

VicFlex™ Sprinkler Fittings



SERIES AQB BRAIDED FLEXIBLE HOSE ASSEMBLIES



VicFlex™ sprinkler fittings provide sprinkler installation on suspended ceiling grids, wood or metal stud/joist or hat furring channel hard-lid ceilings utilizing a flexible, stainless steel hose and steel bracket assembly. Refer to the Installation Manual for all applicable ASTM ceiling material and installation standards.

The system requires no welding for assembly.

Series AQB Components

Hoses: Braided flexible stainless steel hose lengths: 31, 36, 48, 60, 72"/790, 914, 1220, 1525, 1830mm. Note: length includes branch-line nipple and 5.5"/140mm straight reducer.

- Hose Style:**

Series AH2 1" Nominal ID Braided Hose

Series AH4 1" Nominal ID Braided Hose

See chart below for applications

- Brackets:**

Style AB1 for commercial suspended ceilings, allows installation before ceiling tiles in place

Style AB7 for commercial suspended ceilings

Style AB9 for commercial suspended ceilings with hat furring channel grid systems

- Sprinkler Reducers:** ½" and ¾"/15 and 20 mm sprinkler connections and 5.5"/140mm, 9"/229mm, 13"/330mm straight lengths and short and long 90° elbows. Note: The Short 90° elbow is for use with concealed sprinklers only while the longer 90 elbow is used in the installation of recessed pendent sprinklers only.

- Branch Connections:** 1"/25.4mm or ¾"/20mm NPT/BSPT branch line nipples for attaching to rigid pipe.



SERIES AQB SYSTEM FEATURING STYLE AB1 BRACKET. STYLE AB1 BRACKET INCLUDES PATENTED 1-BEE® OPEN-GATE CENTER BRACKET TECHNOLOGY.



Regulatory Approvals and Listings/Bracket Features

	Style AB1 Bracket	Style AB7 Bracket	Style AB9 Bracket for hat furring channel ceiling grids
FM Approved (4" – 48" widths) with Series AH2 or Series AH4 Braided Hose (Straight Reducers and 90° Elbows)	•	•	•
VdS Approved with Series AH2 (Straight Reducers and 90° Elbows)	•	•	•
cULus Listed with Series AH2 Braided Hose (Straight 5.5" Reducers)	•		
FM Approved in 4" and 6" widths for Armstrong® Techzone™ ceiling technical panels	•		
Available in 24" width	•	•	•
Available in 48" width	•	•	
Allows complete lateral alignment of sprinkler	•	•	•
Features the patented 1-Bee® open gate center bracket	•	•	•
Provides reference mark features for center of tile sprinkler positioning	•	•	•
Allows for standard ceiling tile installation after the VicFlex fitting assembly is installed in the ceiling grid	•		
Features tamper resistant installation	•	•	•

JOB/OWNER	CONTRACTOR	ENGINEER
System No. _____	Submitted By _____	Spec Sect _____ Para _____
Location _____	Date _____	Approved _____
		Date _____

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TECHNICAL SPECIFICATIONS

Maximum Working Temperature: 225°F/107.2°C

Maximum Working Pressure:

- 200 psi/1375 kPa (FM Approval)
- 175 psi/1206 kPa (Series AH2 braided hose - cULus Listed)
- 1600 kPa/232 psi (VdS Approval Series AH2 or Series AH4)

Connections:

To branch line (inlet) via 1"/25.4 mm NPT/BSPT male thread
OR

To branch line (inlet) via 3/4"/20 mm BSPT male thread (VdS only)

To sprinkler head (outlet) via 1/2" or 3/4"/15 mm or 20 mm NPT/BSPT female thread

Minimum Bend Radius of Flexible Hose:

- 7"/178 mm (FM Approval - Series AH4 or Series AH2)
- 2"/51 mm (cULus Listed - Series AH2)
- 3"/76.2 mm (VdS Approved - Series AH2 or Series AH4)

Maximum Number of Bends per Flexible Drop: See friction loss charts below

Maximum K-Factor of Sprinkler to be Connected to Reducer:

- K8.0/11,5 (S.I.) (1/2"/15mm reducer)
- K14.0/20,2 (S.I.) (3/4"/20mm reducer)

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MATERIAL SPECIFICATIONS

Braided Flexible Hose:

