Model F1 RES LL Residential Sprinklers for Design Density of .05 gpm/ft²

Specifically Listed for use in Multipurpose Systems that serve both domestic water and fire protection.

Model F1 Res LL Sprinklers Listed for the lowest flows to meet the minimum design density of .05 gpm/ft² with potable water.

Types:
1. F1 Res 30 LL Pendent
2. F1 Res 30 LL Recessed Pendent/F2
3. F1 Res 30 LL Recessed Pendent/FP
4. F1 Res 49 LL Pendent
5. F1 Res 49 LL Recessed Pendent/F1
6. F1 Res 49 LL Recessed Pendent/FP
7. F1 Res 58 LL Pendent
8. F1 Res 58 LL Recessed Pendent/F1
9. F1 Res 58 LL Recessed Pendent/FP
10. F1 Res 30 LL CCP Pendent
11. F1 Res 49 LL CCP Pendent
12. F1 Res 58 LL CCP Pendent
13. F1 Res 44 LL HSW
14. F1 Res 44 LL Recessed HSW/F2
15. F1 Res 58 LL HSW
16. F1 Res 58 LL Recessed HSW/F2
17. F1 Res 44 LL SWC

Listings & Approvals
1. Listed by Underwriters Laboratories Inc. and UL Certified for Canada (cULus) for Safety to ANSI/UL1626.
2. Certified by Underwriters Laboratories, Inc. and Underwriters Laboratories of Canada for Health Effects to NSF/ANSI Standard 61 Annex G (Less than 0.25% Lead Content.)

Additional Bulletins applicable to all F1RES LL Sprinklers
- Wall Wetting – Bulletin 007
- Design and Installation – Bulletin 140

UL Listing Category
Residential Automatic Sprinkler

UL Guide Number
VKKW

Patents
US Patent No. 6,516,893 applies to the Model F1 Res 49 LL & 58 LL Pendent Sprinklers
Other patents pending.

Product Description
Model F1 Res LL Pendent sprinklers (Figs. 1, 2, 3, & 4) are fast response sprinklers combining excellent durability, high sensitivity glass-bulb and low profile decorative design. The F1 Res LL Horizontal Sidewall sprinklers (Figs. 5, & 6) are equally attractive when above ceiling piping cannot be used. The 3 mm glass-bulb pendent sprinklers permit the efficient use of residential water supplies for sprinkler coverage in residential fire protection design.

The low flow F1 Res LL sprinklers are specially engineered for fast thermal response to meet the sensitive fire protection application needs of the latest residential market standards (UL 1626 Standard). Upon fire conditions, rising heat causes a sprinkler’s heat-sensitive glass-bulb to shatter, releasing the waterway for water flow onto the deflector, evenly distributing the discharged water to control a fire.

Technical Data:
- Thermal Sensor: Nominal 3 mm glass-bulb
- Sprinkler Frame : Brass
- Sprinklers’ Pressure Rating : 175 psi
- Factory Hydrostatically Tested to 500 psi

The Reliable Automatic Sprinkler Co., Inc., 103 Fairview Park Drive, Elmsford, New York 10523
Installation

Models F1 Res LL sprinklers are to be installed as shown. Model F1, F2 and FP Escutcheons, illustrated herewith, are the only recessed escutcheons to be used with Model F1 Res LL sprinklers. Use of any other recessed escutcheon will void all approvals and warranties. For installing Model F1 Res LL Pendent sprinklers use only the Model D sprinkler Wrench; for installing Models F1 Res LL Recessed Pendent, CCP & SWC sprinklers use only the Model GFR2 sprinkler wrench; for installing Model F1 LL Res Recessed HSW sprinklers use only the Model GFR2 Sprinkler Wrench. Use of wrenches other than those specified may damage these sprinklers.

Application

Model F1 Res LL Sprinklers are used for Residential Fire Protection according to UL 1626 Standard. Be sure that 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.

