

Victaulic® VicFlex™ Style AB11 Low-Profile Sprinkler Fitting for Suspended Ceiling Systems

INTRODUCTION

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, resulting in death or serious personal injury and property damage.

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. Each drop assembly comes with one flexible hose, one adapter nipple, one sprinkler reducing nipple, and the Style AB11 Bracket.

TECHNICAL DATA FOR FLEXIBLE HOSES

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.
- The effect of chemical composition, pH level, operating temperature, chloride level, oxygen level, and flow rate on the stainless steel flexible hose shall be evaluated by the material specifier to confirm system life will be acceptable for the intended service.

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

Listing and Approval Information

Flexible Hose	 cUL US LISTED	 FM APPROVED	 VdS 6412024
AH1-LP	With AB11	With AB11	With AB11
AH2-LP	With AB11	With AB11	With AB11

NOTES: Victaulic® VicFlex™ flexible hoses are City of Los Angeles (RR5659) Approved, accepted for use by the City of New York Department of Buildings (MEA 60-05-E), and have the OSHPD Pre-Approval (OPA-2255-07). Victaulic® VicFlex™ flexible hoses are available in lengths from 31 - 72 inches/787 - 1829 mm with either ½-inch/DN15 or ¾-inch/DN20 NPT or BSPT threaded outlets.

Maximum Working Pressure Rating:

200 psi/14 Bar/1379 kPa (FM Approval)
 175 psi/12 Bar/1207 kPa (UL Listing)
 16 Bar/1600 kPa/232 psi (VdS Approval)

Maximum Ambient Temperature Rating:

225° F/107° C

Connection to Sprinkler Piping:

1 inch/DN25 NPT/BSPT
 DN20/¾ inch BSPT (VdS)

Minimum Bend Radius of Flexible Hose:

3 inch/76 mm (UL Listing – Series AH1)
 2 inch/50 mm (UL Listing – Series AH2)
 7 inch/178 mm (FM Approval – Series AH1 and AH2)
 76 mm/3 inch (VdS Approval – Series AH1 and AH2)

Maximum K-Factor of Sprinkler to be Connected to Sprinkler Reducing Nipple:

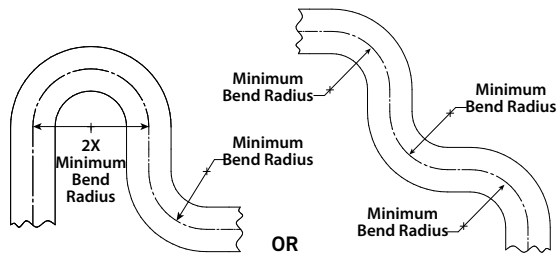
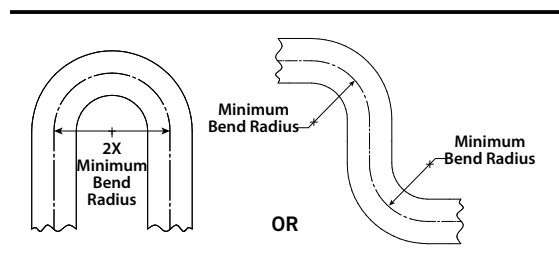
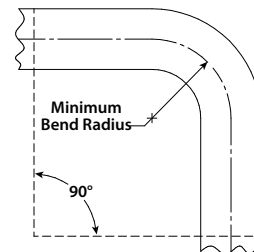
K8.0 US/K115 metric for ½ inch/DN15
 K14.0 US/K200 metric for ¾ inch/DN20
 K115 metric/K8.0 US for ¾ inch/DN20 (VdS Approval)

Maximum Number of 90° Bends Per Flexible Hose:

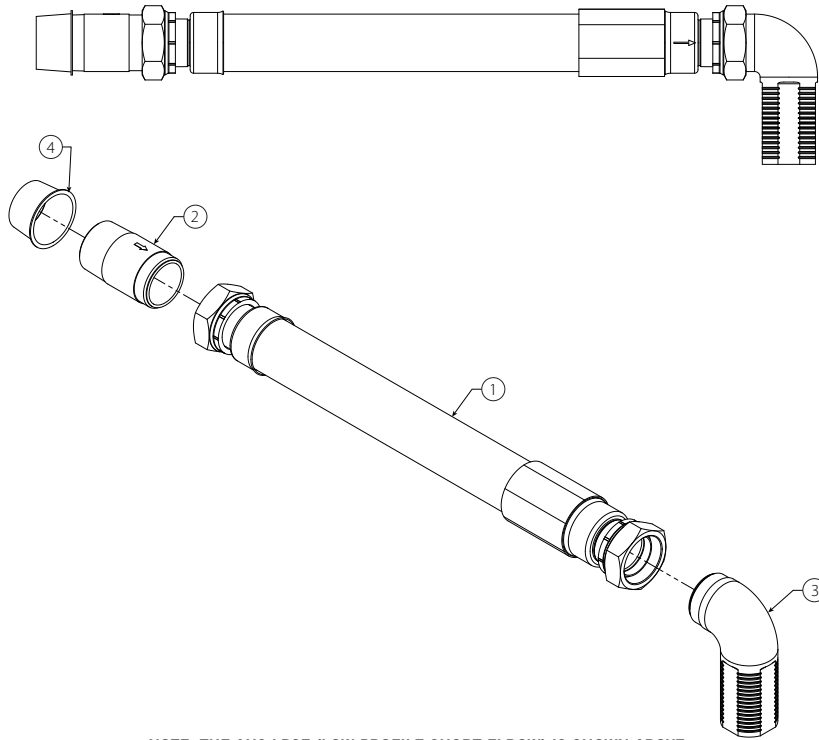
Refer to the “Friction Loss Data” section

FLEXIBLE HOSE BEND CHARACTERISTICS

NOTE: For out-of-plane (three-dimensional) bends, care shall be taken to avoid imparting torque on the flexible hose.



FLEXIBLE HOSE ASSEMBLY DRAWING



Item	Description
1	Flexible Hose Assembly
2	Adapter Nipple
3	Low-Profile Elbow Reducer (Flexible Hose to Sprinkler)
4	Shipping Cap

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
AH2-XX-LPSE	LPSE	AH2 with Low-Profile Short Elbow Reducer Outlet
AH2-XX-LPLE	LPLE	AH2 with Low-Profile Long Elbow Reducer Outlet

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.

NOTE: THE AH2-LPSE (LOW-PROFILE SHORT ELBOW) IS SHOWN ABOVE.

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

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§	
			FM*	UL‡	FM	UL
AH1-LP-31	31 790	1/2 DN15	49.0 14.9	63.0 19.2	2	3
		3/4 DN20	47.9 14.6	65.0 19.8		
AH1-LP-36	36 915	1/2 DN15	58.5 17.8	76.0 23.2	2	4
		3/4 DN20	58.0 17.7	76.0 23.2		
AH1-LP-48	48 1220	1/2 DN15	81.5 24.8	99.0 30.2	3	4
		3/4 DN20	82.2 25.1	98.0 29.9		
AH1-LP-60	60 1525	1/2 DN15	104.4 31.8	108.0 32.9	4	4
		3/4 DN20	106.4 32.4	102.0 31.1		
AH1-LP-72	72 1830	1/2 DN15	127.4 38.8	124.0 37.8	4	5
		3/4 DN20	130.8 39.9	132.0 40.2		

* 7-inch/178-mm minimum bend radius

‡ 3-inch/76-mm minimum bend radius

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

§ 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-LP FLEXIBLE HOSE FRICTION LOSS DATA (FM AND UL)