- **Series AH2**

Flexible Hose: Type 304L Stainless Steel

Collar/Weld Fitting: Type 304L Stainless Steel

Gasket Seal: Victaulic Grade EHP EPDM

Isolation Ring: Nylon 66

Nut and Nipple: Zinc-Plated Grade 1020 Steel

Reducers (½ or ¾"): Zinc-Plated Grade 1020 Steel

- **Series AH4**

Flexible Hose: Type 304L Stainless Steel

Collar/Weld Fitting: Type 304L Stainless Steel

Gasket Seal: EPDM per ASTM D2000

Isolation Ring: N/A

Nut and Nipple: Zinc-Plated Grade 1020 Steel

Reducers (½ or ¾"): Zinc-Plated Grade 1020 Steel

Bracket:

- **Style AB1/AB7/AB9**

Bracket Square Bar: Zinc-Plated Grade 1010 Steel

End and Center Brackets: Zinc-Plated Steel per ASTM A109

Staked Center Bracket Wing Nut: Zinc-Plated Grade 1008 Steel

End Bracket Screw: Zinc-Plated per ISO 898 Class 10.9 Steel

Tamper-Resistant Screw: Zinc-Plated Grade 1016 Steel

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UL LISTED **FRICITION LOSS DATA - SERIES AH2 BRAIDED HOSE FOR USE WITH STYLE AB1 VICFLEX BRACKETS AND STRAIGHT 5.5" REDUCERS**

Length of Stainless Steel Flexible Hose	Sprinkler K-Factor	Outlet Size	Series AH2 Hose	
			Equivalent Length of 1 1/33.7mm Sch. 40 Pipe (C=120)	Maximum Number of 90° Bends at 2 1/51mm Bend Radius
inches		inches/type	feet/meters	
31	5.6/8,1	1/2"/Straight	16/4.9	4
	14.0/20,2	3/4"/Straight	17/5.2	4
36	5.6/8,1	1/2"/Straight	21/6.4	5
	14.0/20,2	3/4"/Straight	23/7.0	5
48	5.6/8,1	1/2"/Straight	22/6.7	6
	14.0/20,2	3/4"/Straight	27/8.2	6
60	5.6/8,1	1/2"/Straight	31/9.4	6
	14.0/20,2	3/4"/Straight	31/9.4	6
72	5.6/8,1	1/2"/Straight	42/12.8	7
	14.0/20,2	3/4"/Straight	41/12.5	7

SERIES AH2 BRAIDED HOSE EQUIVALENT LENGTH DESIGN GUIDE

Equivalent length values at various numbers of 90 degree bends at 2 1/51mm center line bend radius

Length of Stainless Steel Flexible Hose	Outlet Size	0 Bends	1 Bend	2 Bends	3 Bends	4 Bends	5 Bends	6 Bends	7 Bends	8 Bends	9 Bends	10 Bends
inches	inches											
31	1/2"	5.0	8.5	11.0	13.0	16.0	N/A	N/A	N/A	N/A	N/A	N/A
	3/4"	6.5	10.0	12.5	14.0	17.0	N/A	N/A	N/A	N/A	N/A	N/A
36	1/2"	10.5	13.5	16.0	18.0	19.0	21.0	N/A	N/A	N/A	N/A	N/A
	3/4"	12.0	14.0	17.0	19.5	20.0	23.0	N/A	N/A	N/A	N/A	N/A
48	1/2"	11.5	15.5	17.0	19.5	20.0	21.0	22.0	28.0	N/A	N/A	N/A
	3/4"	13.0	17.0	19.0	21.5	24.5	26.0	27.0	30.0	N/A	N/A	N/A
60	1/2"	15.5	21.5	24.0	27.0	28.5	30.0	31.0	37.0	42.0	46.0	N/A
	3/4"	16.0	23.0	24.0	28.0	29.5	30.5	31.0	38.0	42.0	46.0	N/A
72	1/2"	28.5	30.0	32.0	36.5	37.5	40.5	41.0	42.0	46.0	49.0	52.0
	3/4"	24.0	32.0	32.5	35.0	35.5	40.0	40.5	41.0	46.0	50.0	53.0

Note: Values for use with 5.5" straight reducers.

