Features

- cULus Listed Residential Sprinklers
- Available in pendent and horizontal sidewall orientations
- Decorative finishes available, including recessed escutcheons and conical concealed cover plates

Product Description

Model F1Res Series sprinklers are residential sprinklers with a 3 mm glass bulb operating element. A variety of K-Factors as well as recessed and conical concealed options are available as detailed in this Bulletin.

The F1Res Series sprinklers are specially engineered for fast thermal response to meet the requirements of UL 1626. They are intended for installation in accordance with NFPA 13, 13R, and 13D.

Application

The Model F1Res Series sprinklers cULus Listed Residential sprinklers are intended for use in accordance with NFPA 13, NFPA 13R, or NFPA 13D. The Model F1Res residential sprinklers are cULus Listed for use in residential occupancies and residential portions of any occupancy, where permitted by NFPA 13, NFPA 13R, or NFPA 13D. For NFPA 13R and NFPA 13D applications, the design flow and pressure shall not be less than the minimum flow and pressure specified in the Listed Design Criteria tables in this Bulletin. For NFPA 13 applications, the design density shall be a minimum of 0.1 gpm/sf (4.1 mm/min), but in no case shall the flow and pressure be less than the minimum flow and pressure specified in the Listed Design Criteria tables in this bulletin. Model F1Res Series sprinklers are listed for use in wet systems only.

Residential Sprinkler Summary

<table>
<thead>
<tr>
<th>Sprinkler Model</th>
<th>Sprinkler Identification Number (SIN)</th>
<th>Orientation</th>
<th>K-Factor gpm/psi(1/2) (lpm/bar(1/2))</th>
<th>Thread Size NPT or ISO7-1</th>
<th>Installation Options</th>
<th>Max. Coverage Area ft x ft (m x m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1Res30</td>
<td>R3511</td>
<td>Pendent</td>
<td>3.0 (43)</td>
<td>1/2</td>
<td>Pendent or Recessed</td>
<td>16 x 16 (4.9 x 4.9)</td>
</tr>
<tr>
<td>F1Res49</td>
<td>R3516</td>
<td>Pendent</td>
<td>4.9 (71)</td>
<td>1/2</td>
<td>Pendent or Recessed</td>
<td>20 x 20 (6.1 x 6.1)</td>
</tr>
<tr>
<td>F1Res58</td>
<td>R3513</td>
<td>Pendent</td>
<td>5.8 (84)</td>
<td>1/2</td>
<td>Pendent or Recessed</td>
<td>20 x 20 (6.1 x 6.1)</td>
</tr>
<tr>
<td>F1Res76</td>
<td>R7618</td>
<td>Pendent</td>
<td>7.6 (109)</td>
<td>3/4</td>
<td>Pendent or Recessed</td>
<td>20 x 20 (6.1 x 6.1)</td>
</tr>
<tr>
<td>F1Res30 CCP</td>
<td>R3511</td>
<td>Pendent</td>
<td>3.0 (43)</td>
<td>1/2</td>
<td>Conical Concealed or Recessed</td>
<td>14 x 14 (4.3 x 4.3)</td>
</tr>
<tr>
<td>F1Res49 CCP</td>
<td>R3516</td>
<td>Pendent</td>
<td>4.9 (71)</td>
<td>1/2</td>
<td>Conical Concealed or Recessed</td>
<td>20 x 20 (6.1 x 6.1)</td>
</tr>
<tr>
<td>F1Res58 CCP</td>
<td>R3513</td>
<td>Pendent</td>
<td>5.8 (84)</td>
<td>1/2</td>
<td>Conical Concealed or Recessed</td>
<td>20 x 20 (6.1 x 6.1)</td>
</tr>
<tr>
<td>F1Res76 CCP</td>
<td>R7618</td>
<td>Pendent</td>
<td>7.6 (109)</td>
<td>3/4</td>
<td>Conical Concealed or Recessed</td>
<td>20 x 20 (6.1 x 6.1)</td>
</tr>
<tr>
<td>F1Res44 HSW</td>
<td>R3531</td>
<td>Horizontal Sidewall</td>
<td>4.4 (63)</td>
<td>1/2</td>
<td>Recessed</td>
<td>16 x 20 (4.9 x 6.1)</td>
</tr>
<tr>
<td>F1Res44 SWC</td>
<td>R3531</td>
<td>Horizontal Sidewall</td>
<td>4.4 (63)</td>
<td>1/2</td>
<td>Conical Concealed</td>
<td>16 x 20 (4.9 x 6.1)</td>
</tr>
<tr>
<td>F1Res58 HSW</td>
<td>R3533</td>
<td>Horizontal Sidewall</td>
<td>5.8 (84)</td>
<td>1/2</td>
<td>Recessed</td>
<td>16 x 20 (4.9 x 6.1)</td>
</tr>
<tr>
<td>F1Res58 HSWX</td>
<td>RA3533</td>
<td>Horizontal Sidewall</td>
<td>5.8 (84)</td>
<td>1/2</td>
<td>Recessed</td>
<td>14 x 26 (4.3 x 7.9)</td>
</tr>
</tbody>
</table>
**Technical Specifications**

**Style:** Pendent and Recessed Pendent  
**Threads:** 1/2” NPT or ISO7-1R1/2  
**Nominal K-Factor:** 3.0 (43 metric)  
**Max. Working Pressure:** 175 psi (12 bar)

**Material Specifications**

**Thermal Sensor:** 3 mm glass bulb  
**Sprinkler Frame:** Brass Alloy  
**Button:** Copper Alloy  
**Sealing Assembly:** Nickel Alloy with PTFE  
**Load Screw:** Bronze Alloy  
**Deflector:** Bronze Alloy

**Finishes**

*(See Table N)*

**Temperature Ratings**

155°F (68°C)  
175°F (79°C)

**Recessed Escutcheons**

F2 Recessed  
FV Recessed*

**Sprinkler Wrenches**

Model W2  
Model GFR2 (Recessed)

* Model FV escutcheons are not for use in positively pressurized ceiling plenums.

