</sup> 7-inch/178-mm minimum bend radius (tested with standard 5¾-inch/146-mm length straight reducer).

<sup>4</sup> A higher number of bends may be permitted, provided the sum of degrees is equal to or less than the total maximum allowable degrees of bends (e.g. Two 90° bends equal 180°. Three 90° bends equal 270°). The minimum bend radius and maximum number of 90° offset (bends), stated in these installation instructions, refer to the final installed condition of the hose.

- For friction loss data for elbows, refer to Victaulic® submittal 10.85.



# STYLE C-AQC FLEXIBLE HOSE SPRINKLER FITTING FRICTION LOSS DATA (CCC)

## NOTICE

- The following table contains CCC friction loss data. Always refer to the applicable "Listing and Approval Information – Flexible Hose and Bracket Combinations" section to verify the listings/approvals for the particular flexible hose/bracket combination.

Model	Length of Flexible Hose inches/ mm	Outlet Size inches/ Metric	Equivalent Length of 1-inch/DN25 Schedule 40 Pipe feet/meters	Maximum Number of 90° Bends
C-AQC-39	39 1000	½ DN15	5.0 1.51	1
C-AQC-47	47 1200	½ DN15	7.9 2.41	2
C-AQC-59	59 1500	½ DN15	17.3 5.26	3



## SERIES AH4 ASSEMBLY MODEL NUMBER CORRELATION

Series AH4 Hose Assembly	Outlet Size	Series AQB Hose Assembly Designation	Series AFB Hose Assembly Designation
AH4-31	1/2	AQB31HLD	AQB31HLD
	3/4	AQB31TLD	AQB31HLD
AH4-36	1/2	AQB36HLD	AQB36HLD
	3/4	AQB36TLD	AQB36HLD
AH4-48	1/2	AQB48HLD	AQB48HLD
	3/4	AQB48TLD	AQB48HLD
AH4-60	1/2	AQB60HLD	AQB60HLD
	3/4	AQB60TLD	AQB60HLD
AH4-72	1/2	AQB78HLD	AQB78HLD
	3/4	AQB78TLD	AQB78HLD

## SERIES AH5 ASSEMBLY MODEL NUMBER CORRELATION

Series AH5 Hose Assembly	Outlet Size	Series AQB Hose Assembly Designation	Series AFB Hose Assembly Designation
AH5-31	1/2	AQU-31	AF-31H
	3/4		AF-31T
AH5-36	1/2	AQU-36	AF-36H
	3/4		AF-36T
AH5-48	1/2	AQU-48	AF-48H
	3/4		AF-48T
AH5-60	1/2	AQU-60	AF-60H
	3/4		AF-60T
AH5-72	1/2	AQU-72	AF-72H
	3/4		AF-72T



# LOW-PROFILE ELBOW PRODUCT MARKING INFORMATION

UL 2443 Model Designation	Outlet Fitting Mark	Description
AH1-XX-LPSE	LPSE	AH1 with Low-Profile Short Elbow Reducer Outlet
AH1-XX-LPLE	LPLE	AH1 with Low-Profile Long Elbow Reducer Outlet
AH1-CC-XX-LPSE	LPSE	AH1-CC-LP with Low-Profile Short Elbow Reducer Outlet
AH1-CC-XX-LPLE	LPLE	AH1-CC-LP with Low-Profile Long Elbow Reducer Outlet
AH2-XX-LPSE	LPSE	AH2 with Low-Profile Short Elbow Reducer Outlet
AH2-XX-LPLE	LPLE	AH2 with Low-Profile Long Elbow Reducer Outlet
AH2-CC-XX-LPSE	LPSE	AH2-CC-LP with Low-Profile Short Elbow Reducer Outlet
AH2-CC-XX-LPLE	LPLE	AH2-CC-LP with Low-Profile Long Elbow Reducer Outlet









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