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FRICITION LOSS DATA - SERIES AH2 AND SERIES AH4 BRAIDED HOSE FOR USE WITH STYLE AB1, STYLE AB7 AND STYLE AB9 VICFLEX BRACKETS

Length of Stainless Steel Flexible Hose	Sprinkler K-Factor	Outlet Size	Series AH2 Hose		Series AH4 Hose	
			Equivalent Length of 1 1/33.7mm Sch. 40 Pipe	Maximum Number of 90° Bends at 7 1/178mm Bend Radius	Equivalent Length of 1 1/33.7mm Sch. 40 Pipe	Maximum Number of 90° Bends at 7 1/178mm Bend Radius
inches		inches/type	feet/meters		feet/meters	
31	5.6/8.1	1/2"/Straight	23.5/7.1	1	20.6/6.3	1
		1/2"90° Elbow	23/7.0		21.7/6.6	
36	5.6 /8.1	1/2"/Straight	27.8/8.5	2	29.7/9.0	2
		1/2"90° Elbow	27.7/8.4		29.8/9.0	
48	5.6/8.1	1/2"/Straight	38.2/11.6	3	27.5/8.3	3
		1/2"90° Elbow	37.4/11.4		29.2/8.9	
60	5.6/8.1	1/2"/Straight	42.4/12.9	4	35.7/10.9	4
		1/2"90° Elbow	43/13.1		37.2/11.3	
72	5.6/8.1	1/2"/Straight	46.6/14.2	4	45.9/14.0	4
		1/2"90° Elbow	48.5/14.7		47.5/14.5	
31	8.0/11.5	3/4"/Straight	20.7/6.3	1	13.3/4.0	1
		3/4"90° Elbow	20.5/6.2		14.6/4.4	
36	8.0/11.5	3/4"/Straight	25.0/7.6	2	21.7/6.6	2
		3/4"90° Elbow	24.6/7.5		22.4/6.8	
48	8.0/11.5	3/4"/Straight	35.5/10.8	3	21.2/6.4	3
		3/4"90° Elbow	34.7/10.6		22.2/6.7	
60	8.0/11.5	3/4"/Straight	39.6/12.1	4	27.9/8.5	4
		3/4"90° Elbow	40.1/12.2		28.9/8.8	
72	8.0/11.5	3/4"/Straight	43.5/13.2	4	38.8/11.8	4
		3/4"90° Elbow	45.2/13.7		39.4/12.0	
31	11.2/16.1	3/4"/Straight	17.8/5.4	1	16.4/5.0	1
		3/4"90° Elbow	18/5.5		19.9/6.1	
36	11.2/16.1	3/4"/Straight	22.2/6.7	2	21.7/6.6	2
		3/4"90° Elbow	22.1/6.7		24.2/7.4	
48	11.2/16.1	3/4"/Straight	32.9/10.0	3	28.5/8.7	3
		3/4"90° Elbow	32.1/9.8		29.9/9.1	
60	11.2/16.1	3/4"/Straight	36.8/11.2	4	34.7/10.5	4
		3/4"90° Elbow	37.1/11.3		30.3/9.2	
72	11.2/16.1	3/4"/Straight	40.5/12.3	4	38.6/11.6	4
		3/4"90° Elbow	41.9/12.7		38.6/11.7	
31	14.0/20.2	3/4"/Straight	14.9/4.5	1	16.3/5.0	1
		3/4"90° Elbow	15.5/4.72		19.9/6.1	
36	14.0/20.2	3/4"/Straight	19.4/5.9	2	21.8/6.7	2
		3/4"90° Elbow	19.6/5.9		24.2/7.4	
48	14.0/20.2	3/4"/Straight	30.3/9.2	3	28.3/8.6	3
		3/4"90° Elbow	29.5/8.9		29.9/9.1	
60	14.0/20.2	3/4"/Straight	33.9/10.3	4	34.9/10.6	4
		3/4"90° Elbow	34.1/10.4		30.3/9.2	
72	14.0/20.2	3/4"/Straight	37.5/11.4	4	41.5/12.6	4
		3/4"90° Elbow	38.6/11.7		38.6/11.7	

FM NOTES:

Series AQB systems have been tested and Approved by FM Global for use in wet, dry and preaction systems per NFPA 13, 13R, and 13D and FM data sheets 2-0, 2-5, and 2-8. FM 1637 and Vds standards for safety include, but are not limited to, pressure cycling, corrosion resistance, flow characteristics, vibration resistance, leakage, mechanical 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.