Thread Size: 1/2" NPT (R1/2)

K-factor: 3.0 (Actual) – F1 Res 30 LL Pendent Sprinkler
4.9 (Actual) – F1 Res 49 LL Pendent Sprinkler
5.8 (Actual) – F1 Res 58 LL Pendent & HSW Sprinkler
4.4 (Actual) – F1 Res 44 LL HSW Sprinkler

Density: Minimum 0.05 gpm/ft²

Model F1 Res 30 LL, 49 LL and 58 LL Pendent

Model F1 Res 30 LL Recessed Pendent / F2

Model F1 Res 49 LL and 58 LL Recessed Pendent / F1

Note: Escutcheons F1 or F2 may be used with Model F1 Res 49 LL & 58 LL Recessed Pendent Sprinkler
### Technical Data: F1Res 30 LL Pendent and Recessed Pendent (SIN RA3311)

<table>
<thead>
<tr>
<th>Thread Size</th>
<th>Nominal Orifice (inch (mm))</th>
<th>Max. Pressure psi (bar)</th>
<th>Sprinkler Temp. Rating</th>
<th>Max. Ambient Temp.</th>
<th>Actual K Factor</th>
<th>Sprinkler Length inch (mm)</th>
<th>Top of Deflector to Ceiling inch (mm)</th>
<th>Minimum Spacing ft (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot; NPT</td>
<td>7/16* (11)</td>
<td>175 (12)</td>
<td>155 (4,3)</td>
<td>68 (3,6)</td>
<td>100 (4,3)</td>
<td>38 (0,76)</td>
<td>Smooth Ceilings 1-1/4 - 4 (31.7 - 102)</td>
<td>8 (2.4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Beamed Ceilings per NFPA 13D, 13R or 13 installed in beams 1-1/4 - 1-3/4 (31.7 - 44.4) using F2 escutcheon</td>
<td></td>
</tr>
</tbody>
</table>

For Ceiling types refer to NFPA 13, 13R or 13D

### Technical Data: F1Res 49 LL Pendent and Recessed Pendent (SIN RA3316)

<table>
<thead>
<tr>
<th>Thread Size</th>
<th>Nominal Orifice (inch (mm))</th>
<th>Max. Pressure psi (bar)</th>
<th>Sprinkler Temp. Rating</th>
<th>Max. Ambient Temp.</th>
<th>Actual K Factor</th>
<th>Sprinkler Length inch (mm)</th>
<th>Top of Deflector to Ceiling inch (mm)</th>
<th>Minimum Spacing ft (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot; NPT</td>
<td>7/16* (11)</td>
<td>175 (12)</td>
<td>155 (4,3)</td>
<td>68 (3,6)</td>
<td>100 (4,3)</td>
<td>38 (0,76)</td>
<td>Smooth Ceilings 1-1/4 - 4 (31.7 - 102)</td>
<td>8 (2.4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Beamed Ceilings per NFPA 13D, 13R or 13 installed in beams 1-1/4 - 1-3/4 (31.7 - 44.4) using F2 escutcheon</td>
<td></td>
</tr>
</tbody>
</table>

For Ceiling types refer to NFPA 13, 13R or 13D

### Additional Information

- **Max. Coverage area ft x ft (m x m)**
- **Max. Spacing ft (m)**
- **Ordinary Temp. Rating (155 °F/68 °C)**
- **Intermediate Temp. Rating (175 °F/79 °C)**
- **Pressure psi (bar)**
- **Flow gpm (l/min)**
- **Pressure psi (bar)**
- **Top of Deflector to Ceiling inch (mm)**
- **Minimum Spacing ft (m)**

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For Ceiling types refer to NFPA 13, 13R or 13D.
### Technical Data: F1Res 58 LL Pendant and Recessed Pendent (SIN RA3313)