---

### Model F1Res30 Residential Pendent Sprinkler Components and Installation Dimensions

**Components**

- Threads  
- Wrench Flat  
- Sealing Assembly  
- Glass Bulb  
- Load Screw  
- Deflector

**Dimensions**

- Face of fitting to finished ceiling: 2-1/4" (57 mm)  
- 1-15/16" (49 mm) DIA  
- 1-3/4" (44 mm) +/- 1/4" (6 mm)

**F2 & FV Recessed Escutcheon Installation**

---

### Model F1Res30 Residential Pendent Sprinkler Hydraulic Design Criteria

**Table B**

<table>
<thead>
<tr>
<th>Maximum Coverage Area</th>
<th>Flow (gpm/l/min)</th>
<th>Pressure (psi/bar)</th>
<th>Deflector to Ceiling Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>ft. x ft. (m x m)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 x 12 (3.7 x 3.7)</td>
<td>8 (30)</td>
<td>7.0 (0.48)</td>
<td>1 to 4 inches (25 to 100 mm)</td>
</tr>
<tr>
<td>14 x 14 (4.3 x 4.3)</td>
<td>10 (38)</td>
<td>11.0 (0.76)</td>
<td></td>
</tr>
<tr>
<td>15 x 15 (4.6 x 4.6)</td>
<td>12 (45)</td>
<td>16.0 (1.1)</td>
<td></td>
</tr>
<tr>
<td>16 x 16 (4.9 x 4.9)</td>
<td>13 (49)</td>
<td>18.8 (1.3)</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**

1. For NFPA 13 installations the flow per sprinkler must be the greater of: (1) the flow listed in the table above or (2) the flow required to achieve a minimum design density of 0.1 gpm/sq ft over the design area of the sprinkler.

2. For coverage area dimensions less than those listed above, use the minimum required flow for the next larger max. coverage area listed.
**Model F1Res49 Residential Sprinkler & Models F1, F2, & FV Escutcheons**

**Technical Specifications**
- **Style:** Pendent and Recessed Pendent
- **Threads:** 1/2" NPT or ISO7-1R1/2
- **Nominal K-Factor:** 4.9 (71 metric)
- **Max. Working Pressure:** 175 psi (12 bar)

**Material Specifications**
- **Thermal Sensor:** 3 mm glass-bulb
- **Sprinkler Frame:** Brass Alloy
- **Button:** Copper Alloy
- **Sealing Assembly:** Nickel Alloy with PTFE
- **Load Screw:** Bronze Alloy
- **Deflector:** Bronze Alloy

**Finishes**
(See Table N)

**Temperature Ratings**
- 155°F (68°C)
- 175°F (79°C)

**Recessed Escutcheons**
- F1 Recessed
- F2 Recessed
- FV Recessed*

**Sprinkler Wrenches**
- Model W2
- Model GFR2 (Recessed)

* Model FV escutcheons are not for use in positively pressurized ceiling plenums.

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**Model F1Res49 Residential Pendent Sprinkler Components and Installation Dimensions**

**Dimensions**

**F1 Recessed Escutcheon Installation**

**F2 & FV Recessed Escutcheon Installation**

---

**Model F1Res49 Residential Pendent Sprinkler Hydraulic Design Criteria**

### Minimum Flow and Residual Pressure in Wet Pipe Systems

<table>
<thead>
<tr>
<th>Maximum Coverage Area ft. x ft. (m x m)</th>
<th>Flow gpm (l/min)</th>
<th>Pressure psi (bar)</th>
<th>Deflector to Ceiling Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 x 12 (3.7 x 3.7)</td>
<td>13 (49)</td>
<td>7.0 (0.48)</td>
<td>1 to 4 inches (25 to 100 mm)</td>
</tr>
<tr>
<td>14 x 14 (4.3 x 4.3)</td>
<td>13 (49)</td>
<td>7.0 (0.48)</td>
<td></td>
</tr>
<tr>
<td>16 x 16 (4.9 x 4.9)</td>
<td>13 (49)</td>
<td>7.0 (0.48)</td>
<td></td>
</tr>
<tr>
<td>18 x 18 (5.5 x 5.5)</td>
<td>17 (64)</td>
<td>12.0 (0.83)</td>
<td></td>
</tr>
<tr>
<td>20 x 20 (6.1 x 6.1)</td>
<td>20 (76)</td>
<td>16.7 (1.15)</td>
<td></td>
</tr>
<tr>
<td>12 x 12 (3.7 x 3.7)</td>
<td>15 (57)</td>
<td>9.4 (0.65)</td>
<td></td>
</tr>
<tr>
<td>14 x 14 (4.3 x 4.3)</td>
<td>16 (61)</td>
<td>10.7 (0.74)</td>
<td></td>
</tr>
<tr>
<td>16 x 16 (4.9 x 4.9)</td>
<td>17 (64)</td>
<td>12.0 (0.83)</td>
<td></td>
</tr>
<tr>
<td>18 x 18 (5.5 x 5.5)</td>
<td>19 (72)</td>
<td>15.0 (1.03)</td>
<td></td>
</tr>
<tr>
<td>20 x 20 (6.1 x 6.1)</td>
<td>22 (83)</td>
<td>20.2 (1.39)</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
1. For NFPA 13 installations the flow per sprinkler must be the greater of: (1) the flow listed in the table above or (2) the flow required to achieve a minimum design density of 0.1 gpm/sq ft over the design area of the sprinkler.
2. For coverage area dimensions less than those listed above, use the minimum required flow for the next larger max. coverage area listed.
Model F1Res58 Residential Pendent Sprinkler & F1, F2, & FV Recessed Escutcheons