EXAMPLE: A 48-inch Series AQB hose installed with two 30° bends and two 90° bends at a 7-inch bend radius is permitted and considered equivalent to the data in the table shown above. In this example, the total number of degrees is 240°, which is less than the allowable 270°.

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FRICION LOSS DATA - SERIES AH2 BRAIDED HOSE FOR USE WITH STYLE AB1, AB7AND AB9 VICFLEX BRACKETS

Length of Stainless Steel Flexible Hose	Outlet Size	Equivalent Length of steel pipe according to DIN 2448 DN25 (33,7 x 2,6) and relating to a flow velocity of 5 m/s	Maximum Number of 90° Bends at 3"/76.2mm Bend Radius	Equivalent Length of steel pipe according to DIN 2448 DN25 (33,7 x 2,6) and relating to a flow velocity of 5 m/s	Maximum Number of 90° Bends at 3"/76.2mm Bend Radius
mm/inches	mm/type	25mm/1" Branchline		20mm/3/4" Branchline	
		meters/feet		meters/feet	
790/31	15/Straight	5.2/17.1	3	4.7/15.6	3
	15/90° Elbow				
	20/Straight				
	20/90° Elbow				
915/36	15/Straight	6.1/19.9	3	5.5/17.9	3
	15/90° Elbow				
	20/Straight				
	20/90° Elbow				
1220/48	15/Straight	8.1/26.5	3	7.3/24.0	3
	15/90° Elbow				
	20/Straight				
	20/90° Elbow				
1525/60	15/Straight	10.1/33.2	4	9.1/29.9	4
	15/90° Elbow				
	20/Straight				
	20/90° Elbow				
1830/72	15/Straight	12.0/39.8	4	11.0/36.0	4
	15/90° Elbow				
	20/Straight				
	20/90° Elbow				

VicFlex™ Sprinkler Fittings



FRICION LOSS DATA - SERIES AH4 BRAIDED HOSE FOR USE WITH STYLE AB1 AB7, AND AB9 VICFLEX BRACKETS

Length of Stainless Steel Flexible Hose	Outlet Size	Equivalent Length of steel pipe according to DIN 2448 DN25 (33,7 x 2,6) and relating to a flow velocity of 5 m/s	Maximum Number of 90° Bends at 3/76.2mm Bend Radius	Equivalent Length of steel pipe according to DIN 2448 DN25 (33,7 x 2,6) and relating to a flow velocity of 5 m/s	Maximum Number of 90° Bends at 3/76.2mm Bend Radius
mm/inches	mm/type	25mm/1" Branchline		20mm/3/4" Branchline	
		meters/feet		meters/feet	
790/31	15/Straight	5.5/18.1	3	4.7/15.6	3
	15/90° Elbow				
	20/Straight				
	20/90° Elbow				
915/36	15/Straight	6.4/20.9	3	5.5/17.9	3
	15/90° Elbow				
	20/Straight				
	20/90° Elbow				
1220/48	15/Straight	8.5/28.0	3	7.3/24.0	3
	15/90° Elbow				
	20/Straight				
	20/90° Elbow				
1525/60	15/Straight	10.6/34.9	4	9.1/29.9	4
	15/90° Elbow				
	20/Straight				
	20/90° Elbow				
1830/72	15/Straight	12.8/42.0	4	11.0/36.0	4
	15/90° Elbow				
	20/Straight				
	20/90° Elbow				

VdS NOTES:

Series AQB is VdS Approved for use in wet systems only. Only VdS-approved pendent spray sprinklers of nominal diameters 10 mm, 15 mm, and 20 mm with K-factors 57, 80, and 115 may be used.

This approval only applies to the use in suspended ceilings of the following manufacturer's ceiling systems:

1. Odenwald, Systems S2, S3, and S15
2. Richter, Systems 4.1-4.5, 11.1-11.6, 13.3-13.4, and 16.5
3. Dipling
4. Armstrong
5. Rigips
6. Knauf

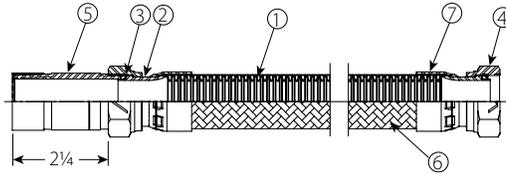
Note: Other manufacturer's ceilings systems with the same or better performance can be considered to be approved.

Vds standards for safety include, but are not limited to, pressure cycling, corrosion resistance, flow characteristics, vibration resistance, leakage, mechanical 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.

