



## Model F1FR LO K8.0 (115 metric) Quick Response Sprinklers

### Model F1FR LO Sprinkler Types

- Standard Spray Upright
- Standard Spray Pendent
- Conventional

### Model F1FR LO Recessed Sprinkler Types

- Recessed Standard Spray Pendent

For Model F1FR 1/2" K 5.6 (80), 4.2 (60) and 2.8 (40) Sprinkler Types refer to Bulletin 014 for technical specifications and approvals.

### Listings and Approvals

1. Listed by Underwriters Laboratories, Inc. (UL)
2. Listed by Underwriters' Laboratories of Canada (ULC)
3. Factory Mutual Approvals (FM)
4. Loss Prevention Council (LPCB, UK)
5. VdS Schadenverhütung GmbH
6. EC Certificate: 1438-CPD-0049 (R3612)  
1438-CPD-0048 (R3622)  
1438-CPD-0047 (R3672)

### UL Listing Category

Sprinklers, Automatic and Open  
Quick Response Sprinkler

### UL Guide Number

VNIV

### Product Description

Reliable Models F1FR LO and F1FR LO Recessed Sprinklers are quick response sprinklers which combine the durability of a standard sprinkler with the attractive low profile of a decorative sprinkler.

The Models F1FR LO and F1FR LO Recessed automatic sprinklers utilize a 3.0 mm frangible glass bulb. These sprinklers have demonstrated response times in laboratory tests which are five to ten times faster than standard response sprinklers. This quick response enables the Model F1FR LO and F1FR LO Recessed sprinklers to apply water to a fire much faster than standard sprinklers of the same temperature rating.

The glass bulb consists of an accurately controlled amount of special fluid hermetically sealed inside a precisely manufactured glass capsule. This glass bulb is specially constructed to provide fast thermal response. The balance of parts are made of brass, copper and beryllium nickel.

At normal temperatures, the glass bulb contains the fluid in both the liquid and vapor phases. The vapor phase can be seen as a small bubble. As heat is applied, the liquid expands, forcing



Upright



Pendent



Conventional



Recessed Pendent  
(Model FP Shown)

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 the sprinkler is identified by the color of the glass bulb.

