



## Model F1Res LL Series Glass Bulb Residential Sprinklers

cULus Listed

### Features

- Low-lead 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 LL Series sprinklers are low-lead 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 LL 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.

Model F1 RES LL sprinklers are also cULus Certified for Health Effects to NSF/ANSI/ANSI/CAN600, cULus Certified less than 0.25% Lead Content to NSF/ANSI 372 Annex G, and WaterMark Certified (certificate no. 23347)

Model F1Res LL Series sprinklers are listed for use in wet systems only.

### Application

Model F1Res LL Series sprinklers cULus Listed Residential sprinklers are intended for use in residential occupancies and residential portions of any occupancy in accordance with NFPA Standards 13, 13D, or 13R.

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.

**Important!** Reliable fire sprinklers must be handled, stored, and installed in accordance with the guidelines in Caution Sheet 310 and this bulletin. Failure to follow these instructions may result in unintended operation or nonoperation of the fire protection system.



For NFPA 13 applications, the design density shall be a minimum of 0.1 gpm/sf (4.1 mm/min), over the actual coverage area, 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.

### Residential Sprinkler Summary

Table A

Sprinkler Model	Sprinkler Identification Number (SIN)	Orientation	K-Factor gpm/psi <sup>1/2</sup> (lpm/bar <sup>1/2</sup> )	Thread Size NPT or ISO7-1	Installation Options	Max. Coverage Area ft x ft (m x m)
F1Res30 LL	RA3311	Pendent	3.0 (43)	1/2	Pendent or Recessed	16 x 16 (4.9 x 4.9)
F1Res49 LL	RA3316	Pendent	4.9 (71)	1/2	Pendent or Recessed	20 x 20 (6.1 x 6.1)
F1Res58 LL	RA3313	Pendent	5.8 (84)	1/2	Pendent or Recessed	20 x 20 (6.1 x 6.1)
F1Res30 LL CCP	RA3311	Pendent	3.0 (43)	1/2	Conical Concealed	14 x 14 (4.3 x 4.3)
F1Res49 LL CCP	RA3316	Pendent	4.9 (71)	1/2	Conical Concealed	20 x 20 (6.1 x 6.1)
F1Res58 LL CCP	RA3313	Pendent	5.8 (84)	1/2	Conical Concealed	20 x 20 (6.1 x 6.1)
F1Res44 LL HSW	RA3331	Horizontal Sidewall	4.4 (63)	1/2	Recessed	16 x 20 (4.9 x 6.1)
F1Res44 LL SWC	RA3331	Horizontal Sidewall	4.4 (63)	1/2	Conical Concealed	16 x 20 (4.9 x 6.1)
F1Res58 LL HSW	RA3333	Horizontal Sidewall	5.8 (84)	1/2	Recessed	16 x 20 (4.9 x 6.1)

**Technical Specifications**

**Style:** Pendant and Recessed Pendant  
**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 K)

**Sensitivity**

Fast-response

**Temperature Ratings**

155°F (68°C)  
 175°F (79°C)