<table>
<thead>
<tr>
<th>Thread Size</th>
<th>Nominal Orifice inch (mm)</th>
<th>Max. Pressure psi (bar)</th>
<th>Max. Coverage area ft x ft (m x m)</th>
<th>Max. Spacing ft (m)</th>
<th>Ordinary Temp. Rating (155 °F/68 °C) Flow gpm (l/min)</th>
<th>Pressure psi (bar)</th>
<th>Intermediate Temp. Rating (175 °F/79 °C) Flow gpm (l/min)</th>
<th>Pressure psi (bar)</th>
<th>Top of Deflector to Ceiling inch (mm)</th>
<th>Minimum Spacing ft (m)</th>
<th>Actual K Factor</th>
<th>Sprinkler Length inch (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot; NPT (R1/2)</td>
<td>1/2&quot; (13)</td>
<td>175 (12)</td>
<td>12x12 (3.6x3.6)</td>
<td>12 (3.6)</td>
<td>16 (61)</td>
<td>7.6 (0.53)</td>
<td>16 (61)</td>
<td>7.6 (0.53)</td>
<td>Smooth Ceilings 1-1/4-4 (31.7-102) using F2 escutcheon. 1-4 (25.4-102) using F1 escutcheon. Beamed Ceilings per NFPA 13D, 13R or 13 installed in beams 1-1/4-1-1/4 (31.7-44.4) using F2 escutcheon, 1-1-3/4, (25.4-44.4) using F1 escutcheon</td>
<td>8 (2.4)</td>
<td>5.8 (83.5)</td>
<td>2.25 (57)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>14x14 (4.3x4.3)</td>
<td>14 (4.3)</td>
<td>16 (61)</td>
<td>7.6 (0.53)</td>
<td>16 (61)</td>
<td>7.6 (0.53)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>16x16 (4.9x4.9)</td>
<td>16 (4.9)</td>
<td>16 (61)</td>
<td>7.6 (0.53)</td>
<td>16 (61)</td>
<td>7.6 (0.53)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>18x18 (5.5x5.5)</td>
<td>18 (5.5)</td>
<td>19 (72)</td>
<td>10.8 (0.75)</td>
<td>19 (72)</td>
<td>10.8 (0.75)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>20x20 (6.1x6.1)</td>
<td>20 (6.1)</td>
<td>22 (83.3)</td>
<td>14.4 (1.0)</td>
<td>22 (83.3)</td>
<td>14.4 (1.0)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For Ceiling types refer to NFPA 13, 13R or 13D

- **Model F1 Res 30 LL, 49 LL and 58 LL CCP Pendent**

- **Model F1 Res 30 LL, 49 LL and 58 LL Recessed Pendent / FP**

![Fig. 3](image3.png)

![Fig. 4](image4.png)
### Technical Data: F1Res 30 LL CCP Pendent and Recessed Pendent/FP (SIN RA3311)

<table>
<thead>
<tr>
<th>Thread Size</th>
<th>Nominal Orifice inch (mm)</th>
<th>Max. Pressure psi (bar)</th>
<th>CCP Assembly Temp. Rating</th>
<th>Max. Ambient Temp.</th>
<th>K Factor</th>
<th>Sprinkler Length inch (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot; NPT (R1/2)</td>
<td>21/64&quot; (8.2)</td>
<td>175 (12)</td>
<td>135 57</td>
<td>100 38</td>
<td>3.0 (43.2)</td>
<td>2.25 (57)</td>
</tr>
</tbody>
</table>

#### Technical Details
- **Max. Coverage area** ft x ft (m x m): 12 x 12 (3.6 x 3.6), 14 x 14 (4.3 x 4.3)
- **Max. Spacing ft (m):** 12 (3.6), 14 (4.3)
- **Ordinary Temp. Rating** (155 °F/68 °C):
  - **Flow gpm (l/min):** 8 (30.3), 11 (37.8)
  - **Pressure psi (bar):** 7.0 (0.48), 13.4 (0.92)
- **Top of Deflector to Ceiling (inch mm):** Smooth Ceilings 1/2-1 (13-25.4) using CCP. 1/2-1 (13-25.4) using FP escutcheon. Beamed Ceilings per NFPA 13D, 13R or 13 installed in beams 1/2-1 (13-25.4) using CCP. 1/2-1 (13-25.4) using FP escutcheon.

#### Technical Data: F1Res 49 LL CCP Pendent and Recessed Pendent/FP (SIN RA3316)

<table>
<thead>
<tr>
<th>Thread Size</th>
<th>Nominal Orifice inch (mm)</th>
<th>Max. Pressure psi (bar)</th>
<th>CCP Assembly Temp. Rating</th>
<th>Max. Ambient Temp.</th>
<th>K Factor</th>
<th>Sprinkler Length inch (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot; NPT (R1/2)</td>
<td>7/16&quot; (11)</td>
<td>175 (12)</td>
<td>135 57</td>
<td>100 38</td>
<td>4.9 (70.6)</td>
<td>2.25 (57)</td>
</tr>
</tbody>
</table>

