

# VicFlex™ Style VS1 Dry Sprinkler

Models V3505, V3506, V3509, V3510, V3517, V3518



10.91



## 1.0 PRODUCT DESCRIPTION

### Style

- Pendent, Concealed Pendent, Horizontal Sidewall

### K Factor

- 5.6/8.1 S.I.  
For system design purposes, no equivalent length calculations are required.

### Sprinkler Length

- 38"/965 mm, 50"/1270 mm, 58"/1475 mm

### Nominal Orifice Size

- ½"/13 mm

### Maximum Working Pressure

- 175 psi/1200 kPa

### Factory Hydrostatic Test

- 100% @ 500 psi/3450 kPa

### Minimum Operating Pressure

- 7 psi/48 kPa

### Connections

- To branch line (inlet) via 1"/25 mm NPT or 1" BSPT

### Minimum Bend Radius:

- **UL:** 2"/51 mm
- **FM:** 7"/178 mm

### Maximum Number of 90° Bends:

- **UL:** 4
- **FM:** 2 bends for 38", 3 bends for 50", 4 bends for 58"

### Hazard Classifications

- Light and Ordinary Hazard

### NOTE

- The VS1 is classified as a dry sprinkler and has no equivalent length.

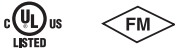
ALWAYS REFER TO ANY NOTIFICATIONS AT THE END OF THIS DOCUMENT REGARDING PRODUCT INSTALLATION, MAINTENANCE OR SUPPORT.

System No.		Location	
Submitted By		Date	

Spec Section		Paragraph	
Approved		Date	



## 2.0 CERTIFICATION/LISTINGS



Approvals/Listings	Model								
	V3505	V3505	V3506	V3506	V3509	V3509	V3510	V3517	V3518
Orifice Size (inches)	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Orifice Size (mm)	13	13	13	13	13	13	13	13	13
Nominal K Factor Imperial	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Nominal K Factor S.I.	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
Response	Standard	Standard	Quick	Quick	Standard	Standard	Quick	Standard	Quick <sup>1</sup>
Deflector Type	Pendent	Recessed	Pendent	Recessed	Hor. SW	Rec. Hor. SW	Hor. SW, Recessed Hor. Sidewall	Conc. Pend.	Conc. Pend. w/Clean room gasket
Approved Temperature Ratings	F°/C°								
FM	135/57	135/57	135/57	135/57	135/57	135/57	135/57	–	135/57
	155/68	155/68	155/68	155/68	155/68	155/68	155/68	–	155/68
	175/79	175/79	175/79	175/79	175/79	175/79	175/79	–	175/79
	200/93	200/93	200/93	200/93	200/93	200/93	200/93	–	200/93
UL	286/141	–	–	–	286/141	–	–	–	–
	135/57	135/57	135/57	135/57	135/57	135/57	135/57	135/57	135/57
	155/68	155/68	155/68	155/68	155/68	155/68	155/68	155/68	155/68
	175/79	175/79	175/79	175/79	175/79	175/79	175/79	175/79	175/79
	200/93	200/93	200/93	200/93	200/93	200/93	200/93	200/93	200/93
	286/141	286/141	286/141	286/141	286/141	–	286/141	–	–

<sup>1</sup> Model V3518 is a Standard Response FM sprinkler.

## 3.0 MATERIAL SPECIFICATIONS

**Deflector:** Brass

**Bulb:** Glass with glycerin solution

**Bulb Nominal Diameter:**

**Quick Response:** 3.0 mm

**Standard Response:** 5.0 mm

**Split Spacers:** Stainless steel

**Load Screw:** Brass

**Pip Cap:** Stainless steel

**Spring Seal Assembly:** PTFE tape coated beryllium nickel and stainless steel

**Frame:** Brass

**Flexible Hose:** Stainless steel

**Collar/Weld Fitting:** Stainless steel

**Gasket Seal:** Victaulic EPDM

**Isolation Ring:** Nylon

**Hose Fittings:** Carbon steel, zinc-plated

**Inlet Fitting:** Brass

**Outer Tube:** Stainless steel

**Concealed Cup:** Carbon steel, zinc-plated

**Brackets:** Carbon steel, zinc-plated

## 3.1 ACCESSORIES SPECIFICATIONS

**Sprinkler Finishes:**

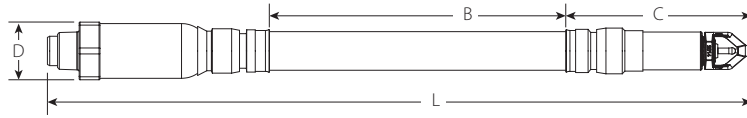
**Standard:** VC-250

White painted RAL 9010

## 4.0 DIMENSIONS

### Product Details and Optional Components

#### Style VS1 Dry Sprinkler

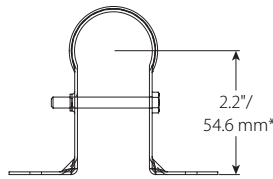
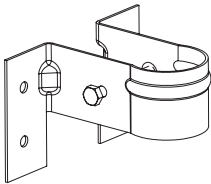