**Recessed Escutcheons**

F2 Recessed

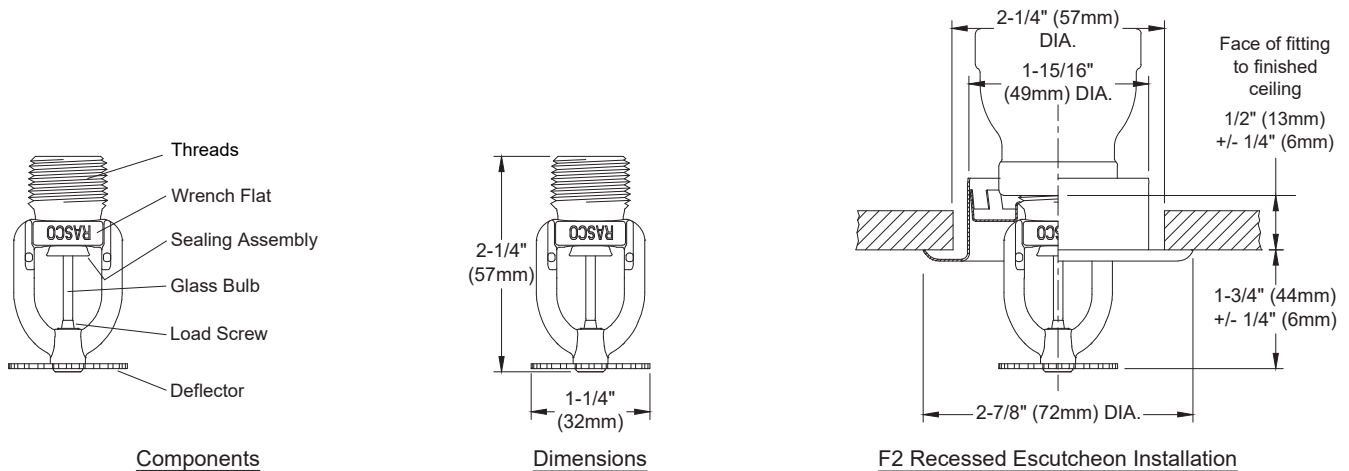
**Sprinkler Wrenches**

Model W2  
 Model GFR2 (Recessed)



**Model F1Res30 LL Residential Pendant Sprinkler Components and Installation Dimensions**

**Figure 1**



**Model F1Res30 LL Residential Pendant Sprinkler Hydraulic Design Criteria**

**Table B**

Minimum Flow and Residual Pressure in Wet Pipe Systems <sup>(1)</sup>			
Maximum Coverage Area <sup>(2)</sup> ft. x ft. (m x m)	Flow gpm (l/min)	Pressure psi (bar)	Deflector to Ceiling Distance
12 x 12 (3.7 x 3.7)	8 (30)	7.0 (0.48)	1 to 4 inches (25 to 100 mm)
14 x 14 (4.3 x 4.3)	10 (38)	11.0 (0.76)	
15 x 15 (4.6 x 4.6)	12 (45)	16.0 (1.1)	
16 x 16 (4.9 x 4.9)	13 (49)	18.8 (1.3)	

**Notes:**

- 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.
- For coverage area dimensions less than those listed above, use the minimum required flow for the next larger maximum coverage area listed.

**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 K)

**Sensitivity**

Fast-response

**Temperature Ratings**

155°F (68°C)

175°F (79°C)

**Recessed Escutcheons**

F1 Recessed

F2 Recessed

**Sprinkler Wrenches**

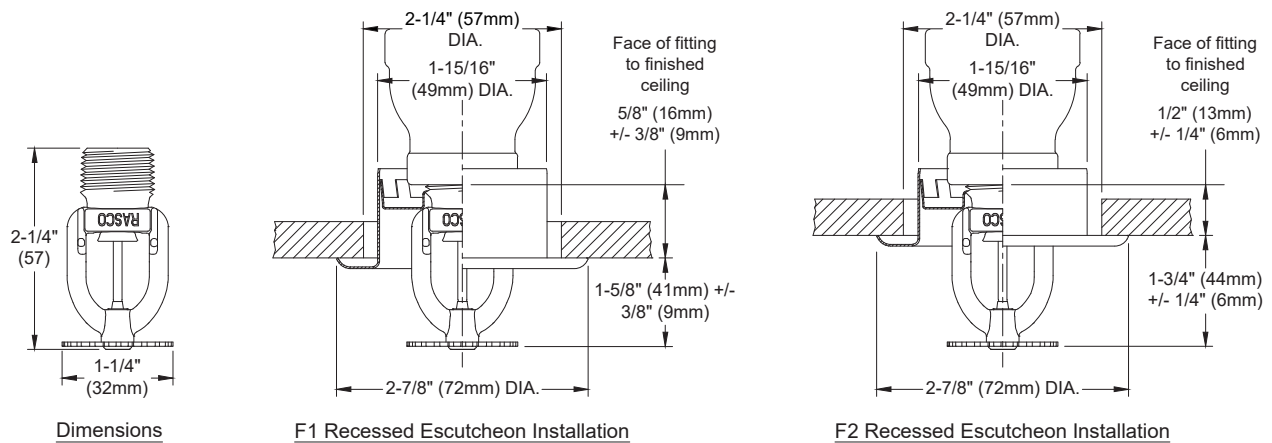
Model W2

Model GFR2 (Recessed)



Model F1Res49 LL Residential Pendent Sprinkler Components and Installation Dimensions