#### Technical Details
- **Max. Coverage area** ft x ft (m x m): 12 x 12 (3.6 x 3.6), 14 x 14 (4.3 x 4.3), 16 x 16 (4.9 x 4.9), 18 x 18 (5.5 x 5.5), 20 x 20 (6.1 x 6.1)
- **Max. Spacing ft (m):** 12 (3.6), 14 (4.3), 16 (4.9), 18 (5.5), 20 (6.1)
- **Ordinary Temp. Rating** (155 °F/68 °C):
  - **Flow gpm (l/min):** 13 (49), 14 (53), 18 (68.1), 20 (75.7)
  - **Pressure psi (bar):** 7.0 (0.48), 8.2 (0.56), 13.5 (0.93), 16.7 (1.14)
- **Top of Deflector to Ceiling (inch mm):** Smooth Ceilings 1/2-1 (13-25.4) using CCP. 1/2-1 (13-25.4) using FP escutcheon. Beamed Ceilings per NFPA 13D, 13R or 13 installed in beams 1/2-1 (13-25.4) using CCP. 1/2-1 (13-25.4) using FP escutcheon.

#### Technical Data: F1Res 58 LL CCP Pendent and Recessed Pendent/FP (SIN RA3313)

<table>
<thead>
<tr>
<th>Thread Size</th>
<th>Nominal Orifice inch (mm)</th>
<th>Max. Pressure psi (bar)</th>
<th>CCP Assembly Temp. Rating</th>
<th>Max. Ambient Temp.</th>
<th>K Factor</th>
<th>Sprinkler Length inch (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot; NPT (R1/2)</td>
<td>1/2&quot; (13)</td>
<td>175 (12)</td>
<td>135 57</td>
<td>100 38</td>
<td>5.8 (83.5)</td>
<td>2.25 (57)</td>
</tr>
</tbody>
</table>

#### Technical Details
- **Max. Coverage area** ft x ft (m x m): 12 x 12 (3.6 x 3.6), 14 x 14 (4.3 x 4.3), 16 x 16 (4.9 x 4.9), 18 x 18 (5.5 x 5.5), 20 x 20 (6.1 x 6.1)
- **Max. Spacing ft (m):** 12 (3.6), 14 (4.3), 16 (4.9), 18 (5.5), 20 (6.1)
- **Ordinary Temp. Rating** (155 °F/68 °C):
  - **Flow gpm (l/min):** 16 (61), 19 (72), 22 (83.3)
  - **Pressure psi (bar):** 7.6 (0.53), 10.8 (0.75), 14.4 (1.0)
- **Top of Deflector to Ceiling (inch mm):** Smooth Ceilings 1/2-1 (13-25.4) using CCP. 1/2-1 (13-25.4) using FP escutcheon. Beamed Ceilings per NFPA 13D, 13R or 13 installed in beams 1/2-1 (13-25.4) using CCP. 1/2-1 (13-25.4) using FP escutcheon.

**Note:** Sprinklers shown in Fig. 3 and Fig. 4 are not suitable for installation in ceilings which have positive pressure in the space above.
### Technical Data: F1Res 44 LL HSW & HSW/F2 (SIN RA3331)

<table>
<thead>
<tr>
<th>Thread Size</th>
<th>Nominal Orifice Size (inch)</th>
<th>Max. Pressure psi (bar)</th>
<th>Sprinkler Temp. Rating °F °C</th>
<th>Max. Ambient Temp. °F °C</th>
<th>K Factor</th>
<th>Sprinkler Length inch (mm)</th>
<th>( 1/2) AVSTÅND TAK TO DEFLECTOR TO DEFLECTOR °F/°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot; NPT (R 1/2)</td>
<td>3/8&quot; (10)</td>
<td>175 (12)</td>
<td>155 68</td>
<td>100 79</td>
<td>4.4 (63)</td>
<td>2.45 (62)</td>
<td>1/2&quot; (13 mm) ADJUSTMENT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Max. Coverage area ft x ft (m x m)</th>
<th>Max. Spacing ft (m)</th>
<th>Ordinary Temp. Rating (155 °F/68 °C) Flow gpm (l/min)</th>
<th>Pressure psi (bar)</th>
<th>Intermediate Temp. Rating (175 °F/79 °C) Flow gpm (l/min)</th>
<th>Pressure psi (bar)</th>
<th>Top of Deflector to Ceiling inch (mm)</th>
<th>Minimum Spacing ft (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 x 12 (3.6 x 3.6)</td>
<td>12 (3.6)</td>
<td>12 (45.4)</td>
<td>7.5 (0.52)</td>
<td>12 (45.4)</td>
<td>7.5 (0.52)</td>
<td>4 - 6 (100 - 152); 1/2 (13) recessed using F2 escutcheon</td>
<td>8 (2.4)</td>
</tr>
<tr>
<td>14 x 14 (4.3 x 4.3)</td>
<td>14 (4.3)</td>
<td>14 (53.0)</td>
<td>10.2 (0.71)</td>
<td>14 (53.0)</td>
<td>10.2 (0.71)</td>
<td>6 - 12 (152 - 305); 1/2 (13) recessed using F2 escutcheon</td>
<td></td>
</tr>
</tbody>
</table>