VicFlex™ Sprinkler Fittings

**PRODUCT DETAILS - Series AH2 Braided Hose
Series AH4 Braided Hose FM only**

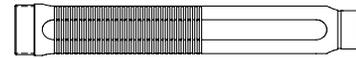
Item	Description
1	Flexible Hose
2	Isolation Ring (series AH2 only)
3	Gasket
4	Nut
5	Branch Line Nipple
6	Braid
7	Collar/Weld Fitting



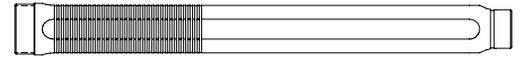
Series AQB Flexible Hose – Braided (1" nominal diameter)



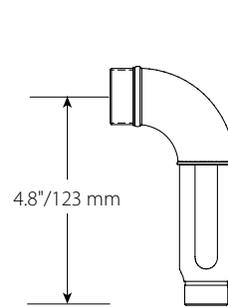
5.5"/140 mm straight reducer



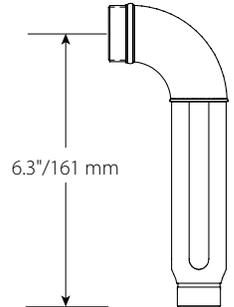
9.0"/229 mm straight reducer



13.0"/330 mm straight reducer



Short 90° elbow reducer



Long 90° elbow reducer

Note: The Short 90° elbow reducer is for use with concealed sprinklers only while the longer 90 elbow is used in the installation of recessed pendent sprinklers only.

VicFlex™ Sprinkler Fittings

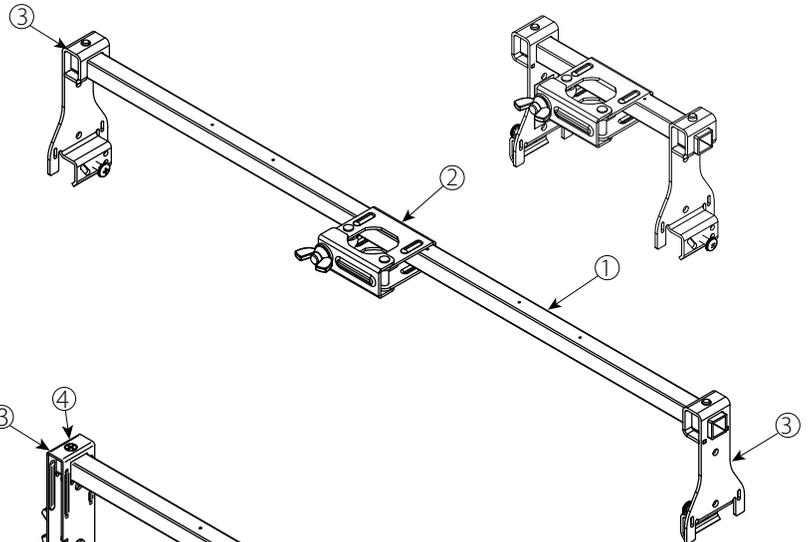
VICFLEX BRACKETS

STYLE AB1

- Commercial suspended ceilings
- Wood or Metal Stud Hard-Lid Ceilings

Item	Description
1	4"/100mm, 6"/152mm, 24"/610mm or 48"/1219mm Square Bar*
2	Patented 1-Bee® Center bracket
3	End Bracket (adjustable)

* 4"/100mm and 6"/152mm FM approved, 24"/610mm FM/VdS approved, UL listed and 48"/1219mm FM/VdS Approved