Sprinkler Length inches mm	Overall Length (pendent)	Live Length	Outlet End Length	Maximum OD
	L inches mm	B inches mm	C inches mm	D inches mm
38 965	39.2 995	25.1 638	6.5 165	2.2 56
50 1270	51.2 1300	37.1 943	6.5 165	2.2 56
58 1475	59.2 1505	45.1 1145	6.5 165	2.2 56

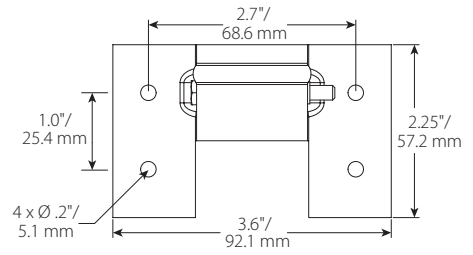
**NOTE**

- Add ½" to Overall Length and Outlet End Length for increased length of sidewall deflector

#### Style VB1 Bracket



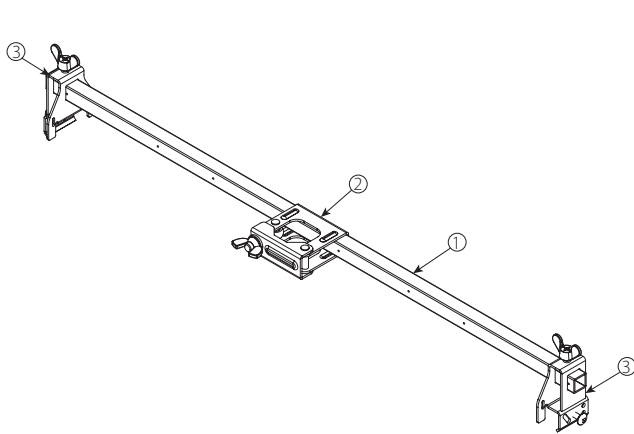
\*Note: Theoretical center point of sprinkler in bracket.



4.0 DIMENSIONS (CONTINUED)

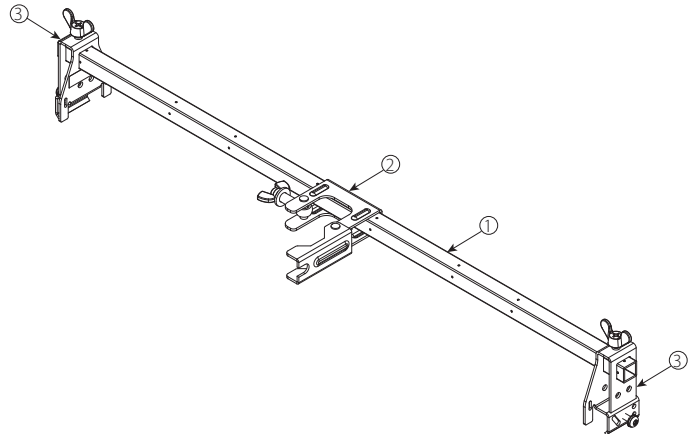
**Style VB2 Bracket**  
Recessed Pendent, Suspended Ceilings

Item	Description
1	24"/610 mm or 48"/1220 mm Square Bar
2	Patented 1-Bee Center Bracket
3	End Bracket



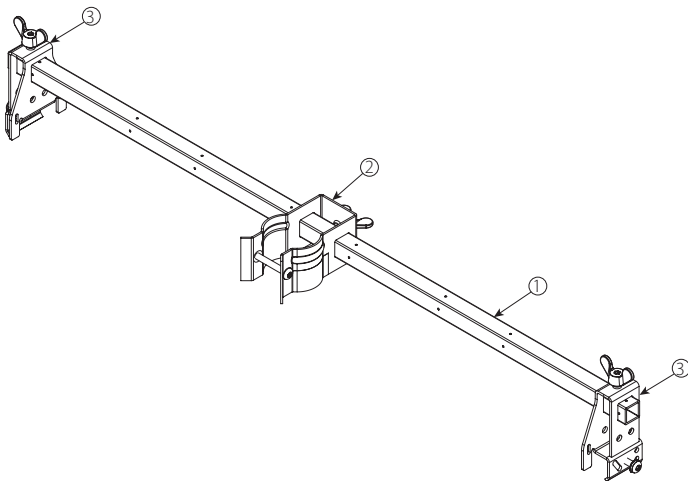
**Style VB3 Bracket**  
Concealed Pendent, Suspended Ceilings