For Ceiling types refer to NFPA 13, 13R or 13D

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**Model F1 Res 44 LL and 58 LL HSW**

**Model F1 Res 44 LL and 58 LL Recessed HSW/F2**
## Technical Data: F1Res 58 LL HSW & HSW/F2 (SIN RA3333)

<table>
<thead>
<tr>
<th>Thread Size</th>
<th>Nominal Orifice inch (mm)</th>
<th>Max. Pressure psi (bar)</th>
<th>Sprinkler Temp. Rating</th>
<th>Max. Ambient Temp.</th>
<th>K Factor</th>
<th>Sprinkler Length inch (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot; NPT (R 1/2)</td>
<td>1/2&quot; (13)</td>
<td>175 (12)</td>
<td>155°F 75°C</td>
<td>100°F 38°C</td>
<td>5.8 (83.5)</td>
<td>2.45 (62)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Max. Coverage area ft x ft (m x m)</th>
<th>Max. Spacing ft (m)</th>
<th>Ordinary Temp. Rating (155°F/68°C)</th>
<th>Intermediate Temp. Rating (175°F/79°C)</th>
<th>Top of Deflector to Ceiling inch (mm)</th>
<th>Minimum Spacing ft (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 x 12 (3.6 x 3.6)</td>
<td>12 (3.6)</td>
<td>16 (60.6) 7.6 (0.53)</td>
<td>16 (60.6) 7.6 (0.53)</td>
<td>4 - 6 (100 - 152); 1/2 (13) recessed using F2 escutcheon</td>
<td>8 (2.4)</td>
</tr>
<tr>
<td>14 x 14 (4.3 x 4.3)</td>
<td>14 (4.3)</td>
<td>18 (68.2) 9.7 (0.69)</td>
<td>21 (79.5) 13.2 (0.91)</td>
<td>12 - 15 (302 - 381); 1/2 (13) recessed using F2 escutcheon</td>
<td></td>
</tr>
<tr>
<td>16 x 16 (4.9 x 4.9)</td>
<td>16 (4.9)</td>
<td>21 (79.5) 13.2 (0.91)</td>
<td>25 (94.7) 18.6 (1.28)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 x 20 (4.9 x 6.1)</td>
<td>16 (4.9)</td>
<td>29 (109.8) 25.0 (1.73)</td>
<td>29 (109.8) 25.0 (1.73)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 x 12 (3.6 x 3.6)</td>
<td>12 (3.6)</td>
<td>22 (83.3) 14.4 (1.0)</td>
<td>22 (83.3) 14.4 (1.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 x 14 (4.3 x 4.3)</td>
<td>14 (4.3)</td>
<td>22 (83.3) 14.4 (1.0)</td>
<td>22 (83.3) 14.4 (1.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 x 16 (4.9 x 4.9)</td>
<td>16 (4.9)</td>
<td>26 (98.4) 20.1 (1.39)</td>
<td>26 (98.4) 20.1 (1.39)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 x 18 (4.9 x 5.5)</td>
<td>16 (4.9)</td>
<td>31 (117.4) 28.6 (1.97)</td>
<td>31 (117.4) 28.6 (1.97)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For Ceiling types refer to NFPA 13, 13R or 13D

### Model F1 Res 44 LL SWC

![Model F1 Res 44 LL SWC Diagram](135FG07)

#### Technical Data: F1Res 44 LL SWC (SIN RA3331)

<table>
<thead>
<tr>
<th>Thread Size</th>
<th>Nominal Orifice inch (mm)</th>
<th>Max. Pressure psi (bar)</th>
<th>Cover Temp. Rating</th>
<th>Max. Ambient Temp.</th>
<th>K Factor</th>
<th>Sprinkler Length inch (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot; NPT (R 1/2)</td>
<td>3/8&quot; (10)</td>
<td>175 (12)</td>
<td>135°F 57°C</td>
<td>100°F 38°C</td>
<td>4.4 (63)</td>
<td>2.45 (62)</td>
</tr>
</tbody>
</table>
### Maintenance

Model F1 Res 30 LL, 49 LL, F1 Res 58 LL and F1 Res 44 LL sprinklers should be inspected and the sprinkler system maintained in accordance with NFPA 25, 13, 13D, and 13R. Do not clean sprinkler 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 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.