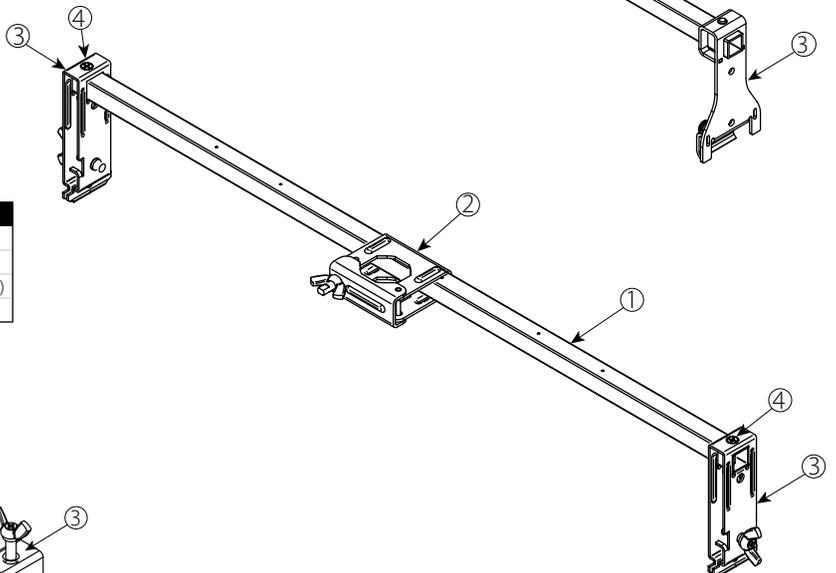


STYLE AB7

- Commercial suspended ceilings
- Wood or Metal Stud Hard-Lid Ceilings

Item	Description
1	24"/610mm or 48"/1219mm Square Bar*
2	Patented 1-Bee® Center bracket
3	End Bracket (optional adjustable version – regional availability)
4	Sheet Metal Screw

* Both sizes FM/VdS Approved.

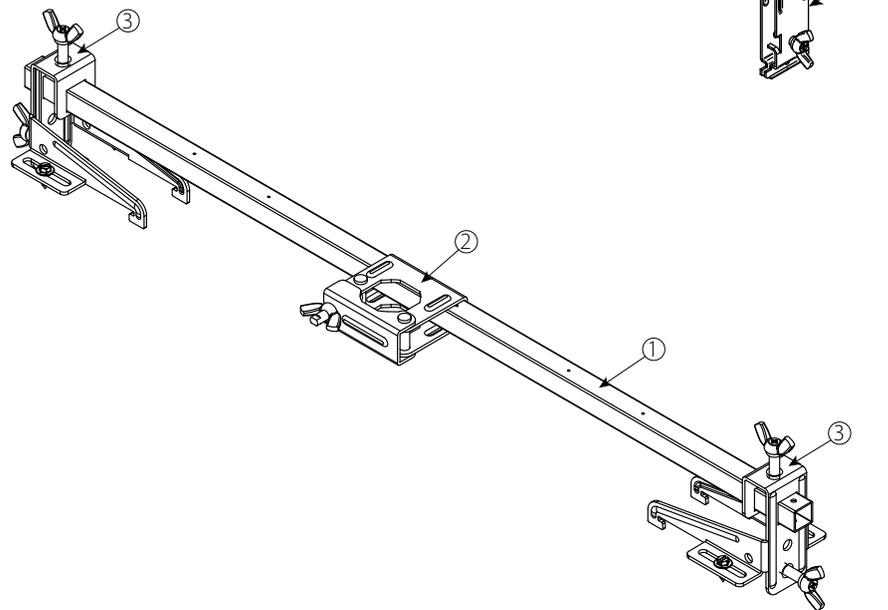


STYLE AB9

- End brackets for hat furring channel hard-lid ceilings

Item	Description
1	24"/610mm or 48"/1219mm Square Bar
2	Patented 1-Bee® Center bracket
3	Adjustable End Bracket for Hat Furring Channel

* FM Approved Only.