Technical Specifications

**Style:** Pendent and Recessed Pendent
**Threads:** 1/2" NPT or ISO7-1R1/2
**Nominal K-Factor:** 5.8 (84 metric)
**Max. Working Pressure:** 175 psi (12 bar)

Material Specifications

**Thermal Sensor:** 3 mm glass bulb
**Sprinkler Frame:** Brass Alloy
**Button:** Copper Alloy
**Sealing Assembly:** Nickel Alloy with PTFE
**Load Screw:** Bronze Alloy
**Deflector:** Bronze Alloy

**Temperatures:**
155°F (68°C)
175°F (79°C)

**Recessed Escutcheons**
F1 Recessed
F2 Recessed
FV Recessed*

**Sprinkler Wrenches**
Model W2
Model GFR2 (Recessed)

* Model FV escutcheons are not for use in positively pressurized ceiling plenums.

Model F1Res58 Residential Pendent Sprinkler Components and Installation Dimensions

---

**Minimum Flow and Residual Pressure in Wet Pipe Systems(1)**

<table>
<thead>
<tr>
<th>Maximum Coverage Area</th>
<th>Flow gpm (l/min)</th>
<th>Pressure psi (bar)</th>
<th>Deflector to Ceiling Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 x 16 (4.9 x 4.9)</td>
<td>16 (61)</td>
<td>7.6 (0.52)</td>
<td>1 to 4 inches (25 to 100 mm)</td>
</tr>
<tr>
<td>18 x 18 (5.5 x 5.5)</td>
<td>19 (72)</td>
<td>10.8 (0.75)</td>
<td></td>
</tr>
<tr>
<td>20 x 20 (6.1 x 6.1)</td>
<td>22 (83)</td>
<td>14.4 (1.0)</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. For NFPA 13 installations the flow per sprinkler must be the greater of: (1) the flow listed in the table above or (2) the flow required to achieve a minimum design density of 0.1 gpm/sq ft over the design area of the sprinkler.
2. For coverage area dimensions less than those listed above, use the minimum required flow for the next larger max. coverage area listed.
Model F1Res76 Residential Pendent Sprinkler & F1, F2, & FV Escutcheons

Technical Specifications
Style: Pendent and Recessed Pendent
Threads: 3/4” NPT or ISO7-1R3/4
Nominal K-Factor: 7.6 (109 metric)
Max. Working Pressure: 175 psi (12 bar)

Material Specifications
Thermal Sensor: 3 mm glass bulb
Sprinkler Frame: Brass Alloy
Button: Copper Alloy
Sealing Assembly: Nickel Alloy with PTFE
Load Screw: Bronze Alloy
Deflector: Bronze Alloy

Finish (See Table N)
Temperature Ratings
155°F (68°C)
175°F (79°C)

Recessed Escutcheons
F1 Recessed
F2 Recessed
FV Recessed*

Sprinkler Wrenches
Model W2
Model GFR2 (Recessed)

* Model FV escutcheons are not for use in positively pressurized ceiling plenums.

Model F1Res76 Residential Pendent Sprinkler Components and Installation Dimensions

Minimum Flow and Residual Pressure in Wet Pipe Systems(1)

<table>
<thead>
<tr>
<th>Maximum Coverage Area(2)</th>
<th>Flow (gpm/l/min)</th>
<th>Pressure psi (bar)</th>
<th>Deflector to Ceiling Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>ft. x ft. (m x m)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 x 18 (5.5 x 5.5)</td>
<td>21 (80)</td>
<td>7.6 (0.52)</td>
<td>1 to 4 inches (25 to 100 mm)</td>
</tr>
<tr>
<td>20 x 20 (6.1 x 6.1)</td>
<td>23 (87)</td>
<td>9.2 (0.63)</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. For NFPA 13 installations the flow per sprinkler must be the greater of: (1) the flow listed in the table above or (2) the flow required to achieve a minimum design density of 0.1 gpm/sq ft over the design area of the sprinkler.
2. For coverage area dimensions less than those listed above, use the minimum required flow for the next larger max. coverage area listed.
**Technical Specifications**

- **Style:** Conical Concealed Pendent and Recessed Pendent
- **Threads:** 1/2" NPT or ISO7-1R1/2
- **Nominal K-Factor:** 3.0 (43 metric)
- **Max. Working Pressure:** 175 psi (12 bar)

**Material Specifications**

- **Thermal Sensor:** 3 mm glass bulb
- **Sprinkler Frame:** Brass Alloy
- **Button:** Copper Alloy
- **Sealing Assembly:** Nickel Alloy with PTFE
- **Load Screw:** Bronze Alloy
- **Deflector:** Bronze Alloy

**Finishes**

(See Table N)

**Temperature Ratings**

- 155°F (68°C)

**Recessed Escutcheons/Cover Plates**

- CCP Conical Concealed Plate 135°F (57°C)*
- FP Recessed*

**Sprinkler Wrenches**

Model GFR2

*Note: Model FP escutcheons and CCP cover plates are not listed for use in positively pressurized ceiling plenums.