### Model F1 Res 30 LL, 49 LL & 58 LL 
**Pendent Sprinkler Specifications**

Sprinklers shall be [cULus Listed] [New York City MEA Approved (258-93-E)] low flow residential pendent sprinklers engineered to provide a minimum design density of 0.05 gpm/ft\(^2\) over the listed coverage area. Listed flows as specified by the manufacturer’s technical data sheets are to be used. Residential sprinklers shall be installed in conformance with the manufacturer’s installation guidelines and the applicable installation standard. Where pendant residential sprinklers are installed under sloped ceilings having a pitch from [4/12] to [8/12], the sprinklers shall be listed for such use. Deflector-to-ceiling distance listing shall be 1\(^{\text{st}}\) to 8\(^{\text{th}}\) maximum. Sprinkler frame and deflector shall be of bronze frame construction having a 1/2” NPT thread. Water seal assembly shall consist of a Teflon-coated Belleville spring washer with top-loaded extruded or cold head cup with 3 mm glass bulb containing no plastic parts, and having a temperature rating of [155 °F (68 °C)] [175 °F (79 °C)]. Sprinklers shall have a nominal K-factor of 3.0, 4.9 and 5.8. Standard finish: [Bronze] [Chrome-plated] [White Polyester] [Special finish– specify]. Recessed escutcheon assembly shall be a steel, two-piece escutcheon [with 1/2” adjustment (Model F2)] [with 3/4” adjustment (Model F1)] [of push-on and thread off design with 1/2” adjustment (Model FP)]. Standard finish shall be [brass] [bright chrome] [white painted]. Residential recessed pendant sprinklers shall be Reliable Model F1 Res 30 LL, 49 LL & 58 LL, SIN RA3311, RA3316 & RA3313 (Bulletin 033).

### Model F1 Res 49 LL & 58 LL 
**Recessed Pendent/F1**

### Model F1 Res 30 LL, 49 LL & 58 LL 
**Recessed Pendent/F2**

### Model F1 Res 30 LL, 49 LL & 58 LL 
**Recessed Pendent/FP Specifications**

Sprinklers shall be [cULus Listed] [New York City MEA Approved (258-93-E)] low flow residential recessed pendant sprinklers engineered to provide a minimum design density of 0.05 gpm/ft\(^2\) over the listed coverage area. Listed flows as specified by the manufacturer’s technical data sheets are to be used. Residential sprinklers shall be installed in conformance with the manufacturer’s installation guidelines and the applicable installation standard. Where pendant residential sprinklers are installed under sloped ceilings having a pitch from [4/12] to [8/12], the sprinklers shall be listed for such use. Deflector-to-ceiling distance listing shall be 1\(^{\text{st}}\) to 8\(^{\text{th}}\) maximum. Sprinkler frame and deflector shall be of bronze frame construction having a 1/2” NPT thread. Water seal assembly shall consist of a Teflon-coated Belleville spring washer with top-loaded extruded or cold head cup with 3 mm glass bulb containing no plastic parts, and having a temperature rating of [155 °F (68 °C)] [175 °F (79 °C)]. Sprinklers shall have a nominal K-factor of 3.0, 4.9 and 5.8. Standard finish: [Bronze] [Chrome-plated] [White Polyester] [Special finish– specify]. Recessed escutcheon assembly shall be a steel, two-piece escutcheon [with 1/2” adjustment (Model F2)] [with 3/4” adjustment (Model F1)] [of push-on and thread off design with 1/2” adjustment (Model FP)]. Standard finish shall be [brass] [bright chrome] [white painted]. Residential recessed pendant sprinklers shall be Reliable Model F1 Res 30 LL, 49 LL & 58 LL, SIN RA3311, RA3316 & RA3313 (Bulletin 033).