Item	Description
1	24"/610 mm or 48"/1220 mm Square Bar
2	Patented 1-Bee Center Bracket
3	End Bracket



**Style VB4 Bracket**  
Sleeve and Skirt Pendent, Suspended Ceilings

Item	Description
1	24"/610 mm or 48"/1220 mm Square Bar
2	Center Bracket
3	End Bracket



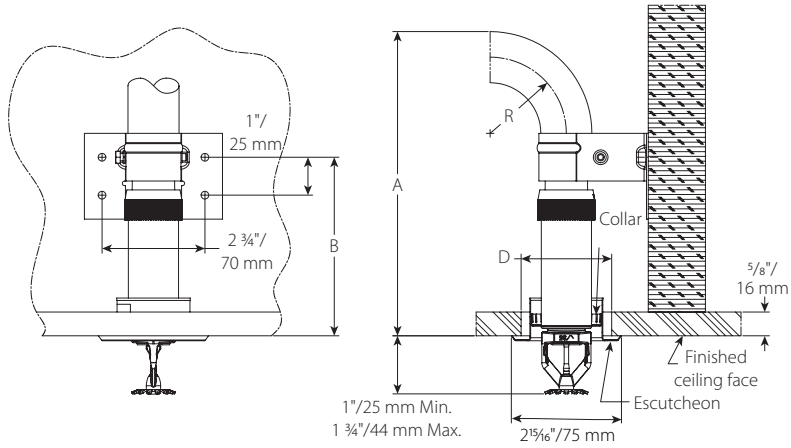
## 4.1 DIMENSIONS

### Sprinkler Finishes: Dimensions and Mounting Conditions

**NOTE**

- Drawings are shown with 5/8" finished ceiling thickness. Adjustments to "B" and "C" dimensions will be required if finished ceiling thickness deviate from drawing.

**Recessed Pendant:**



**Clearance Chart**

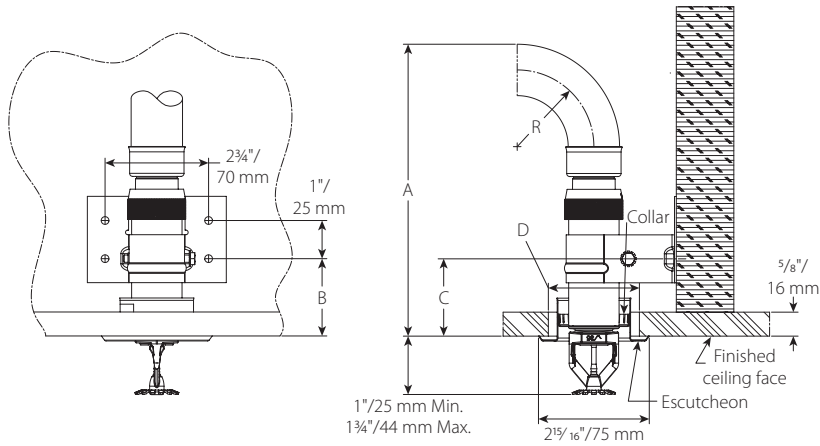
Dimension	inches	
	mm	
<b>"R" Minimum Bend Radius</b>	2 50	7 175
<b>"A" Minimum Required Installation Space</b>	7 5/8 193	12 5/8 320
<b>"B" Mounting Screw Hole Location</b>	4 3/4 119	
<b>Ceiling Hole Diameter "D"</b>	2 - 2 3/8 50 - 60	

**NOTE**

- Dimensions are shown with 3/4" escutcheon at middle of height adjustment range.

## 4.2 DIMENSIONS

### Recessed Pendant Alternative Bracket Location



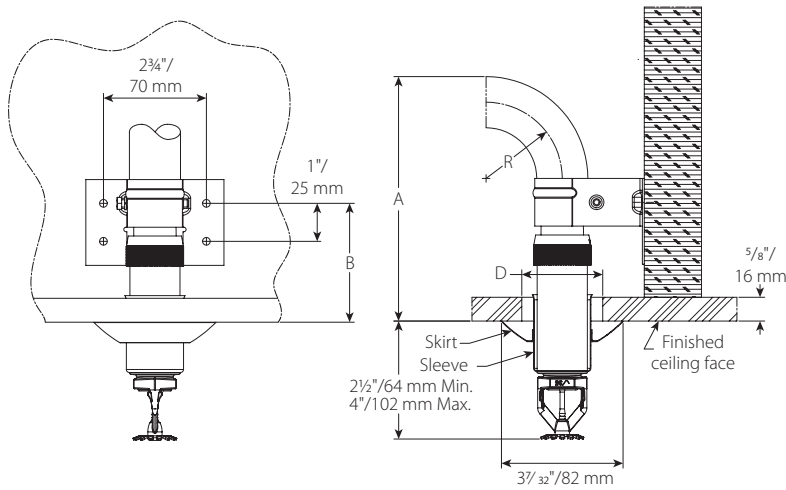
Clearance Chart		
Dimension	inches mm	
	"R" Minimum Bend Radius	2 50
"A" Minimum Required Installation Space	7 5/8 193	12 5/8 320
"B" Mounting Screw Hole Location	2 50	
Ceiling Hole Diameter "D"	2 - 2 3/8 50 - 60	