**Model F1Res30 CCP and FP Recessed Pendent Sprinkler Installation Dimensions**

<table>
<thead>
<tr>
<th>Model F1Res30 CCP and FP Recessed Pendent Sprinkler</th>
<th>Figure 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CCP Recessed Escutcheon Installation</strong></td>
<td></td>
</tr>
<tr>
<td><strong>FP Recessed Escutcheon Installation</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Model F1Res30 CCP Pendent & FP Recessed Pendent Sprinkler Hydraulic Design Criteria**

<table>
<thead>
<tr>
<th>Maximum Coverage Area ft. x ft. (m x m)</th>
<th>Flow gpm (l/min)</th>
<th>Pressure psi (bar)</th>
<th>Deflector to Ceiling Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 x 12 (3.7 x 3.7)</td>
<td>8 (30)</td>
<td>7.0 (0.48)</td>
<td>1/2 to 1 inch</td>
</tr>
<tr>
<td>14 x 14 (4.3 x 4.3)</td>
<td>11 (38)</td>
<td>13.4 (0.92)</td>
<td>(13 to 25 mm)</td>
</tr>
</tbody>
</table>

**Notes:**

1. For NFPA 13 installations the flow per sprinkler must be the greater of: (1) the flow listed in the table above or (2) the flow required to achieve a minimum design density of 0.1 gpm/sq ft over the design area of the sprinkler.
2. For coverage area dimensions less than those listed above, use the minimum required flow for the next larger max. coverage area listed.
3. The sprinkler must be installed into a ceiling with the listed cover plate installed.
**Model F1Res49 CCP Conical Concealed Pendent & Model FP Recessed Escutcheon Pendent Sprinkler**

**Technical Specifications**
- **Style:** Conical Concealed Pendent and Recessed Pendent
- **Threads:** 1/2" NPT or ISO7-1R1/2
- **Nominal K-Factor:** 4.9 (71 metric)
- **Max. Working Pressure:** 175 psi (12 bar)

**Material Specifications**
- **Thermal Sensor:** 3 mm glass bulb
- **Sprinkler Frame:** Brass Alloy
- **Button:** Copper Alloy
- **Sealing Assembly:** Nickel Alloy with PTFE
- **Load Screw:** Bronze Alloy
- **Deflector:** Bronze Alloy

**Finishes**
(See Table N)

**Temperature Ratings**
- 155°F (68°C)

**Recessed Escutcheons/Cover Plates**
- CCP Conical Concealed Plate 135°F (57°C)*
- FP Recessed*

**Sprinkler Wrenches**
- Model GFR2

*Note: Model FP escutcheons and CCP cover plates are not for use in positively pressurized ceiling plenums.

**Model F1Res49 CCP & FP Recessed Pendent Sprinkler Installation Dimensions**

![Figure 6](image)

**CCP Recessed Escutcheon Installation**

**FP Recessed Escutcheon Installation**

**Model F1Res49 CCP Pendent and FP Recessed Pendent Hydraulic Design Criteria**

<table>
<thead>
<tr>
<th>Maximum Coverage Area(2) ft. x ft. (m x m)</th>
<th>Flow gpm (l/min)</th>
<th>Pressure psi (bar)</th>
<th>Deflector to Ceiling Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 x 14 (4.3 x 4.3)</td>
<td>13 (49)</td>
<td>7.0 (0.48)</td>
<td>1/2 to 1 inch (13 to 25 mm)</td>
</tr>
<tr>
<td>16 x 16 (4.9 x 4.9)</td>
<td>14 (53)</td>
<td>8.2 (0.57)</td>
<td></td>
</tr>
<tr>
<td>18 x 18 (5.5 x 5.5)</td>
<td>18 (68)</td>
<td>13.5 (0.93)</td>
<td></td>
</tr>
<tr>
<td>20 x 20 (6.1 x 6.1)</td>
<td>20 (76)</td>
<td>18.7 (1.15)</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
1. For NFPA 13 installations the flow per sprinkler must be the greater of: (1) the flow listed in the table above or (2) the flow required to achieve a minimum design density of 0.1 gpm/sq ft over the design area of the sprinkler.
2. For coverage area dimensions less than those listed above, use the minimum required flow for the next larger max. coverage area listed.
3. The sprinkler must be installed into a ceiling with the listed cover plate installed.
Model F1Res58 CCP Conical Concealed Pendent & Model FP Recessed Escutcheon Pendent Sprinkler

Technical Specifications
- **Style:** Conical Concealed Pendent and Recessed Pendent
- **Threads:** 1/2" NPT or ISO7-1R1/2
- **Nominal K-Factor:** 5.8 (84 metric)
- **Max. Working Pressure:** 175 psi (12 bar)

Material Specifications
- **Thermal Sensor:** 3 mm glass bulb
- **Sprinkler Frame:** Brass Alloy
- **Button:** Copper Alloy
- **Sealing Assembly:** Nickel Alloy with PTFE
- **Load Screw:** Bronze Alloy
- **Deflector:** Bronze Alloy

*Note: Model FP escutcheons and CCP cover plates are not for use in positively pressurized ceiling plenums.