Figure 2



Model F1Res49 LL Residential Pendent Sprinkler Hydraulic Design Criteria

Table C

Minimum Flow and Residual Pressure in Wet Pipe Systems <sup>(1)</sup>			
Maximum Coverage Area <sup>(2)</sup> ft. x ft. (m x m)	Flow gpm (l/min)	Pressure psi (bar)	Deflector to Ceiling Distance
12 x 12 (3.7 x 3.7)	13 (49)	7.0 (0.48)	1 to 4 inches (25 to 100 mm)
14 x 14 (4.3 x 4.3)	13 (49)	7.0 (0.48)	
16 x 16 (4.9 x 4.9)	13 (49)	7.0 (0.48)	
18 x 18 (5.5 x 5.5)	17 (64)	12.0 (0.83)	
20 x 20 (6.1 x 6.1)	20 (76)	16.7 (1.15)	4 to 8 inches (100 to 200 mm)
12 x 12 (3.7 x 3.7)	15 (57)	9.4 (0.65)	
14 x 14 (4.3 x 4.3)	16 (61)	10.7 (0.74)	
16 x 16 (4.9 x 4.9)	17 (64)	12.0 (0.83)	
18 x 18 (5.5 x 5.5)	19 (72)	15.0 (1.03)	
20 x 20 (6.1 x 6.1)	22 (83)	20.2 (1.39)	

**Notes:**

- 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.
- For coverage area dimensions less than those listed above, use the minimum required flow for the next larger maximum coverage area listed.

**Model F1Res58 LL Residential Pendent Sprinkler & F1 & F2 Recessed Escutcheons**

**SIN RA3313**

**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

**Finishes**

(See Table K)

**Sensitivity**

Fast-response

**Temperature Ratings**

155°F (68°C)

175°F (79°C)

**Recessed Escutcheons**

F1 Recessed

F2 Recessed

**Sprinkler Wrenches**

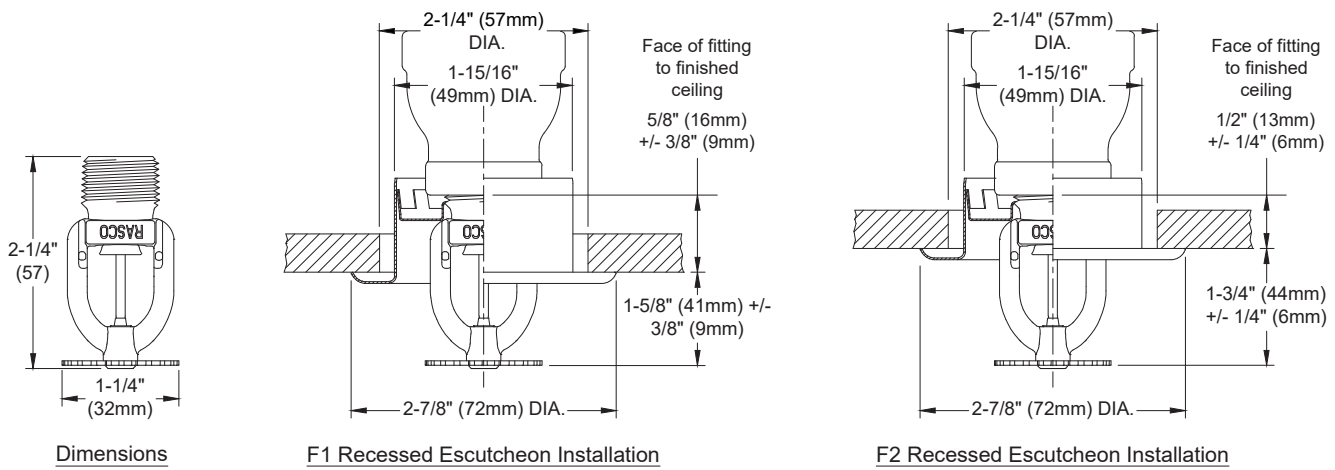
Model W2

Model GFR2 (Recessed)