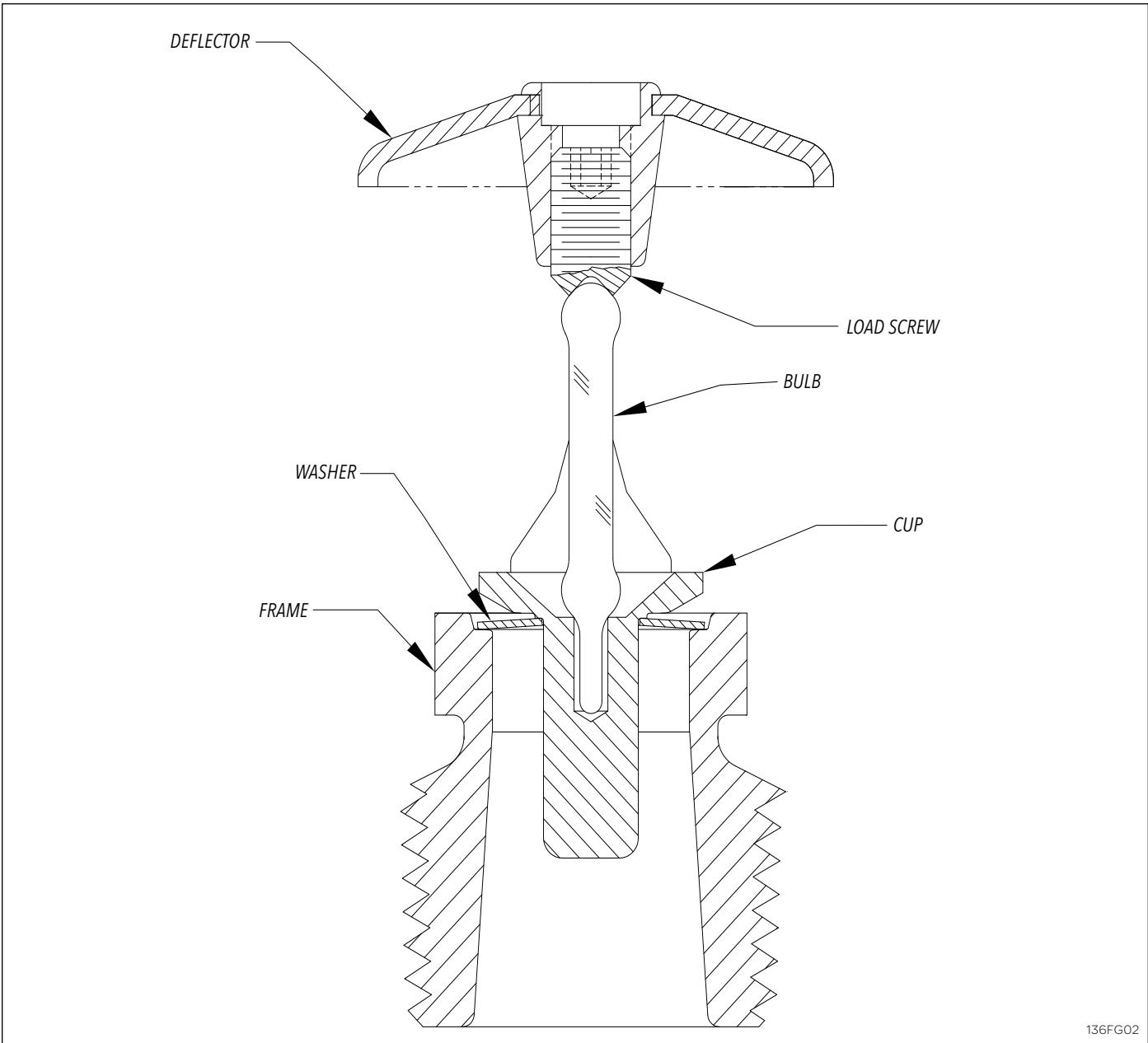
### Application

Quick response sprinklers are used in fixed fire protection systems: Wet, Dry, Deluge or Preaction. Care must be exercised that the orifice size, temperature rating, deflector style and sprinkler type are in accordance with the latest published standards of the National Fire Protection Association or the approving Authority Having Jurisdiction. Quick response sprinklers are intended for installation as specified in NFPA 13, FM Global Loss Prevention Data Sheet 2-8N or other applicable standards. Quick response sprinklers and standard response sprinklers should not be intermixed.

### Installation

Quick response sprinklers are intended for installation as specified in NFPA 13, FM Global Loss Prevention Data Sheet 2-8N or other applicable standards. Quick response sprinklers and standard response sprinklers should not be intermixed.

The Model F1FR LO Recessed Quick Response Sprinklers are to be installed as shown. The Model F1 or F2 Escutcheons illustrated are the only recessed escutcheons to be used with the Model F1FR LO Sprinklers. The use of any other recessed escutcheon will void all approvals and negate all warranties.



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**Technical data:**

Models	Response	Deflector Orientation	Nominal K-factor	Thread Size	Max. Working Pressure	Min. Working Pressure	Temperature Rating	Finish
F1FR LO	Quick Response	Upright Pendent Conventional	K 8.0 (115 metric)	3/4" NPT or ISO7-1R3/4	175 psi <sup>(1)</sup>	7 psi	See "Temperature Ratings" Table	See "Finish Table"

**Material Data:**

Frame	Deflector	Load Screw	Cup	Washer	Bulb
DZR Brass QM Brass	CDA Alloy 510	CDA Alloy 210, 220, 314, 316, 360 or CDA Alloy 544	CDA Alloy 314 or CDA Alloy 353	Nickel Alloy 440 or Alloy 360 coated with PTFE Adhesive Tape	Glass

See "Installation Data" table from page 3 for more details.

<sup>(1)</sup> Model F1FR LO Pendent, Recessed Pendent, and Upright sprinklers (SIN R3612 and R3622) are cULus Listed for 250 psi (17 bar).