**Model F1Res58 CCP and FP Recessed Pendent Sprinkler Installation Dimensions**

**Model F1Res58 CCP Pendent & FP Recessed Pendent Hydraulic Design Criteria**

<table>
<thead>
<tr>
<th>Maximum Coverage Area</th>
<th>Flow gpm (l/min)</th>
<th>Pressure psi (bar)</th>
<th>Deflector to Ceiling Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>ft. x ft. (m x m)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 x 16 (4.9 x 4.9)</td>
<td>16 (61)</td>
<td>7.6 (0.52)</td>
<td>1/2 to 1 inch (13 to 25 mm)</td>
</tr>
<tr>
<td>18 x 18 (5.5 x 5.5)</td>
<td>19 (72)</td>
<td>10.8 (0.75)</td>
<td></td>
</tr>
<tr>
<td>20 x 20 (6.1 x 6.1)</td>
<td>22 (83)</td>
<td>14.4 (1.0)</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
1. For NFPA 13 installations the flow per sprinkler must be the greater of: (1) the flow listed in the table above or (2) the flow required to achieve a minimum design density of 0.1 gpm/sq ft over the design area of the sprinkler.
2. For coverage area dimensions less than those listed above, use the minimum required flow for the next larger max. coverage area listed.
3. The sprinkler must be installed into a ceiling with the listed cover plate installed.
Model F1Res76 CCP and FP Recessed Pendent Sprinkler Installation Dimensions

Technical Specifications
- Style: Conical Concealed Pendent and Recessed Pendent
- Threads: 3/4" NPT or ISO7-1R3/4
- Nominal K-Factor: 7.6 (109 metric)
- Max. Working Pressure: 175 psi (12 bar)

Material Specifications
- Thermal Sensor: 3 mm glass bulb
- Sprinkler Frame: Brass Alloy
- Button: Copper Alloy
- Sealing Assembly: Nickel Alloy with PTFE
- Load Screw: Bronze Alloy
- Deflector: Bronze Alloy

Finishes
- (See Table N)

Temperature Ratings
- 155°F (68°C)

Recessed Escutcheons/Cover Plates
- CCP Conical Concealed Plate 135°F (57°C)*
- FP Recessed*

Sprinkler Wrenches
- Model GFR2 (Recessed)

*Note: Model FP escutcheons and CCP cover plates are not for use in positively pressurized ceiling plenums.

Model F1Res76 CCP Pendent & FP Recessed Pendent Hydraulic Design Criteria

<table>
<thead>
<tr>
<th>Coverage Area (ft. x ft. or m x m)</th>
<th>Flow (gpm/l/min)</th>
<th>Pressure (psi/bar)</th>
<th>Deflector to Ceiling Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 x 16 (4.9 x 4.9)</td>
<td>21 (80)</td>
<td>7.6 (0.52)</td>
<td>1/2 to 1 inch, (13 to 25 mm)</td>
</tr>
<tr>
<td>18 x 18 (5.5 x 5.5)</td>
<td>22 (83)</td>
<td>8.4 (0.58)</td>
<td></td>
</tr>
<tr>
<td>20 x 20 (6.1 x 6.1)</td>
<td>25 (95)</td>
<td>10.8 (0.75)</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. For NFPA 13 installations, the flow per sprinkler must be the greater of: (1) the flow listed in the table above or (2) the flow required to achieve a minimum design density of 0.1 gpm/sq ft over the design area of the sprinkler.
2. For coverage area dimensions less than those listed above, use the minimum required flow for the next larger max. coverage area listed.
3. The sprinkler must be installed into a ceiling with the listed cover plate installed.
Model F1Res44 Horizontal Sidewall Sprinkler Specifications

**Technical Specifications**
- **Style:** Sidewall and Recessed Sidewall
- **Threads:** 1/2" NPT or ISO7-1R1/2
- **Nominal K-Factor:** 4.4 (63 metric)
- **Max. Working Pressure:** 175 psi (12 bar)

**Material Specifications**
- **Thermal Sensor:** 3 mm glass bulb
- **Sprinkler Frame:** Brass Alloy
- **Button:** Copper Alloy
- **Sealing Assembly:** Nickel Alloy with PTFE
- **Load Screw:** Bronze Alloy
- **Deflector:** Bronze Alloy