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§	
			FM*	UL‡	FM	UL
AH2-31-LP	31 790	½ DN15	13.7 4.2	24.0 7.3	2	4
		¾ DN20	13.5 4.1	24.0 7.3		
AH2-36-LP	36 915	½ DN15	17.0 5.2	26.0 7.9	2	5
		¾ DN20	16.8 5.1	28.0 8.5		
AH2-48-LP	48 1220	½ DN15	25.0 7.6	43.0 13.1	3	8
		¾ DN20	24.7 7.5	42.0 12.8		
AH2-60-LP	60 1525	½ DN15	33.0 10.1	49.0 14.9	4	10
		¾ DN20	32.7 10.0	50.0 15.2		
AH2-72-LP	72 1830	½ DN15	41.1 12.5	65.0 19.8	4	12
		¾ DN20	40.7 12.4	63.0 19.2		

* 7-inch/178-mm minimum bend radius

‡ 2-inch/50-mm minimum bend radius

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

§ 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 AH1-LP AND AH2-LP FLEXIBLE HOSE FRICTION LOSS DATA (VDS)

Length of Flexible Hose mm/inches	Outlet Size Metric/inches	Maximum Number of 90° Bends at 76.2-mm/3-inch Bend Radius	Series AH1-LP	Series AH2-LP
			Equivalent Length of Steel Pipe in meters/feet According to EN 10255 DN 20 (26,9 x 2,65)	Equivalent Length of Steel Pipe in meters/feet According to EN 10255 DN 25 (33,7 x 3,25)
790 31	DN15/½	3	4.0	5.5
	DN20/¾		12.9	18.0
915 36	DN15/½	3	4.6	6.4
	DN20/¾		15.0	21.0
1220 48	DN15/½	3	6.1	8.5
	DN20/¾		20.0	27.9
1525 60	DN15/½	4	7.6	10.7
	DN20/¾		25.0	35.1
1830 72	DN15/½	4	9.2	12.8
	DN20/¾		30.0	42.0

Series AH1-LP and AH2-LP Flexible Hoses are VdS Approved for use in wet systems only.

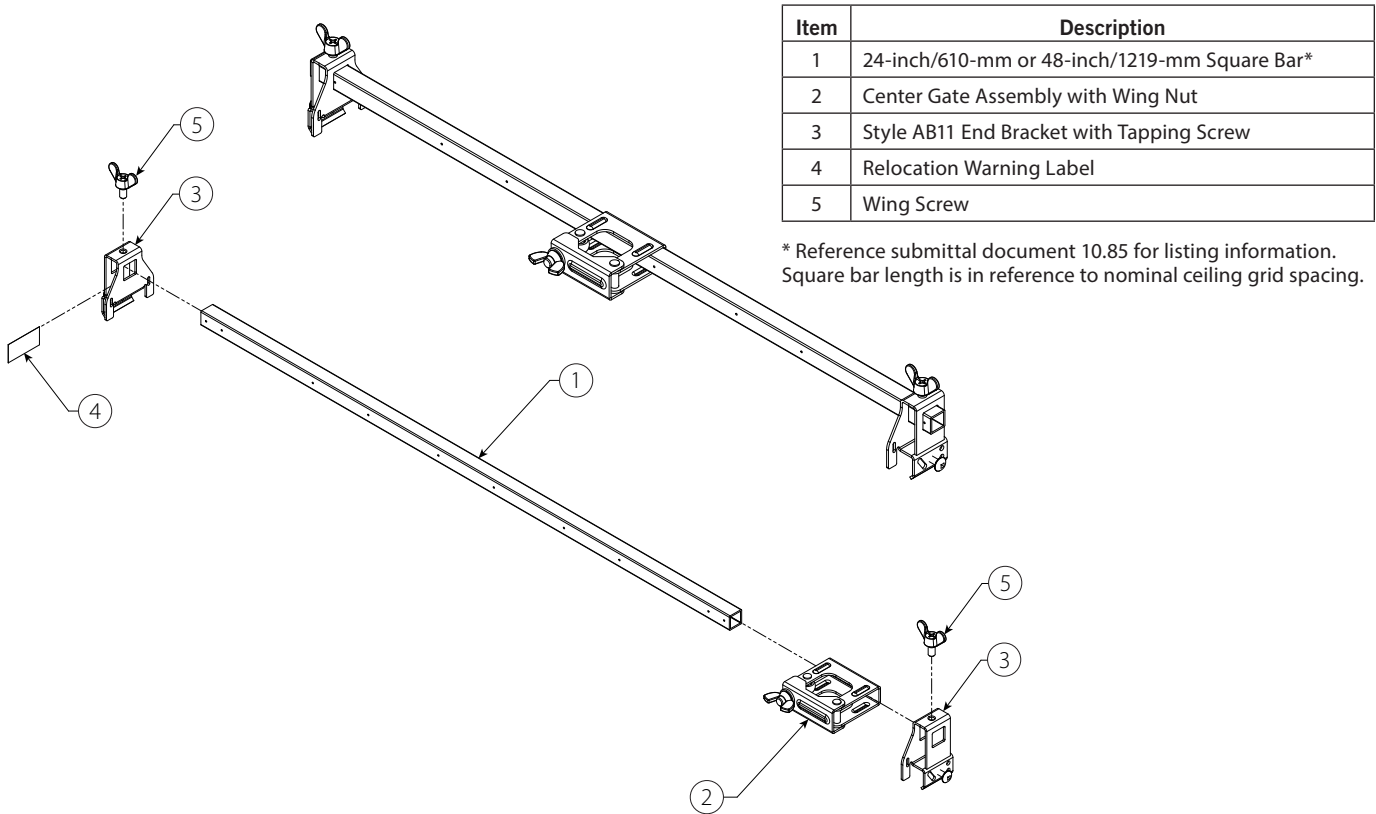
Only VdS Approved pendent spray sprinklers of 10-mm, 15-mm, and 20-mm nominal diameters with K-factors of 57, 80, and 115 shall be used.