**NOTE**

- Dimensions are shown with 3/4" escutcheon at middle of height adjustment range.

### 4.3 DIMENSIONS

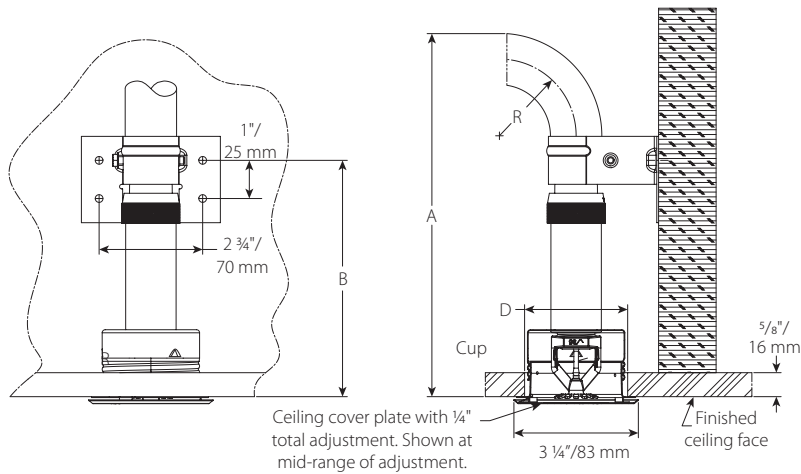
#### Sleeve and Skirt Pendant



Clearance Chart		
Dimension	inches mm	
"R" Minimum Bend Radius	2 50	7 175
"A" Minimum Required Installation Space	6 1/2 163	11 1/2 290
"B" Mounting Screw Hole Location	3 1/8 79	
Ceiling Hole Diameter "D"	1 3/4 - 2 1/8 44 - 54	

### 4.4 DIMENSIONS

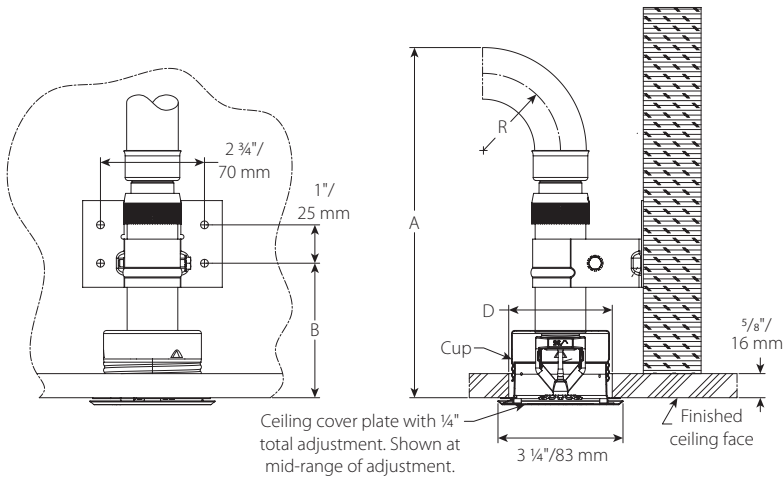
#### Concealed Pendant



Clearance Chart		
Dimension	inches mm	
"R" Minimum Bend Radius	2 50	7 175
"A" Minimum Required Installation Space	9 1/2 241	14 1/2 369
"B" Mounting Screw Hole Location	6 1/4 157	
Ceiling Hole Diameter "D"	2 5/8 - 2 3/4 67 - 70	

## 4.5 DIMENSIONS

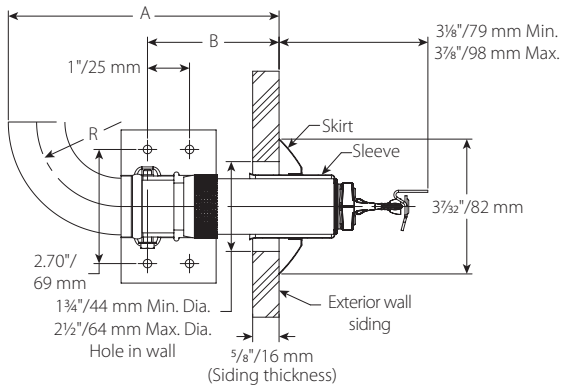
### Concealed Pendant Alternative Bracket Location