**Temperature Ratings**
- 155°F (68°C)
- 175°F (79°C)

**Recessed Escutcheons**
- F2 Recessed
- FV Recessed

**Sprinkler Wrenches**
- Model W2
- Model GFR2 (Recessed)

**Model F1Res44 Horizontal Sidewall Sprinkler Installation Dimensions**

**Model F1Res44 Horizontal Sidewall Sprinkler Hydraulic Design Criteria**

### Table J

<table>
<thead>
<tr>
<th>Maximum Coverage Area</th>
<th>Flow /gpm (l/min)</th>
<th>Pressure / psi (bar)</th>
<th>Deflector to Ceiling Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>ft. x ft. (m x m)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>12 x 12 (3.7 x 3.7)</td>
<td>12 (45)</td>
<td>7.5 (0.52)</td>
<td>4 to 6 inches (100 to 150 mm)</td>
</tr>
<tr>
<td>14 x 14 (4.3 x 4.3)</td>
<td>14 (53)</td>
<td>10.2 (0.70)</td>
<td></td>
</tr>
<tr>
<td>15 x 15 (4.6 x 4.6)</td>
<td>15 (57)</td>
<td>11.6 (0.80)</td>
<td></td>
</tr>
<tr>
<td>16 x 16 (4.9 x 4.9)</td>
<td>16 (61)</td>
<td>13.3 (0.92)</td>
<td></td>
</tr>
<tr>
<td>16 x 18 (4.9 x 5.5)</td>
<td>18 (68)</td>
<td>16.8 (1.16)</td>
<td></td>
</tr>
<tr>
<td>16 x 20 (4.9 x 6.1)</td>
<td>23 (87)</td>
<td>27.4 (1.89)</td>
<td></td>
</tr>
<tr>
<td>16 x 18 (5.5 x 5.5)</td>
<td>19 (72)</td>
<td>18.7 (1.29)</td>
<td></td>
</tr>
<tr>
<td>12 x 12 (3.7 x 3.7)</td>
<td>14 (53)</td>
<td>10.2 (0.7)</td>
<td>6 to 12 inches (150 to 300 mm)</td>
</tr>
<tr>
<td>14 x 14 (4.3 x 4.3)</td>
<td>16 (61)</td>
<td>13.2 (0.91)</td>
<td></td>
</tr>
<tr>
<td>15 x 15 (4.6 x 4.6)</td>
<td>16 (61)</td>
<td>13.2 (0.91)</td>
<td></td>
</tr>
<tr>
<td>16 x 16 (4.9 x 4.9)</td>
<td>17 (64)</td>
<td>15.0 (1.03)</td>
<td></td>
</tr>
<tr>
<td>16 x 18 (4.9 x 5.5)</td>
<td>20 (76)</td>
<td>20.7 (1.43)</td>
<td></td>
</tr>
<tr>
<td>16 x 20 (4.9 x 6.1)</td>
<td>23 (87)</td>
<td>27.4 (1.89)</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
1. For NFPA 13 installations the flow per sprinkler must be the greater of: (1) the flow listed in the table above or (2) the flow required to achieve a minimum design density of 0.1 gpm/sq ft over the design area of the sprinkler.
2. For coverage area dimensions less than those listed above, use the minimum required flow for the next larger max. coverage area listed.
Model F1Res44 SWC Conical Concealed Horizontal Sidewall Sprinkler

**Technical Specifications**
- **Style:** Conical Concealed Sidewall
- **Threads:** 1/2" NPT or ISO 7-1 R1/2
- **Nominal K-Factor:** 4.4 (63 metric)
- **Max. Working Pressure:** 175 psi (12 bar)

**Material Specifications**
- **Thermal Sensor:** 3 mm glass-bulb
- **Sprinkler Frame:** Brass Alloy
- **Button:** Copper Alloy
- **Sealing Assembly:** Nickel Alloy with PTFE
- **Load Screw:** Bronze Alloy
- **Deflector:** Bronze Alloy

**Finishes**
(See Table N)

**Temperature Ratings**
- 155°F (68°C)
- 175°F (79°C)

**Cover Plates**
- SWC Conical Concealed Plate
- SWC-2 (Slotted) Conical Concealed Plate

**Sprinkler Wrenches**
- Model GFR2

---

**Note:**
(1) Not for installation where the maximum ceiling temperature exceeds 100°F due to cover plate temperature rating.
(2) 135°F SWC Conical Concealed Plate for 155°F (68°C) sprinklers
(3) 135°F SWC-2 (Slotted) Conical Concealed Plate for 175°F (79°C) sprinklers

---

**Figure 10**

**Model F1Res44 SWC Conical Concealed Horizontal Sidewall Sprinkler and Installation Dimensions**

**Table K**

<table>
<thead>
<tr>
<th>Maximum Coverage Area (ft. x ft. (m x m))</th>
<th>Ordinary Temperature Rating 155°F (68°C)</th>
<th>Intermediate Temperature Rating 175°F (79°C)</th>
<th>Deflector to Ceiling Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Flow gpm (l/min)</td>
<td>Pressure psi (bar)</td>
<td>Flow gpm (l/min)</td>
</tr>
<tr>
<td>12 x 12 (3.7 x 3.7)</td>
<td>13 (49)</td>
<td>8.7 (0.60)</td>
<td>14 (53)</td>
</tr>
<tr>
<td>14 x 14 (4.3 x 4.3)</td>
<td>14 (53)</td>
<td>10.2 (0.7)</td>
<td>14 (53)</td>
</tr>
<tr>
<td>15 x 15 (4.6 x 4.6)</td>
<td>16 (61)</td>
<td>13.2 (0.91)</td>
<td>--</td>
</tr>
<tr>
<td>16 x 16 (4.9 x 4.9)</td>
<td>17 (64)</td>
<td>15.0 (1.03)</td>
<td>--</td>
</tr>
<tr>
<td>16 x 18 (5.5 x 5.5)</td>
<td>19 (72)</td>
<td>18.7 (1.31)</td>
<td>--</td>
</tr>
<tr>
<td>16 x 20 (4.9 x 6.1)</td>
<td>23 (87)</td>
<td>27.4 (1.89)</td>
<td>--</td>
</tr>
<tr>
<td>12 x 12 (3.7 x 3.7)</td>
<td>14 (53)</td>
<td>10.2 (0.7)</td>
<td>--</td>
</tr>
<tr>
<td>14 x 14 (4.3 x 4.3)</td>
<td>15 (57)</td>
<td>11.7 (0.81)</td>
<td>--</td>
</tr>
<tr>
<td>15 x 15 (4.6 x 4.6)</td>
<td>17 (64)</td>
<td>15.0 (1.03)</td>
<td>--</td>
</tr>
<tr>
<td>16 x 16 (4.9 x 4.9)</td>
<td>18 (68)</td>
<td>16.8 (1.16)</td>
<td>--</td>
</tr>
<tr>
<td>16 x 18 (4.9 x 5.5)</td>
<td>20 (76)</td>
<td>20.7 (1.43)</td>
<td>--</td>
</tr>
</tbody>
</table>

**Notes:**
1. For NFPA 13 installations the flow per sprinkler must be the greater of: (1) the flow listed in the table above or (2) the flow required to achieve a minimum design density of 0.1 gpm/sq ft over the design area of the sprinkler.
2. For coverage area dimensions less than those listed above, use the minimum required flow for the next larger max. coverage area listed.
Model F1Res58 Horizontal Sidewall Sprinkler & Models F2 & FV Recessed Escutcheon