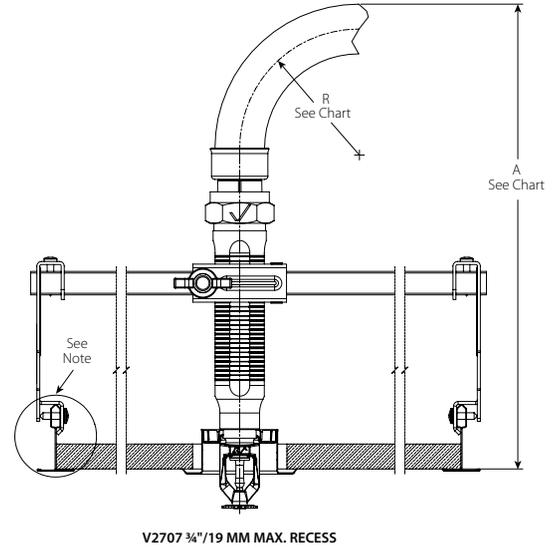
VicFlex™ Sprinkler Fittings

SERIES AQB Braided Hose Assembly

Suspended Ceiling Grid with Recessed Sprinkler

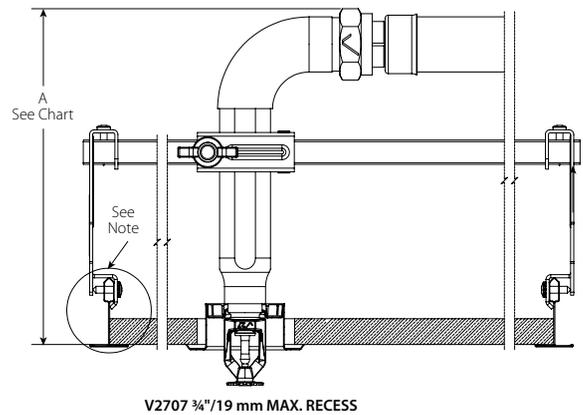
- Clearances above ceiling tile at various center-line bend radii

Hose Clearance Chart						
Dimension	Inches/mm					
Minimum Bend Radius "R"	2/51	3/76	4/102	5/127	6/152	7/178
Minimum "A"	10.75/273	11.75/298.5	12.75/324	13.75/349	14.75/375	15.75/400



Suspended Ceiling Grid with 90°Elbow (Long)

Hose Clearance Chart		
Dimension		FM Inches/mm
A	Min.	8 203

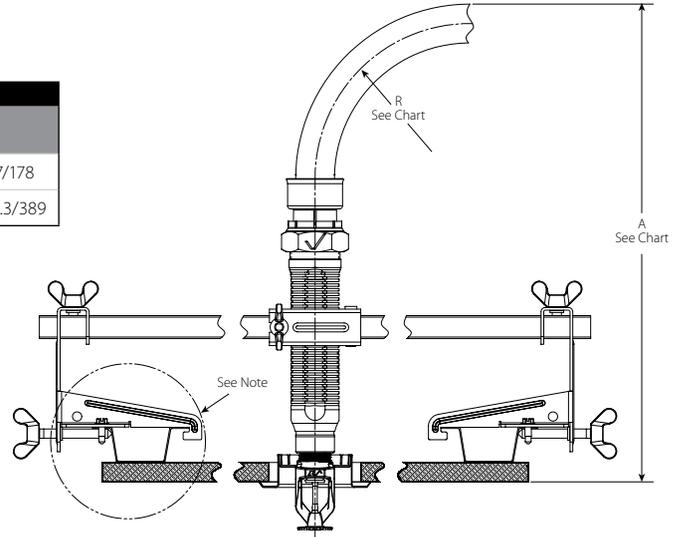


Note: Typical layout figures shown. Variations are permitted but may result in clearance differences from the figures above.

VicFlex™ Sprinkler Fittings

SERIES AQB Braided Hose Assembly Suspended Ceiling Grid with Hat Furring Channel

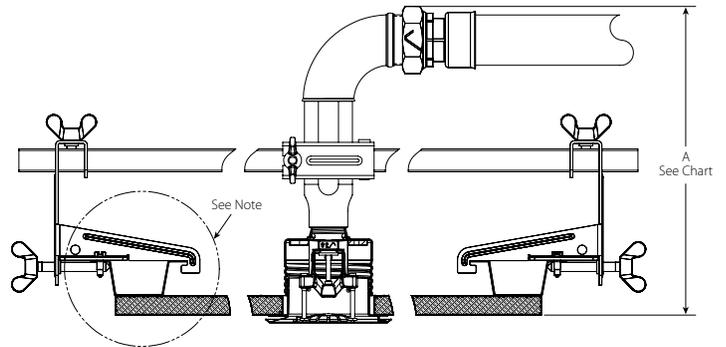
Hose Clearance Chart						
Dimension	Inches/mm					
Minimum Bend Radius "R"	2/51	3/76	4/102	5/127	6/152	7/178
Minimum "A"	10.3/262	11.3/287	12.3/313	13.3/338	14.3/363.5	15.3/389



V2708 1/2"/12.7 mm MAX. RECESS

Suspended Ceiling Grid with 90°Elbow (Short)