# Model F1FR LO Quick Response Upright, Pendent and Conventional Sprinklers

Installation Wrench: Model D Sprinkler Wrench

Installation Data:

Sprinkler Type	Nominal K-factor		Sprinkler Height	Approval Organization	Sprinkler Identification Numbers (SIN)	
	US	Metric			SSU	SSP
<b>Standard-Upright (SSU) and pendent (SSP) Deflectors Marked to Indicate Position</b>						
17/32" (20 mm) Large Orifice with 3/4" NPT (R3/4) Thread	8.0	115	2.3" (58 mm)	1, 2, 3, 4, 5, 6	R3622 <sup>(1)(2)(3)</sup>	R3612 <sup>(2)(3)</sup>
<b>Conventional-Install in Upright or Pendent Position</b>						
20 mm Large Orifice with 3/4" NPT (R3/4) Thread	8.0	115	58 mm	4	R3672	

<sup>(1)</sup> Polyester coated upright UL and ULC listed corrosion resistant R3622.

<sup>(2)</sup> FM Approved for polyester coated sprinkler. R3622, R3612.

<sup>(3)</sup> Electroless Nickel PTFE Plated - cULus listed Corrosion Resistant



Upright



Pendent



Conventional

## Model F1FR LO Quick Response Recessed Pendent Sprinkler<sup>(1)</sup>

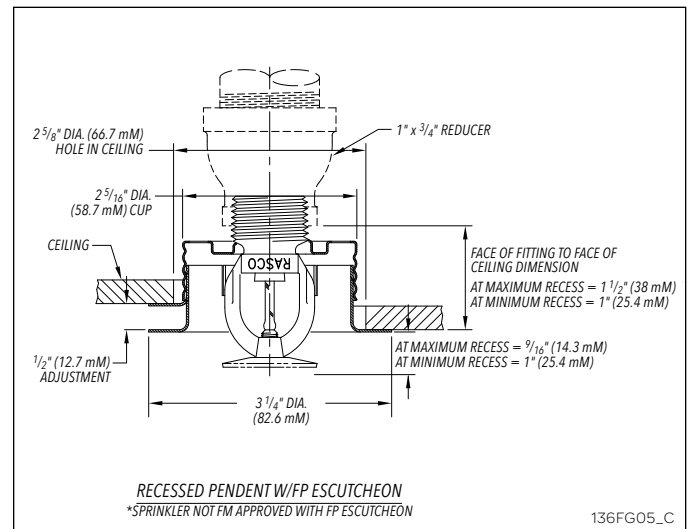
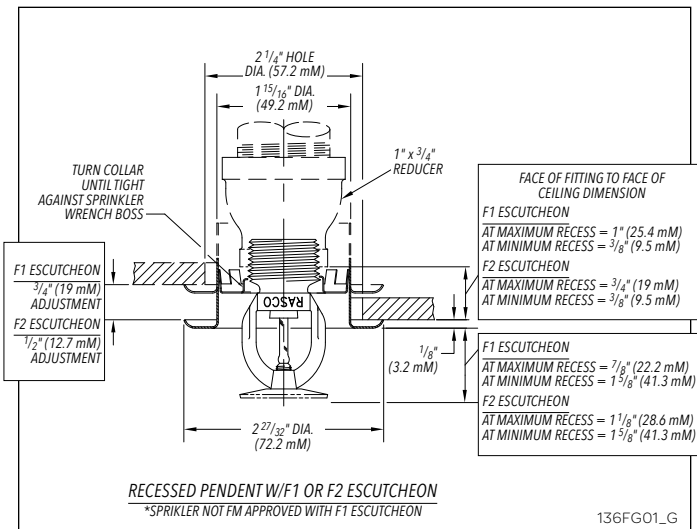
Installation Wrench: Model GFR2 Sprinkler Wrench

Installation Data:

Nominal Orifice	Thread Size "T"	Nominal K-factor		Sprinkler Height	Approval Organization <sup>(1)</sup>			Sprinkler Identification Numbers (SIN)
		US	Metric		F1	F2	FP	
17/32" (20 mm)	3/4" NPT (R3/4)	8.0	115	2.3" (58 mm)	1, 2	1, 2, 3	1, 2	R3612 <sup>(2)</sup>

<sup>(1)</sup> Refer to escutcheon data table for dimensions.

<sup>(2)</sup> Electroless Nickel PTFE Plated - cULus listed Corrosion Resistant



When installing Model F1FR LO Sprinklers, use the Model D Sprinkler Wrench. When installing Model F1FR LO Recessed Pendent or Sidewall Sprinklers, use the Model GFR1 Sprinkler Wrench. Any other type of wrench may damage these sprinklers.

