

# Reliable®

## Model F1FR-FS Series Quick-Response Flat Spray Sprinklers

### Features

- Specially designed flat spray pattern
- Quick response glass bulb thermal element
- Low profile, compact design

### Product Description

Reliable Model F1FR-FS Series Sprinklers are designed for installation in accordance with CEA 4001 (Sprinkler Systems: Planning and Installation) or EN 12845 (Fixed fire fighting systems- Automatic sprinkler systems - Design, installation and maintenance). The flat spray pattern created by this sprinkler makes this an excellent choice for applications with lower clearance above ceilings and in racks.

Reliable Model F1FR-FS Series Sprinklers utilize a frangible 3.0mm glass bulb. The glass bulb consists of an accurately controlled amount of special fluid hermetically sealed inside of a precisely manufactured glass capsule. This glass bulb is specially constructed to provide fast thermal response.

At normal temperatures, the glass bulb contains the fluid in both the liquid phase and in the vapor phase. The vapor phase can be seen as a small bubble. As heat is applied, the liquid expands forcing the bubble smaller and smaller as the liquid pressure increases. Continued heating forces the liquid to push out against the bulb, causing the glass to shatter, opening the waterway and allowing the deflector to distribute the discharging water. The temperature rating of Reliable Model F1FR-FS Series Sprinklers is identified by the color of the liquid in the glass bulb thermal element in accordance with NFPA 13.

### Application

Reliable Model F1FR-FS Series Flat Spray Sprinklers are intended for use in concealed spaces, open suspended ceilings, and in racks in accordance with CEA 4001 (Sprinkler System Planning) and EN 12845 (Automatic Sprinkler Systems - Design, Installation, and Maintenance), as well as any authorities having jurisdiction over the project.



Model F1FR-FS



Model F1FR-FS with optional water shield. Water shields are used in applications where there are multiple levels of sprinklers. The shield will prevent lower level sprinklers from being wetted by upper level sprinklers.

### Model F1FR-FS Series Flat Spray Sprinkler Summary

Table A

Style	K-Factor gpm/psi <sup>1/2</sup> (L/min/bar <sup>1/2</sup> )	Orientation	Temperature Ratings °F (°C)	Max. Working Pressure psi (bar)	Listings & Approvals
F1FR-FS	4.2 (60)	Pendent	135 (57) 155 (68) 175 (79)	175 (12.1)	VdS: Certificate G414023 CE: Certificate 0786-CPD-40296
	5.6 (80)	Pendent	200 (93) 286 (141)		VdS: Certificate G4080047 CE: Certificate 0786-CPD-40242

## Model F1FR-FS Series Flat Spray Sprinkler

### Technical Specifications

**Style:** Pendent  
**Threads:** 1/2" NPT or ISO 7-1R1/2  
**Nominal K-Factor:** See Table A  
**Orifice:** Nominal 1/2" (15mm)  
**Max. Working Pressure:** 175 psi (12.1 bar)

### Material Specifications

**Thermal Sensor:** 3mm Glass Bulb  
**Sprinkler Frame:** Brass Alloy  
**Button/Cup:** Brass Alloy  
**Sealing Assembly:** Brass with PTFE  
**Load Screw:** Bronze  
**Deflector:** Bronze Alloy

### Sprinkler Finishes

Bronze

### Sensitivity

Quick Response

### Temperature Ratings

135°F (57°C)  
 155°F (68°C)  
 175°F (79°C)  
 200°F (93°C)  
 286°F (141°C)

### Listings and Approvals

VdS, CE (See Table A)