Technical Specifications
- **Style:** Sidewall and Recessed Sidewall
- **Threads:** 1/2" NPT or ISO7-1R1/2
- **Nominal K-Factor:** 5.8 (84 metric)
- **Max. Working Pressure:** 175 psi (12 bar)

Material Specifications
- **Thermal Sensor:** 3 mm glass bulb
- **Sprinkler Frame:** Brass Alloy
- **Button:** Copper Alloy
- **Sealing Assembly:** Nickel Alloy with PTFE
- **Load Screw:** Bronze Alloy
- **Deflector:** Bronze Alloy

Finished Specifications
- (See Table N)

Temperature Ratings
- 155°F (68°C)
- 175°F (79°C)

Recessed Escutcheons
- F2 Recessed
- FV Recessed

Sprinkler Wrenches
- Model W2
- Model GFR2 (Recessed)

---

Model F1Res58 Residential Horizontal Sidewall Sprinkler Installation Dimensions

---

Model F1Res58 Horizontal Sidewall Sprinkler Hydraulic Design Criteria

### Table L

<table>
<thead>
<tr>
<th>Maximum Coverage Area(ft. x ft. (m x m))</th>
<th>Flow (gpm (l/min))</th>
<th>Pressure (psi (bar))</th>
<th>Deflector to Ceiling Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 x 12 (3.7 x 3.7)</td>
<td>16 (61)</td>
<td>7.6 (0.52)</td>
<td>4 to 6 inches (100 to 150 mm)</td>
</tr>
<tr>
<td>14 x 14 (4.3 x 4.3)</td>
<td>18 (68)</td>
<td>9.7 (0.66)</td>
<td></td>
</tr>
<tr>
<td>15 x 15 (4.6 x 4.6)</td>
<td>19 (72)</td>
<td>10.7 (0.74)</td>
<td></td>
</tr>
<tr>
<td>16 x 16 (4.9 x 4.9)</td>
<td>21 (80)</td>
<td>13.2 (0.91)</td>
<td></td>
</tr>
<tr>
<td>16 x 18 (5.5 x 5.5)</td>
<td>25 (95)</td>
<td>18.6 (1.28)</td>
<td></td>
</tr>
<tr>
<td>16 x 20 (4.9 x 6.1)</td>
<td>29 (110)</td>
<td>25.0 (1.72)</td>
<td></td>
</tr>
<tr>
<td>12 x 12 (3.7 x 3.7)</td>
<td>22 (83)</td>
<td>14.4 (1.0)</td>
<td>6 to 12 inches (150 to 300 mm)</td>
</tr>
<tr>
<td>14 x 14 (4.3 x 4.3)</td>
<td>22 (83)</td>
<td>14.4 (1.0)</td>
<td></td>
</tr>
<tr>
<td>15 x 15 (4.6 x 4.6)</td>
<td>24 (91)</td>
<td>17.1 (1.18)</td>
<td></td>
</tr>
<tr>
<td>16 x 16 (4.9 x 4.9)</td>
<td>26 (98)</td>
<td>20.1 (1.39)</td>
<td></td>
</tr>
<tr>
<td>16 x 18 (4.9 x 5.5)</td>
<td>31 (117)</td>
<td>28.6 (1.97)</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. For NFPA 13 installations the flow per sprinkler must be the greater of: (1) the flow listed in the table above or (2) the flow required to achieve a minimum design density of 0.1 gpm/sq ft over the design area of the sprinkler.
2. For coverage area dimensions less than those listed above, use the minimum required flow for the next larger max. coverage area listed.
Model F1Res58 HSWX Horizontal Sidewall Sprinkler & Models F2 & FV Recessed Escutcheon

Technical Specifications
- **Style:** Sidewall and Recessed Sidewall
- **Threads:** 1/2” NPT or ISO7-1R1/2
- **Nominal K-Factor:** 5.8 (84 metric)
- **Max. Working Pressure:** 175 psi (12 bar)

Material Specifications
- **Thermal Sensor:** 3 mm glass bulb
- **Sprinkler Frame:** Brass Alloy
- **Button:** Copper Alloy
- **Sealing Assembly:** Nickel Alloy with PTFE
- **Load Screw:** Bronze Alloy
- **Deflector:** Bronze Alloy

Finish Specifications
(See Table N)

Temperature Ratings
- 155°F (68°C)
- 175°F (79°C)

Recessed Escutcheons
- F2 Recessed
- FV Recessed

Sprinkler Wrenches
- Model W2
- Model GFR2 (Recessed)

---

Model F1Res58 HSWX Residential Horizontal Sidewall Sprinkler Installation Dimensions