### Table: 

<table>
<thead>
<tr>
<th>Max. Coverage area ft x ft (m x m)</th>
<th>Max. Spacing ft (m)</th>
<th>Ordinary Temp. Rating (155 °F/68 °C)</th>
<th>Top of Deflector to Ceiling inch (mm)</th>
<th>Minimum Spacing ft (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 x 12 (3.6 x 3.6)</td>
<td>12 (3.6)</td>
<td>13 (49.2)</td>
<td>8.7 (0.60)</td>
<td>4 - 6 (100 - 152); 1/2 (13) recessed using F2 escutcheon</td>
</tr>
<tr>
<td>14 x 14 (4.3 x 4.3)</td>
<td>14 (4.3)</td>
<td>14 (53.0)</td>
<td>10.2 (0.71)</td>
<td>6 - 12 (152 - 305); 1/2 (13) recessed using F2 escutcheon</td>
</tr>
<tr>
<td>16 x 16 (4.9 x 4.9)</td>
<td>16 (4.9)</td>
<td>17 (64.3)</td>
<td>15.0 (1.1)</td>
<td>8 (2.4)</td>
</tr>
<tr>
<td>16 x 18 (4.9 x 5.5)</td>
<td>16 (4.9)</td>
<td>19 (71.8)</td>
<td>18.7 (1.13)</td>
<td></td>
</tr>
<tr>
<td>16 x 20 (4.9 x 6.1)</td>
<td>16 (4.9)</td>
<td>23 (87.1)</td>
<td>27.4 (1.89)</td>
<td></td>
</tr>
<tr>
<td>12 x 12 (3.6 x 3.6)</td>
<td>12 (3.6)</td>
<td>14 (52.9)</td>
<td>10.2 (0.71)</td>
<td></td>
</tr>
<tr>
<td>14 x 14 (4.3 x 4.3)</td>
<td>14 (4.3)</td>
<td>15 (56.7)</td>
<td>11.7 (0.81)</td>
<td></td>
</tr>
<tr>
<td>16 x 16 (4.9 x 4.9)</td>
<td>16 (4.9)</td>
<td>18 (68.1)</td>
<td>16.8 (1.16)</td>
<td></td>
</tr>
<tr>
<td>16 x 18 (4.9 x 5.5)</td>
<td>16 (4.9)</td>
<td>20 (75.6)</td>
<td>20.7 (1.43)</td>
<td></td>
</tr>
</tbody>
</table>

For Ceiling types refer to NFPA 13, 13R or 13D
Model F1 Res 30 LL, 49 LL & 58 LL CCP
Pendant (Concealed) Specifications
Sprinklers shall be [cULus Listed] [New York City MEA Approved (258-93-E)] low flow residential concealed sprinklers engineered to provide a minimum design density of 0.05 gpm/ft² over the listed coverage area. Listed flows as specified by the manufacturer’s technical data sheets are to be used. Residential sprinklers shall be installed in conformance with the manufacturer’s installation guidelines and the applicable installation standard. Where pendent residential sprinklers are installed under sloped ceilings having a pitch from [4/12] to [8/12], the sprinklers shall be listed for such use. Sprinkler frame and deflector shall be of bronze frame construction having a 1/2” NPT thread. Water seal assembly shall consist of a Teflon-coated Belleville spring washer with top-loaded extruded or cold head cup with 3 mm glass bulb containing no plastic parts, and having a temperature rating of 155 °F (68 °C). Cover plate assembly shall consist of a brass cover plate and copper alloy retainer flange. Method of attaching the cover plate to the sprinkler cup shall be a push-on and thread-off design allowing a 1/2” cover plate adjustment. Cover plate temperature rating shall be 135 °F (57 °C). A plastic protective cap shall be provided and factory installed inside the sprinkler cup to protect the sprinkler from damage, which could occur during construction before the cover plate is installed. Standard cover plate finish: [White] [Custom Color– specify]. Concealed pendent sprinklers shall be Reliable Model F1 Res 30 LL, 49 LL & 58 LL CCP, SIN RA3311, RA3316 & RA3313 (Bulletin 033).