Clearance Chart		
Dimension	inches mm	
"R" Minimum Bend Radius	2 50	7 175
"A" Minimum Required Installation Space	9 1/8 231	14 1/8 358
"B" Mounting Screw Hole Location	3 1/2 89	
Ceiling Hole Diameter "D"	2 5/8 - 2 3/4 67 - 70	

## 4.6 DIMENSIONS

### Sleeve and Skirt Sidewall



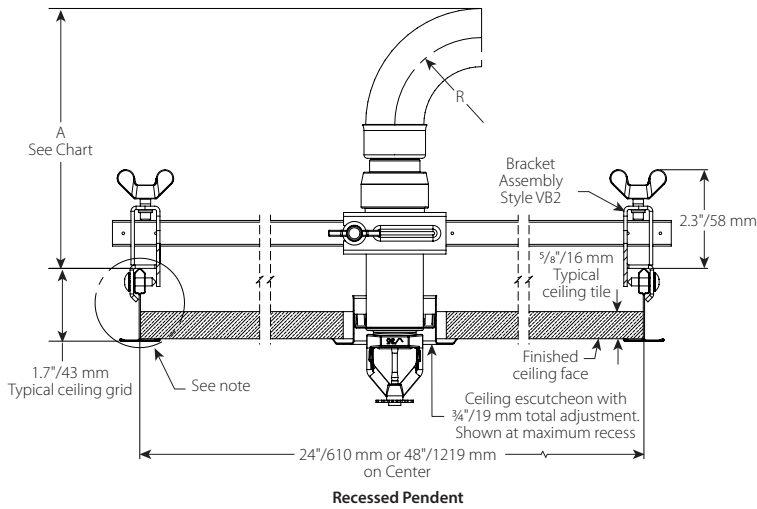
Clearance Chart		
Dimension	inches mm	
"R" Minimum Bend Radius	2 50	7 175
"A" Minimum Required Installation Space	6 1/2 163	11 1/2 290
"B" Mounting Screw Hole Location	3 1/8 79	
Ceiling Hole Diameter "D"	1 3/4 - 2 1/8 44 - 54	





## 4.9 DIMENSIONS

### VB2 Recessed Pendant



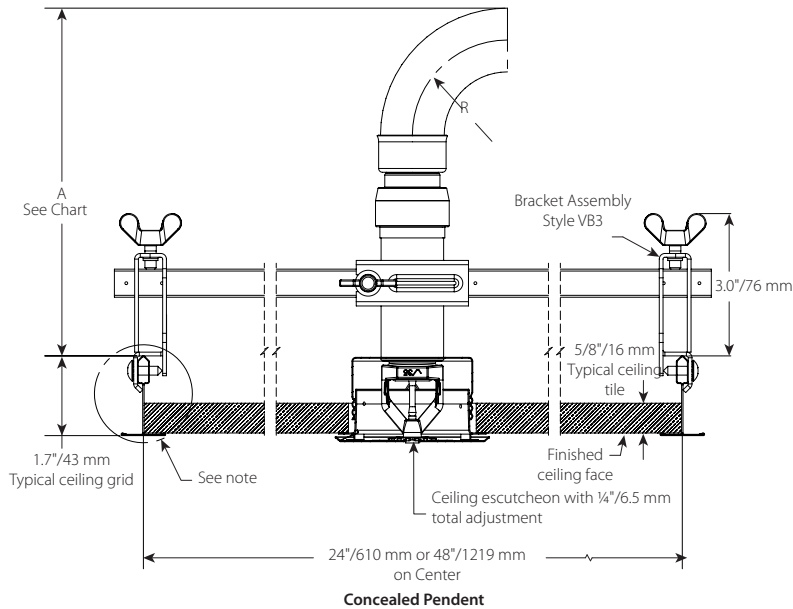
Clearance Chart		
Dimension	inches mm	
"R" Minimum Bend Radius	2	7
	50	175
"A" Minimum Required Installation Space	6½	11½
	163	290

**NOTE**

- Victaulic *VicFlex* Style VB2 Bracket assemblies shall be used only with Style VS1 recessed pendant sprinklers.