Dimensions

F2 & FV Recessed Escutcheon Installation

---

Model F1Res58 HSWX Horizontal Sidewall Sprinkler Hydraulic Design Criteria

<table>
<thead>
<tr>
<th>Maximum Coverage Area(ft. x ft. (m x m))</th>
<th>Flow gpm (l/min)</th>
<th>Pressure psi (bar)</th>
<th>Deflector to Ceiling Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 x 20 (5.5 x 6.1)</td>
<td>30 (114)</td>
<td>26.8 (1.85)</td>
<td>4 to 6 inches (100 to 150 mm)</td>
</tr>
<tr>
<td>20 x 20 (6.1 x 6.1)</td>
<td>30 (114)</td>
<td>26.8 (1.85)</td>
<td>6 to 12 inches (150 to 300 mm)</td>
</tr>
<tr>
<td>16 x 22 (4.9 x 6.7)</td>
<td>33 (125)</td>
<td>32.4 (2.23)</td>
<td></td>
</tr>
<tr>
<td>16 x 24 (4.9 x 7.3)</td>
<td>38 (144)</td>
<td>42.9 (2.96)</td>
<td></td>
</tr>
<tr>
<td>14 x 26 (4.3 x 7.9)</td>
<td>42 (160)</td>
<td>52.4 (3.63)</td>
<td></td>
</tr>
<tr>
<td>18 x 20 (5.5 x 6.1)</td>
<td>35 (133)</td>
<td>36.4 (2.51)</td>
<td></td>
</tr>
<tr>
<td>16 x 22 (4.9 x 6.7)</td>
<td>38 (144)</td>
<td>42.9 (2.96)</td>
<td></td>
</tr>
<tr>
<td>16 x 24 (4.9 x 7.3)</td>
<td>42 (160)</td>
<td>52.4 (3.61)</td>
<td></td>
</tr>
<tr>
<td>14 x 26 (4.3 x 7.9)</td>
<td>48 (174)</td>
<td>62.9 (4.34)</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. For NFPA 13 installations the flow per sprinkler must be the greater of: (1) the flow listed in the table above or (2) the flow required to achieve a minimum design density of 0.1 gpm/sq ft over the design area of the sprinkler.
2. For coverage area dimensions less than those listed above, use the minimum required flow for the next larger max. coverage area listed.

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May 2019

www.reliablesprinkler.com
Installation

Models F1Res sprinklers are to be installed as shown in this bulletin. Model F1, F2, FV, and FP recessed escutcheons are the only recessed escutcheons to be used with Model F1Res sprinklers. Not all F1Res sprinklers may be used with all recessed escutcheons offered. Confirm listing of escutcheon type for use with individual sprinklers. Use of any other recessed escutcheon will void all approvals and warranties.

For installing Model F1Res sprinklers, use only the Model W2 sprinkler Wrench; for installing Models F1Res Recessed Pendent, Sidewall, Conical Concealed Pendent (CCP), and Sidewall Concealed (SWC and SWC–2) sprinklers use only the Model GFR2 sprinkler wrench. Use of wrenches other than those specified may damage these sprinklers.

A ‘leak tight’ sprinkler joint can be obtained with the following torque:

- 1/2” NPT and ISO7-1R1/2: 8-18 ft-lbs (11 – 24 N-m)
- 3/4” NPT and ISO7-1R3/4: 14-20 ft-lbs (19 – 27 N-m)

Do not tighten sprinklers over maximum recommended torque. This may cause leakage or impairment of the sprinklers. Do not install any glass bulb sprinklers where the bulb is cracked or there is a loss of liquid from the bulb.

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. Removal of the protectors before this time may leave the bulb vulnerable to damage. RASCO wrenches are designed to install sprinklers when protectors are in place. Remove protectors by undoing the clasp by hand. Do not use tools to remove the protectors.

Maintenance

Reliable Model F1Res Sprinklers should be inspected and the sprinkler system maintained in accordance with NFPA 25, 13, 13D, and 13R, 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). Properly installed CCP, SWC, and SWC–2 cover plates will have an air gap that is required for proper operation, do not seal the gap or paint the cover plates.

Installation of F1Res sprinklers in a wall or ceiling will require a hole diameter of 2-1/4” (57 mm) for F1 or F2 recessed escutcheons; or 2-5/8” (67 mm) for FP recessed escutcheons, CCP, SWC, and SWC–2 cover plates.

Install F1Res HSW sprinklers with a ceiling to deflector distance that complies with the hydraulic design criteria tables in this bulletin. The flow arrow on deflector must point away from near wall and “Top” marking must face the ceiling.

Notes:
(1) Paint or any other coating applied over the factory finish will void all approvals and warranties.
(2) cULus Listed Corrosion Resistant.
(3) The Model FP escutcheon assembly consists of an unfinished galvanized cup with a finished escutcheon ring.

Table N

<table>
<thead>
<tr>
<th>Standard Finishes</th>
<th>Special Application Finishes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sprinkler (1) F1, F2, FV, FP (3), Escutcheons</td>
<td>Sprinkler (1) F1, F2, FV, FP (3), Escutcheons</td>
</tr>
<tr>
<td>Sprinkler (1) Escutcheons CCP, SWC (Conical) Cover Plates (1)</td>
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</tr>
<tr>
<td>Sprinkler (1) Escutcheons CCP, SWC (Conical) Cover Plates (1)</td>
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</tbody>
</table>
| Bright Brass                             | Bright Brass                             | Bright Bras...
Replace any sprinkler which has been damaged, where cracks are observed in the glass bulb, or when liquid has been lost from the glass bulb.

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.

**Listings & Approvals**

Listed by Underwriters Laboratories Inc. and UL Certified for Canada (cULus)

**Guarantee**

For Reliable Automatic Sprinkler Company guarantee, terms, and conditions, visit www.reliablesprinkler.com.

**Patents**

For patents applicable to products contained in this technical bulletin, please visit www.r-s.co

**Ordering Information**

Specify the following when ordering:

**Sprinkler**
- Model (See Table A)
- Temperature Rating
- Threads (NPT or ISO7-1)
- Finish (See Table N)

**Escutcheon or Cover Plate**
- Model
- Finish (See Table N)

**Sprinkler Wrench**
- Model W2 (Pendent and HSW)
- GFR2 (Recessed and Concealed)