The VdS Approval applies only for use with the following manufacturers' suspended ceiling systems:

Ceiling Suspension Systems for Style AB11 Brackets					
AMF Armstrong Chicago Metallic	Dipling Durlum Geipel	Gema-Armstrong Hilti Knauf	Lafarge Lindner Odenwald	Richter Rigips Rockfon Pagos	Suckow & Fischer USG Donn

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.

STYLE AB11 BRACKET ASSEMBLY DRAWING



IMPORTANT INSTALLATION INFORMATION

- Victaulic® VicFlex™ products shall be installed according to current, applicable National Fire Protection Association (NFPA 13, 13D, 13R, etc.) standards or equivalent standards. 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.
- Drop ceiling construction shall meet the requirements of ASTM C635 and shall be installed in accordance with ASTM C636.
- Victaulic® VicFlex™ Sprinkler Fittings and Style AB11 Brackets shall not be intermixed with other manufacturer's flexible sprinkler products.
- **SHORT 90° ELBOW REDUCERS ARE TYPICALLY USED WITH CONCEALED SPRINKLERS (FM AND VdS ONLY).**
- **Refer to the specific product submittal for applications and listing information. These submittals are located in Sections 10 and 40 of the Victaulic G-100 Catalog or on the Victaulic website at www.victaulic.com. 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.**
- Size the piping system to provide at least 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** install sprinklers and sprinkler fittings where they will be exposed to temperatures that exceed the maximum ambient temperature rating for the sprinkler and sprinkler fittings.
- The flexible hose shall not be bent or fluctuated up-and-down or side-to-side when it is pressurized.
- **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 flexible hose in a straight configuration.**
- Protect wet piping systems from freezing temperatures.
- If construction is altered, refer to applicable standards to determine if additional sprinklers are required.
- The owner is responsible for maintaining the fire protection system in proper operating condition.
- For minimum maintenance and inspection requirements, refer to NFPA 25 and any other applicable NFPA standards 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.