## 4.10 DIMENSIONS

### VB3 Concealed Pendant



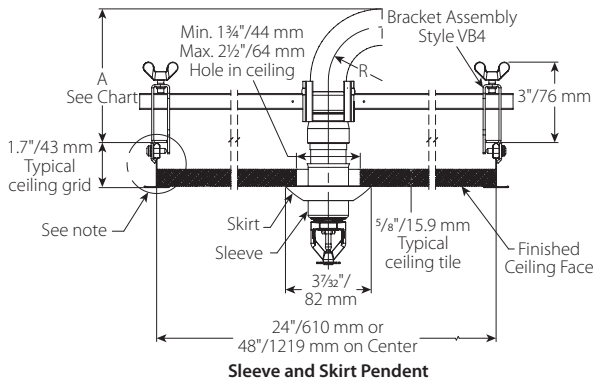
Clearance Chart		
Dimension	inches mm	
"R" Minimum Bend Radius	2	7
	50	175
"A" Minimum Required Installation Space	7¾	12¾
	193	320

**NOTE**

- Victaulic *VicFlex* Style VB3 Bracket assemblies shall be used only with Style VS1 concealed pendant sprinklers.

## 4.11 DIMENSIONS

### VB4 Sleeve and Skirt Pendant



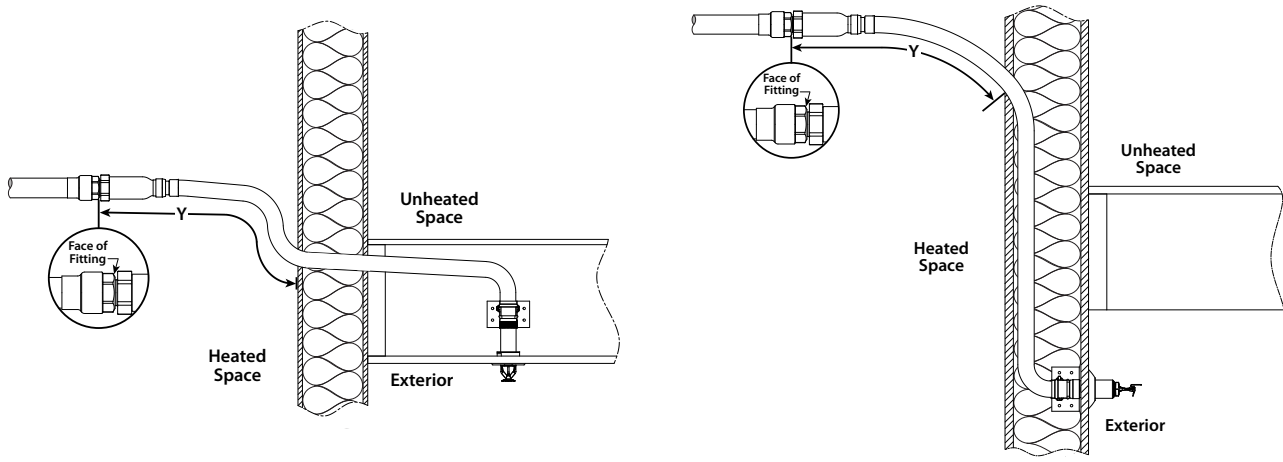
Clearance Chart		
Bend Radius		
	inches mm	inches mm
"R" Minimum Bend Radius	2 51	7 178
"A" Minimum Required Installation Space	5 127	10 254

**NOTE**

- Victaulic *VicFlex* Style VB2 Bracket assemblies shall be used only with Style VS1 recessed pendant sprinklers.

## 5.0 PERFORMANCE

### Freeze Protection



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

**NOTE**

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

### Maximum Allowable Number of Bends

Sprinkler Length inches mm	Maximum Allowable Number of 90° Bends at 2"/51mm Bend Radius for UL Listing	Maximum Allowable Number of 90° Bends at 7"/178mm Bend Radius for FM Approval
38 965	4	2
50 1270	4	3
58 1475	4	4

## 6.0 NOTIFICATIONS

### 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.
- Wear safety glasses, hardhat, and foot protection.

- These 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.
- 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.

### WARNING

- It is the responsibility of the system designer to verify suitability of 300-series stainless steel flexible hose for use with the intended fluid media within the piping system and external environments.
- The effect of chemical composition, pH level, operating temperature, chloride level, oxygen level, and flow rate on 300-series stainless steel flexible hose must be evaluated by the material specifier 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.