Model F1 Res 44 LL Horizontal Sidewall Residential Sprinkler Specifications
Sprinklers shall be [cULus Listed] [New York City MEA Approved (258-93-E)] low flow residential horizontal sidewall sprinklers engineered to provide a minimum design density of 0.05 gpm/ft² over the listed coverage area. Listed flows as specified by the manufacturer’s technical data sheets are to be used. Residential sprinklers shall be installed in conformance with the manufacturer’s installation guidelines and the applicable installation standard. Where horizontal sidewall residential sprinklers are installed under sloped ceilings having a pitch from [4/12] to [8/12], the sprinklers shall be listed for such use. Sprinkler frame and deflector shall be of bronze frame construction having a 1/2” NPT thread. Water seal assembly shall consist of a Teflon-coated Belleville spring washer with top-loaded extruded or cold head cup with 3 mm glass bulb containing no plastic parts, and having a temperature rating of 155 °F (68 °C) [175 °F (79 °C)]. Sprinklers shall have a nominal K-factor of 4.4 (62.8). Standard finish: [Bronze] [Chrome-plated] [White Polyester] [Special finish– specify], Residential horizontal sidewall sprinklers shall be Reliable Model F1 Res 44 LL, SIN RA3331 (Bulletin 033).

Model F1 Res 44 LL Recessed Horizontal Sidewall Sprinkler Specifications
Use description for the Model F1 Res 44 horizontal sidewall sprinkler with the following modifications: Replace “horizontal sidewall sprinkler” with “recessed horizontal sprinkler.” Add: Recessed escutcheon assembly shall be a steel, two-piece escutcheon with 1/2” adjustment (Model F2). Standard finish shall be [brass] [bright chrome] [white painted] [Special finish– specify]. Residential recessed horizontal sidewall sprinklers shall be Reliable Model F1 Res 44 LL/F2, SIN RA3331 (Bulletin 033).

Finishes (1)

<table>
<thead>
<tr>
<th>Sprinkler Type</th>
<th>F1, F2, FP Escutcheons</th>
<th>Cover Plates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brass</td>
<td>Bright Brass Plated</td>
<td>White Painted Chrome</td>
</tr>
<tr>
<td>Chrome Plated</td>
<td>Bright Chrome Plated</td>
<td></td>
</tr>
<tr>
<td>White and Black Polyester Coated</td>
<td>White Painted</td>
<td></td>
</tr>
</tbody>
</table>

Special Application finishes

<table>
<thead>
<tr>
<th>Sprinkler Type</th>
<th>F1, F2, Escutcheons</th>
<th>Cover Plates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bright Brass</td>
<td>Bright Brass</td>
<td>Bright Brass</td>
</tr>
<tr>
<td>Black Plated</td>
<td>Black Plated</td>
<td>Black Plated</td>
</tr>
<tr>
<td>Black Paint</td>
<td>Black Paint</td>
<td>Black Paint</td>
</tr>
<tr>
<td>Off White</td>
<td>Off White</td>
<td>Off White</td>
</tr>
<tr>
<td>Satin Chrome</td>
<td>Satin Chrome</td>
<td>Satin Chrome</td>
</tr>
</tbody>
</table>

(1) Other finishes and colors are available on special order. Consult factory for details.

Note: Paint or any other coating applied over the factory finish will void all approvals and warranties.

Ordering Information
Specify:
1. Sprinkler Model
2. Sprinkler Type
3. Temperature Rating
4. Sprinkler Finish
5. Escutcheon Finish
6. Cover Plate Finish
Reliable... For Complete Protection

Reliable offers a wide selection of sprinkler components. Following are some of the many precision-made Reliable products that guard life and property from fire around the clock.

- Automatic sprinklers
- Flush automatic sprinklers
- Recessed automatic sprinklers
- Concealed automatic sprinklers
- Adjustable automatic sprinklers
- Dry automatic sprinklers
- Intermediate level sprinklers
- Open sprinklers
- Spray nozzles
- Alarm valves
- Retarding chambers
- Dry pipe valves
- Accelerators for dry pipe valves
- Mechanical sprinkler alarms
- Electrical sprinkler alarm switches
- Water flow detectors
- Deluge valves
- Detector check valves
- Check valves
- Electrical system
- Sprinkler emergency cabinets
- Sprinkler w reminders
- Sprinkler escutcheons and guards
- Inspectors test connections
- Sight drains
- Ball drips and drum drips
- Control valve seals
- Air maintenance devices
- Air compressors
- Pressure gauges
- Identification signs
- Fire department connection

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 almost 100 years.