⚠ WARNING

- **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).**

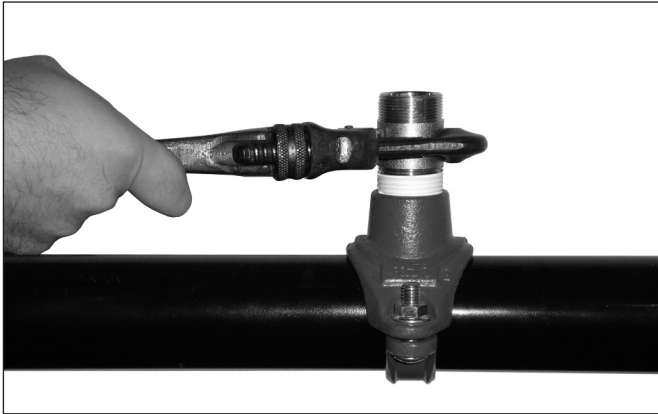
Failure to relocate this Victaulic® VicFlex™ product properly could affect its performance during a fire, resulting in serious personal injury and property damage.

* Reference UL 2443: Section 25.1

CONNECTION TO THE SPRINKLER PIPING USING AN ADAPTER NIPPLE AND A SERIES AH1-LP OR AH2-LP FLEXIBLE HOSE

WARNING

- The flexible hose shall not be bent or fluctuated up-and-down or side-to-side when it is pressurized for test.
- Failure to follow these instructions could cause improper sprinkler operation, serious personal injury, and/or 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 above.
 - 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.

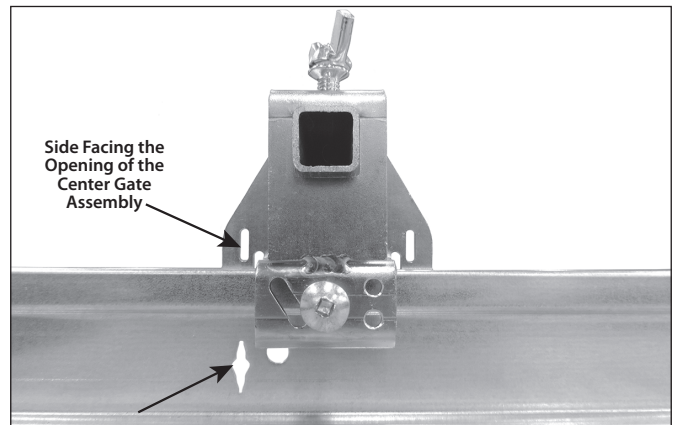
INSTALLATION OF STYLE AB11 BRACKETS FOR ASTM C635 CEILING SUSPENSION SYSTEMS INSTALLED IN ACCORDANCE WITH ASTM C636 OR ASTM C754 STANDARDS



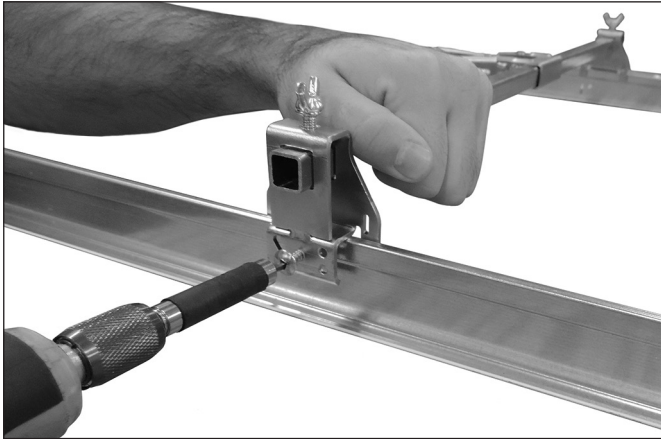
For adjustment purposes, the wing screw on top of the end bracket assembly can be loosened to allow the end bracket to slide on the square bar. Tighten the wing screw on top of the end bracket assembly to a torque of 36 inch-lbs/4 N•m (approximately ½ to ¾ of a turn past hand-tight) to secure the end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