**Note:** A leak tight 1/2" NPT (R 1/2) sprinkler joint can be obtained with a torque of 8 - 18 ft-lb (11 - 24 N-m). Do not tighten sprinklers over maximum recommended torque. It may cause leakage or impairment of the sprinklers.

Glass bulb sprinklers have orange bulb protectors to minimize bulb damage during shipping, handling and installation. REMOVE THIS PROTECTION AT THE TIME THE SPRINKLER SYSTEM IS PLACED IN SERVICE FOR FIRE PROTECTION. Removal of the protectors before this time may leave the bulb vulnerable to damage. RASCO wrenches are designed to install sprinklers when covers are in place. REMOVE PROTECTORS BY UNDOING THE CLASP BY HAND. DO NOT USE TOOLS TO REMOVE THE PROTECTORS.

### Temperature Ratings

Classification	Sprinkler Temperature		Maximum Ambient Temperature		Bulb Color
	°F	°C	°F	°C	
Ordinary	135	57	100	38	Orange
Ordinary	155	68	100	38	Red
Intermediate	175	79	150	66	Yellow
Intermediate	200	93	150	66	Green
High <sup>(1)</sup>	286	141	225	107	Blue

<sup>(1)</sup> Not Available for recessed sprinklers.

### Maintenance

The Models F1FR LO and F1FR LO Recessed Sprinklers should be inspected and the sprinkler system maintained in accordance with NFPA 25. Do not clean sprinklers with soap and water, ammonia or any other cleaning fluids. Remove dust by using a soft brush or gentle vacuuming. Remove any sprinkler which has been painted (other than factory applied) or damaged in any way. A stock of spare sprinklers should be maintained to allow quick replacement of damaged or operated sprinklers. Prior to installation, sprinklers should be maintained in the original cartons and packaging until used to minimize the potential for damage to sprinklers that would cause improper operation or non-operation.

### Sprinkler Types

Standard Upright	Conventional
Standard Pendent	Recessed Pendent

### Finishes <sup>(1)(2)</sup>

Standard Finishes	
Sprinkler	Escutcheon
Bronze Chrome Plated White Polyester Coated <sup>(4)(5)</sup>	Brass Chrome Plated <sup>(3)</sup> White Painted <sup>(3)</sup>
Special Application Finishes	
Sprinkler	Escutcheon
Electroless Nickel PTFE <sup>(6)</sup> Bright Brass Black Plated Black Paint Off White Satin Chrome	Electroless Nickel PTFE Bright Brass Black Plated Black Paint Off White Chrome Dull

- <sup>(1)</sup> Other finishes and colors are available on special order. Consult the factory for details.
- <sup>(2)</sup> FM Approvals is limited to bronze and brass, chrome or black plated finishes only.
- <sup>(3)</sup> FP Push-on/Thread-off escutcheon.
- <sup>(4)</sup> cULus listed corrosion resistance. SIN R3622.
- <sup>(5)</sup> FM Approved for SIN R3622, R3612
- <sup>(6)</sup> cULus listed corrosion resistant SIN R3622 & R3612

**Note:** For 1/2" orifice pendent FM approved white polyester coated, cULus listed white and black polyester and Electroless Nickel PTFE Plated corrosion resistant sprinklers refer to bulletin 014.

### Maximum Working Pressure

175 psi (12 bar)  
SIN R3612 & R3622 cULus listed for 250 psi (17 bar)  
100% Factory tested hydrostatically to 500 psi (34.5 bar)

### Ordering Information

#### Specify:

1. Sprinkler Model
2. Sprinkler Type
3. Orifice Size
4. Deflector Type
5. Temperature Rating
6. Sprinkler Finish
7. Escutcheon Type
8. Escutcheon Finish (where applicable)

**Note:** When Model F1FR LO Recessed sprinklers are ordered, the sprinklers and escutcheons are packaged separately.

The equipment presented in this bulletin is to be installed in accordance with the latest published Standards of the National Fire Protection Association, Factory Mutual Research Corporation, or other similar organizations and also with the provisions of governmental codes or ordinances whenever applicable. Products manufactured and distributed by Reliable have been protecting life and property for over 90 years, and are installed and serviced by the most highly qualified and reputable sprinkler contractors located throughout the United States, Canada and foreign countries.

Manufactured by



#### The Reliable Automatic Sprinkler Co., Inc.

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Revision lines indicate updated or new data.