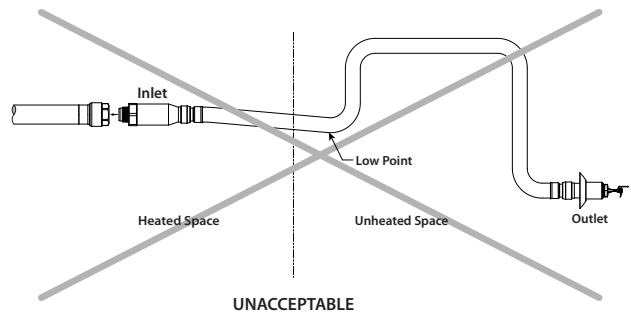
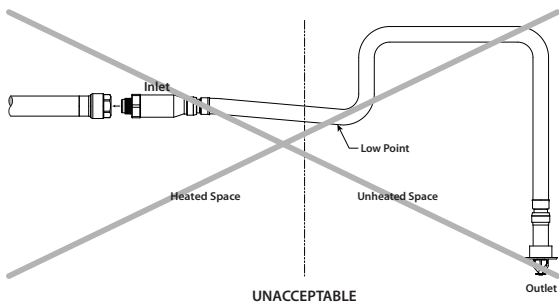
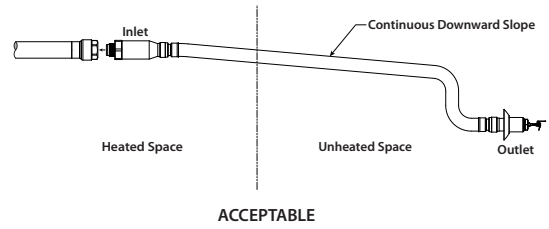
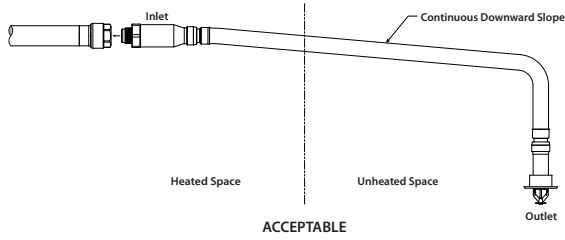
**Failure to follow these instructions could cause product failure, resulting in serious personal injury and/or property damage.**

DO NOT paint, coat, or firestop the outlet/inlet portion of the Style VS1 Dry Sprinkler. 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 Victaulic's installation instructions.

## 6.0 NOTIFICATIONS (CONTINUED)

### Important Installation Notes:

1. Shall be installed only in accordance with NFPA 13 Standard for the the Installation of Sprinkler Systems and applicable FM Data Sheets.
2. Install and tighten swivel hex nut at inlet of sprinkler fitting only.
3. Do not remove deflector or inlet end of sprinkler.



## 6.0 NOTIFICATIONS (CONTINUED)

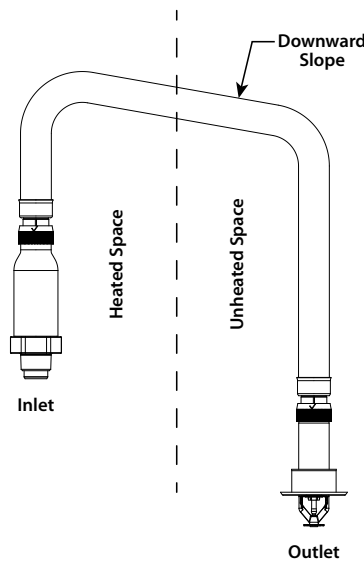
### FOR DRY SYSTEMS ONLY:

