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 ½” K 5.6 (80), 4.2 (60) & 2.8 (40) Sprinkler Types refer to Bulletin 014 for technical specifications and approvals.

Listings & 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. Verband der Schadenversicherer Gmbh
6. EC Certificate: 1438-CPD-0049 (R3612)
   1438-CPD-0048 (R3622)
   1438-CPD-0047 (R3672)

UL Listing Category
Sprinklers, Automatic & Open
Quick Response Sprinkler

ULGuide 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 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 2-0 or other applicable standards. Quick response sprinklers and standard response sprinklers should not be intermixed.

Installation
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.

When installing Model F1FR LO Sprinklers, use the Model D Sprinkler Wrench or Model W2 Sprinkler Wrench. When installing Model F1FR LO Recessed Pendent or Sidewall Sprinklers, use the Model GFR2 Sprinkler Wrench. Any other type of wrench may damage these sprinklers.
### Technical data:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>F1FR LO</td>
<td>Quick Response</td>
<td>Upright Pendent</td>
<td>K 8.0 (115 metric)</td>
<td>¾” NPT or ISO7-1R¾</td>
<td>175 psi (1)</td>
<td>7 psi</td>
<td>See &quot;Temperature Ratings&quot; Table</td>
<td>See &quot;Finish Table&quot;</td>
</tr>
</tbody>
</table>

### Material Data:

<table>
<thead>
<tr>
<th>Frame</th>
<th>Deflector</th>
<th>Load Screw</th>
<th>Cup</th>
<th>Washer</th>
<th>Bulb</th>
</tr>
</thead>
<tbody>
<tr>
<td>DZR Brass</td>
<td>CDA Alloy 510</td>
<td>CDA Alloy 210, 220, 314, 316, 360 or CDA Alloy 544</td>
<td>CDA Alloy 314 or CDA Alloy 353</td>
<td>Nickel Alloy 440 or Alloy 360 coated with PTFE Adhesive Tape</td>
<td>Glass</td>
</tr>
</tbody>
</table>

See “Installation Data” tables for additional information on each sprinkler model.

(1) 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 & Conventional Sprinklers

Installation Wrench: Model D Sprinkler Wrench or Model W2 Sprinkler Wrench

Installation Data:

<table>
<thead>
<tr>
<th>Sprinkler Type</th>
<th>Nominal K-Factor</th>
<th>Sprinkler Height</th>
<th>Approval Organization</th>
<th>Sprinkler Identification Numbers (SIN)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>US</td>
<td>Metric</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard-Upright (SSU) and pendent (SSP) Deflectors Marked to Indicate Position</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17/32&quot; (20mm) Large Orifice with ¾&quot; NPT (R¾) Thread</td>
<td>8.0</td>
<td>115</td>
<td>2.3&quot; (58mm)</td>
<td>1,2,3,4,5,6</td>
</tr>
<tr>
<td>20mm Large Orifice with ¾&quot; NPT (R¾) Thread</td>
<td>8.0</td>
<td>115</td>
<td>58mm</td>
<td>4</td>
</tr>
</tbody>
</table>

(1) Polyester coated upright UL and ULC listed corrosion resistant R3622.  
(2) FM Approved for polyester coated sprinkler, R3622, R3612.  
(3) Electroless Nickel PTFE Plated - FM Approved/cULus Listed Corrosion Resistant

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Model F1FR LO Quick Response Recessed Pendent Sprinkler

Installation Wrench: Model GFR2 Sprinkler Wrench

Installation Data:

<table>
<thead>
<tr>
<th>Nominal Orifice</th>
<th>Thread Size “T”</th>
<th>Nominal K-Factor</th>
<th>Sprinkler Height</th>
<th>Approval Organization</th>
<th>Sprinkler Identification Numbers (SIN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>17/32&quot; (20mm)</td>
<td>¾&quot; NPT (R¾)</td>
<td>8.0</td>
<td>115</td>
<td>2.3&quot; (58mm)</td>
<td>1,2,3,4,5,6</td>
</tr>
</tbody>
</table>

(1) Refer to escutcheon data table for dimensions.  
(2) Electroless Nickel PTFE Plated - FM Approved/cULus Listed Corrosion Resistant

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Upright

Pendent

Conventional

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Pressurized Pendent W/ or w/ Escutcheon

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Pressurized Pendent W/ or w/ Escutcheon
Note: A leak tight ½” NPT (R½) sprinkler joint can be obtained with a torque of 8 - 18 ft-lbs (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

<table>
<thead>
<tr>
<th>Classification</th>
<th>Sprinkler Temperature</th>
<th>Maximum Ambient Temperature</th>
<th>Bulb Color</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>°F</td>
<td>°C</td>
<td>°F</td>
</tr>
<tr>
<td>Ordinary</td>
<td>135</td>
<td>57</td>
<td>100</td>
</tr>
<tr>
<td>Ordinary</td>
<td>155</td>
<td>68</td>
<td>100</td>
</tr>
<tr>
<td>Intermediate</td>
<td>175</td>
<td>79</td>
<td>150</td>
</tr>
<tr>
<td>Intermediate</td>
<td>200</td>
<td>93</td>
<td>150</td>
</tr>
<tr>
<td>High</td>
<td>286</td>
<td>141</td>
<td>225</td>
</tr>
</tbody>
</table>

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. Replace 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
Standard Pendent
Conventional
Recessed Pendent

Finishes\(^{(1)(2)}\)

<table>
<thead>
<tr>
<th>Standard Finishes</th>
<th>Escutcheon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sprinkler</td>
<td>Escutcheon</td>
</tr>
<tr>
<td>Bronze Chrome Plated</td>
<td>Brass Chrome Plated</td>
</tr>
<tr>
<td>White Polyester Coated(^{(3)(4)})</td>
<td>White Painted (^{(3)})</td>
</tr>
</tbody>
</table>

Special Application Finishes

<table>
<thead>
<tr>
<th>Sprinkler</th>
<th>Escutcheon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electroless Nickel PTFE(^{(6)})</td>
<td>Electroless Nickel PTFE</td>
</tr>
<tr>
<td>Bright Brass</td>
<td>Bright Brass</td>
</tr>
<tr>
<td>Black Plated</td>
<td>Black Plated</td>
</tr>
<tr>
<td>Black Paint(^{(5)})</td>
<td>Black Paint</td>
</tr>
<tr>
<td>Off White(^{(5)})</td>
<td>Off White</td>
</tr>
<tr>
<td>Satin Chrome</td>
<td>Chrome Dull</td>
</tr>
</tbody>
</table>

\(^{(1)}\) Other finishes and colors are available on special order. Consult the factory for details.

\(^{(2)}\) FM Approvals is limited to bronze and brass, chrome or black plated finishes only.

\(^{(3)}\) FP Push-on/Thread-off escutcheon.

\(^{(4)}\) cULus listed corrosion resistance. SIN R3622.

\(^{(5)}\) FM Approved for SIN R3622, R3612.

\(^{(6)}\) cULus listed corrosion resistant SIN R3622 & R3612

Note: For \(\frac{1}{2}”\) 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.