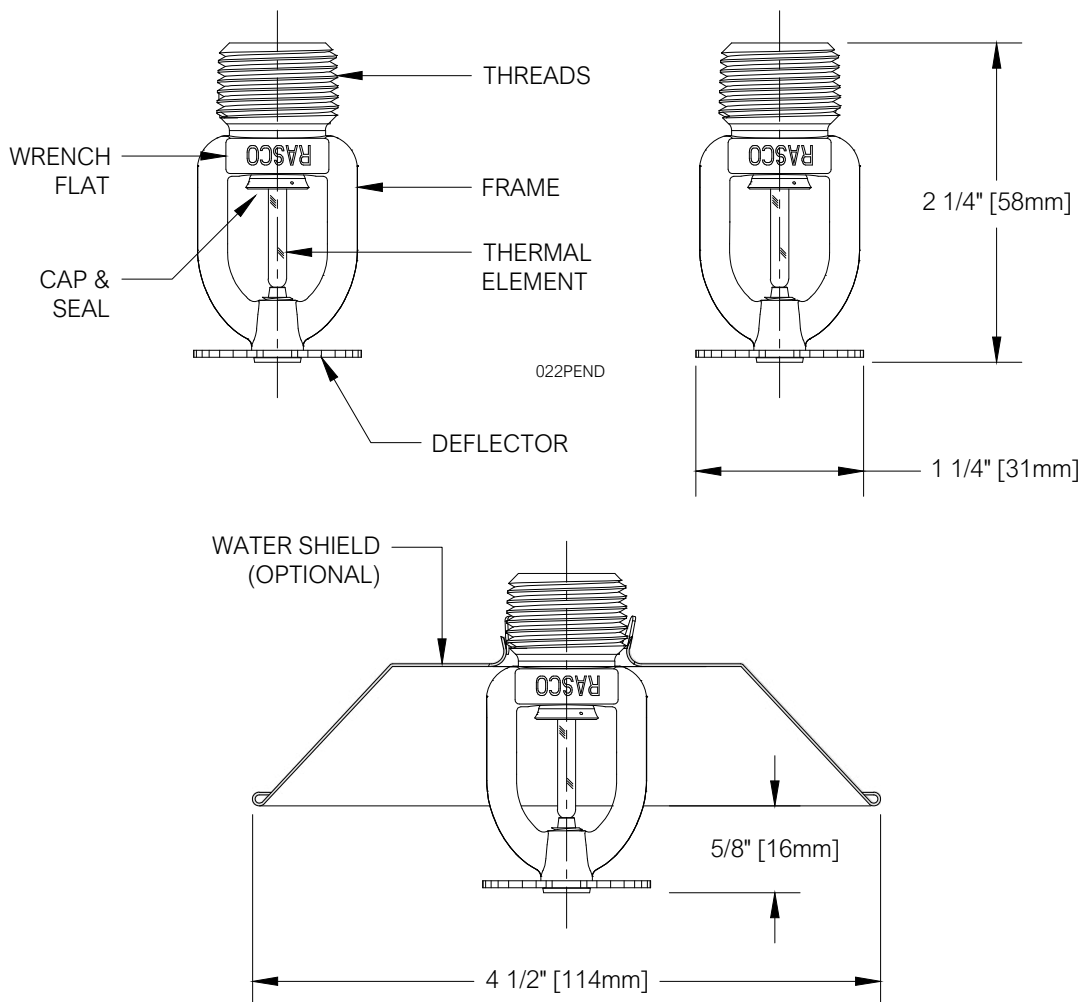
### Wrenches

W2 (pendent)  
 W4 (w/ shield)



## Model F1FR-FS Series Sprinkler Components and Dimensions

Figure 1



## Installation

Model F1FR-FS Series sprinklers must be installed in accordance with CEA 4001 and EN 12845, and the requirements of all applicable authorities having jurisdiction. Model F1FR-FS Series sprinklers must be installed with the Reliable sprinkler installation wrench identified in this Bulletin. Any other wrench may damage the sprinkler.

When installed without a water shield, the Model W2 wrench must be used. When installed with a water shield, the Model W4 wrench must be used. The Models W2 and W4 wrenches have two sets of jaws. Use the smallest set of jaws that fit on the wrench flats of the sprinkler. A leak tight sprinkler joint can be obtained with a torque of 8 to 18 lb-ft (11 to 24 N-m). Do not tighten sprinklers over the maximum recommended installation torque. Exceeding the maximum recommended installation torque may cause leakage or impairment of the sprinkler.

Glass bulb sprinklers have orange bulb protectors to minimize bulb damage during shipping, handling and installation. Reliable sprinkler installation wrenches are designed to install sprinklers with bulb protectors in place. Remove the bulb protector at the time when the sprinkler system is placed in service for fire protection. Removal of the bulb protector before this time may leave the bulb vulnerable to damage. Remove bulb protectors by undoing the clasp by hand. Do not use tools to remove bulb protectors.

## Maintenance

Reliable Model F1FR-FS Series sprinklers should be inspected and the sprinkler system maintained in accordance with NFPA 25, as well as the requirements of any Authorities Having Jurisdiction. Prior to installation, sprinklers should remain in the original cartons and packaging until used. This will minimize the potential for damage to sprinklers that could cause improper operation or non-operation.

Do not clean sprinklers with soap and water, ammonia liquid or any other cleaning fluids. Remove dust by gentle vacuuming without touching the sprinkler.

Replace any sprinkler which has been painted (other than factory applied). A stock of spare sprinklers should be maintained to allow quick replacement of damaged or operated sprinklers. Failure to properly maintain sprinklers may result in inadvertent operation or non-operation during a fire event.

## Guarantee

For the Reliable Automatic Sprinkler Co., Inc. guarantee, terms, and conditions, visit [www.reliablesprinkler.com](http://www.reliablesprinkler.com).

## Wrenches

Figure 3



## Ordering Information

### Specify:

#### Sprinkler

- Model F1FR-FS42 Sprinkler
- Model F1FR-FS56 Sprinkler

#### Temperature Rating

- 135°F (57°C)
- 155°F (68°C)
- 175°F (79°C)
- 200°F (93°C)
- 286°F (141°C)

#### End Connection

- 1/2 NPT
- ISO7-1R1/2 (BSPT)

#### Finish

- Bronze

#### Shield (Optional, order separately)

- Galvanized (PN 7U99001405)

**Note:** When shields are ordered, the sprinklers and shields are packaged separately.