- 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.**

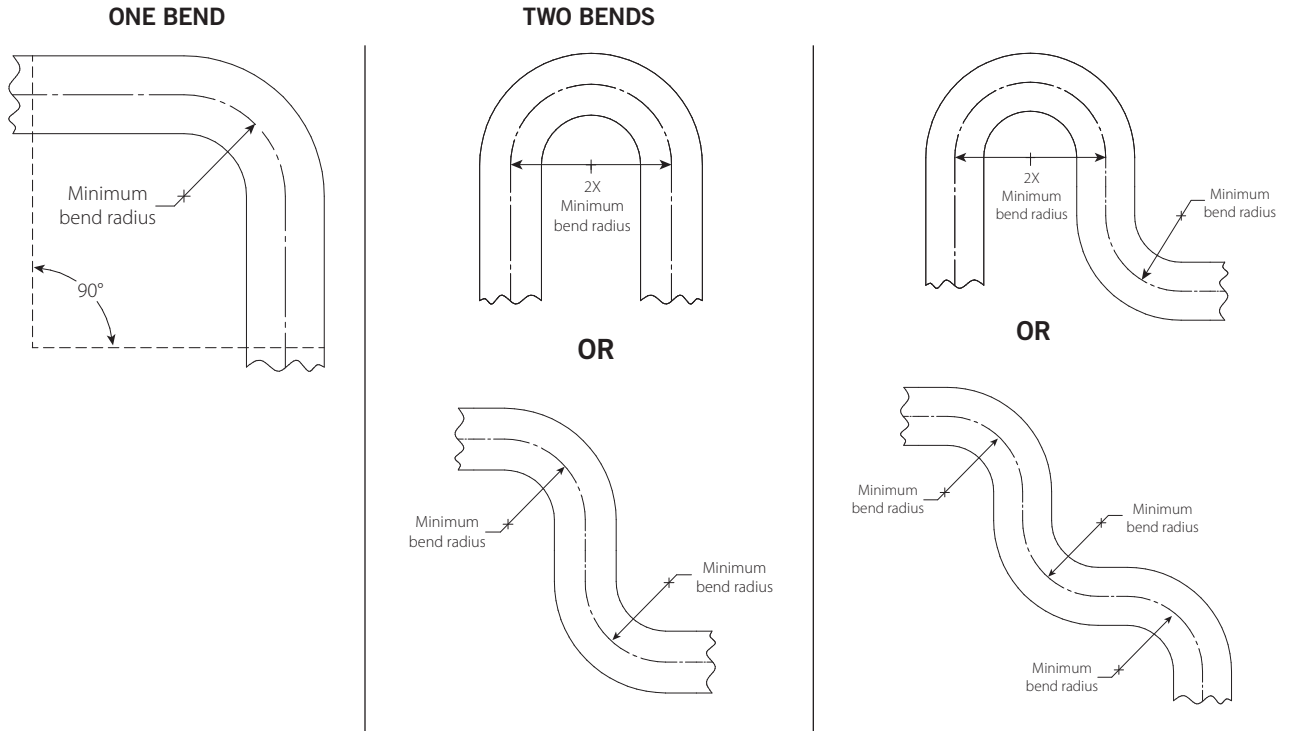


### FOR WET SYSTEMS ONLY:

- **DO NOT** install Victaulic® VicFlex™ Style VS1 Dry Sprinklers into any threaded elbow, threaded-by-thread coupling, or fitting that interferes with thread penetration. The inlet of the Victaulic® VicFlex™ 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 Victaulic® VicFlex™ 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 on page 1.

**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.**

## 7.0 REFERENCE MATERIALS



**NOTE**

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



7.0 REFERENCE MATERIALS

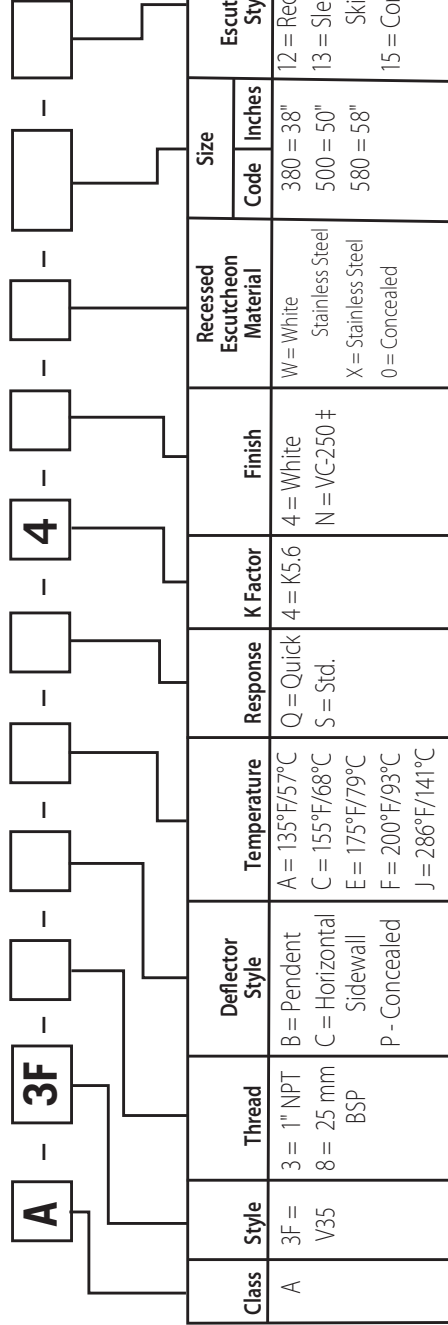
Order No.	Date
Company Name	
Address	
State/Province	
Zip Code/Postal Code	
Tag	

Ship To:

Company Name	
Address	
State/Province	Zip Code/Postal Code
Phone No.	Email
Fax No.	

Quantity (as specified below):  If units of different size, type or other option are required, please attach additional form(s) with their specification(s) separately.

**VicFlex™ Dry Sprinkler Model VS1**



‡ VC-250 sprinkler finish sold standard on the VicFlex Dry Sprinkler Model VS1.

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## 7.0 REFERENCE MATERIALS (CONTINUED)

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[29.01: Victaulic Terms and Conditions of Sale](#)

[I-VICFLEX.VS1: Victaulic® VicFlex™ Style VS1 Dry Sprinkler Installation Instructions](#)

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### User Responsibility for Product Selection and Suitability

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

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### Note

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

### Installation

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

### Warranty

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

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