Hose Clearance Chart		
Dimension		FM Inches/mm
A	Min.	8 203

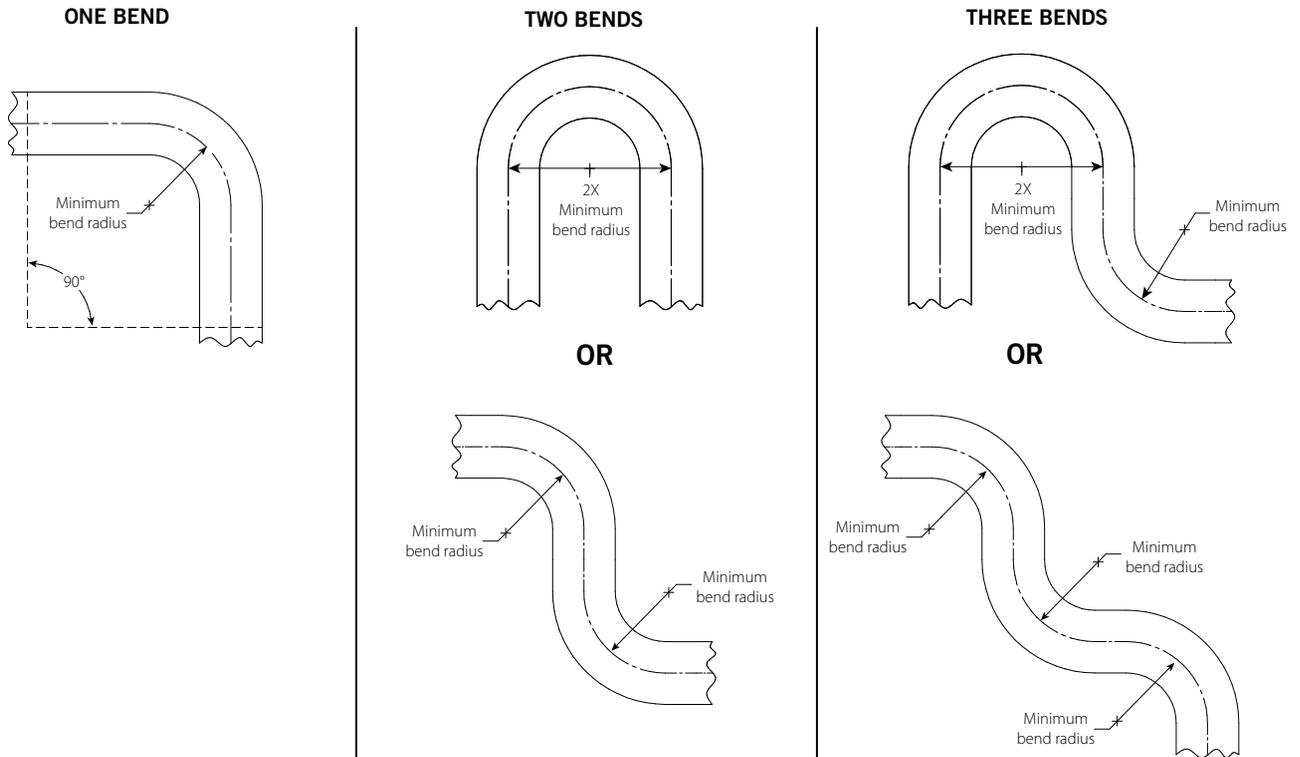


V3802 1/2"/12.7 mm MAX. RECESS

Typical layout figures shown. Variations are permitted but may result in clearance differences from the figures above.

VicFlex™ Sprinkler Fittings

FLEXIBLE HOSE IN-PLANE BEND CHARACTERISTICS



Note: For out-of-plane (three-dimensional) bends, care must be taken to avoid imparting torsional stress on the hose.

VicFlex™ Sprinkler Fittings

MODEL NUMBER CORRELATION

Series AH4 Hose Assembly Designation	Outlet Size	Series AQB Hose Assembly Designation	Series AFB Hose Assembly Designation
AH4-31	½	AQB31HLD	AFB31HLD
	¾	AQB31TLD	AFB31TLD
AH4-36	½	AQB36HLD	AFB36HLD
	¾	AQB36TLD	AFB36TLD
AH4-48	½	AQB48HLD	AFB48HLD
	¾	AQB48TLD	AFB48TLD
AH4-60	½	AQB60HLD	AFB60HLD
	¾	AQB60TLD	AFB60TLD
AH4-72	½	AQB72HLD	AFB72HLD
	¾	AQB72TLD	AFB72TLD

WARRANTY

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

NOTE

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

For complete contact information, visit www.victaulic.com

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