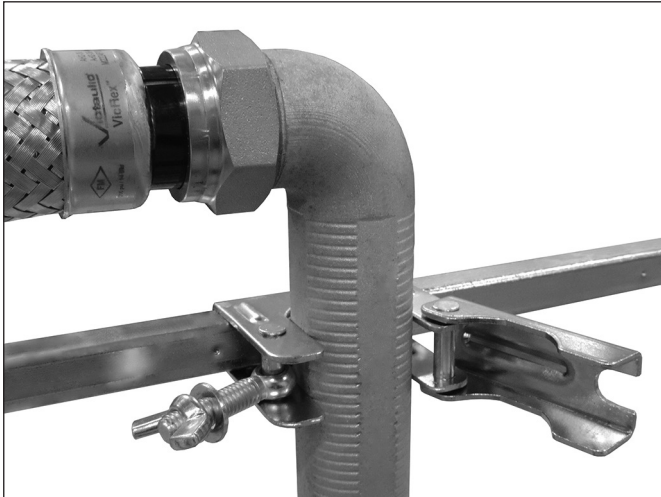
1. Attach the end brackets of the Style AB11 Bracket to the T-bar rails of an ASTM C635 ceiling suspension system installed in accordance with ASTM C636 standards. Make sure the ends of the Style AB11 Bracket engage the rails.



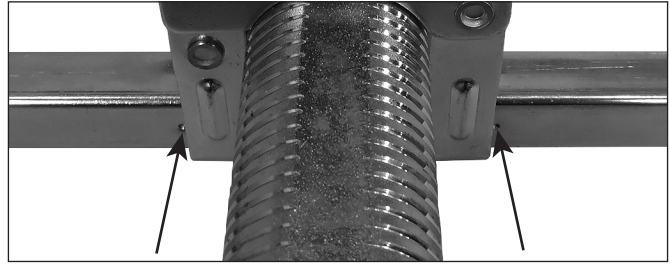
- 1a. For center-of-tile installations, align the end bracket with the center-of-tile slot of the T-bar rail (with the side facing the opening of the center gate assembly), as shown above.



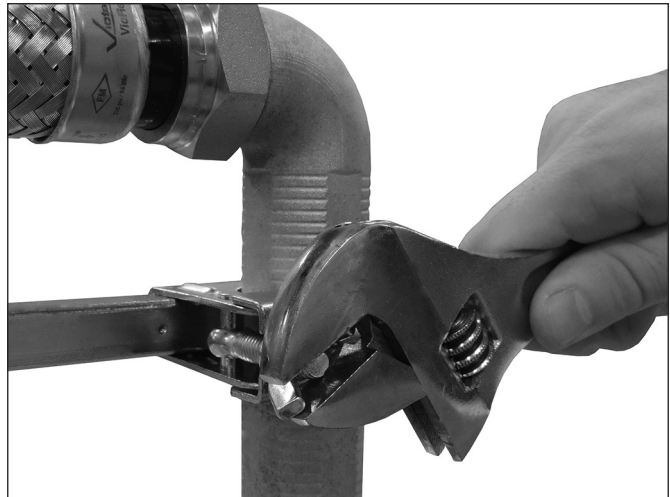
2. Apply light downward pressure, as shown above, to maintain the position of the end bracket flat against the T-bar rail. To secure the end brackets to the T-bar rails, tighten the pre-installed sheet metal screws using a #2 recessed square drive bit. Penetrate through the T-bar rail until the end bracket 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. Move the center gate assembly of the Style 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 above.



4. 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 ½ to ¾ of a turn). **NOTE:** Make sure the washer is seated under the head of the wing nut.

SPRINKLER INSTALLATION:

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.

Victaulic® VicFlex™ Style AB11 Low-Profile Sprinkler Fitting for Suspended Ceiling Systems

For complete contact information, visit victaulic.com

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