**Model F1Res58 LL Residential Pendent Sprinkler Components and Installation Dimensions**

**Figure 3**



**Model F1Res58 LL Residential Pendent Sprinkler Hydraulic Design Criteria**

**Table D**

Minimum Flow and Residual Pressure in Wet Pipe Systems <sup>(1)</sup>			
Maximum Coverage Area <sup>(2)</sup> ft. x ft. (m x m)	Flow gpm (l/min)	Pressure psi (bar)	Deflector to Ceiling Distance
16 x 16 (4.9 x 4.9)	16 (61)	7.6 (0.52)	1 to 4 inches (25 to 100 mm)
18 x 18 (5.5 x 5.5)	19 (72)	10.8 (0.75)	
20 x 20 (6.1 x 6.1)	22 (83)	14.4 (1.0)	

**Notes:**

- 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.
- For coverage area dimensions less than those listed above, use the minimum required flow for the next larger maximum coverage area listed.

**Model F1Res30 LL CCP Conical Concealed & Model FP Recessed Pendent Sprinkler**

**SIN RA3311**

**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 K)

**Sensitivity**

Fast-response

**Temperature Ratings**

155°F (68°C)

**Recessed Escutcheons/Cover Plates**

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

**Sprinkler Wrenches**

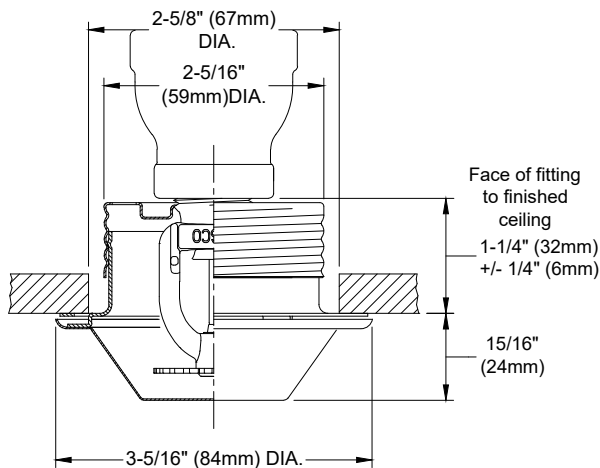
Model GFR2



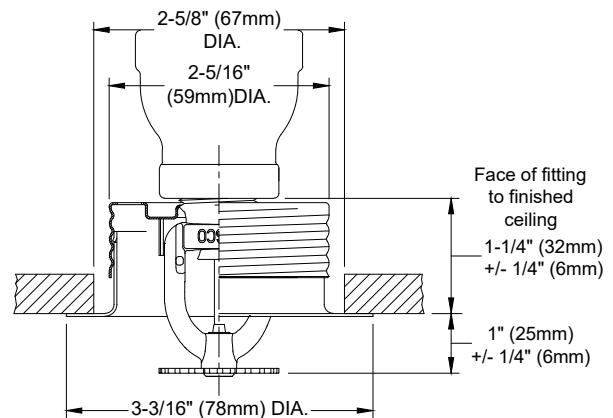
**\*Note:** Model F1Res LL sprinklers with Model FP recessed escutcheon or Model CCP cover plate may not be used where the pressure above the ceiling is positive with respect to the protected area. Ensure openings in the sprinkler cup are unobstructed following installation.

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

**Figure 4**



CCP Recessed Escutcheon Installation



FP Recessed Escutcheon Installation

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

**Table E**

Minimum Flow and Residual Pressure in Wet Pipe Systems <sup>(1)</sup>			
Maximum Coverage Area <sup>(2)</sup> ft. x ft. (m x m)	Flow gpm (l/min)	Pressure psi (bar)	Deflector to Ceiling Distance
12 x 12 (3.7 x 3.7)	8 (30)	7.0 (0.48)	1/2 to 1 inch (13 to 25 mm)
14 x 14 (4.3 x 4.3)	11 (38)	13.4 (0.92)	

**Notes:**

- 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.
- For coverage area dimensions less than those listed above, use the minimum required flow for the next larger maximum coverage area listed.
- The sprinkler must be installed into a ceiling with the listed cover plate installed.

**Model F1Res49 LL CCP Conical Concealed & Model FP Recessed Pendent Sprinkler**

**SIN RA3316**

**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 K)

**Sensitivity**

Fast-response

**Temperature Ratings**

155°F (68°C)

**Recessed Escutcheons/Cover Plates**

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

**Sprinkler Wrenches**

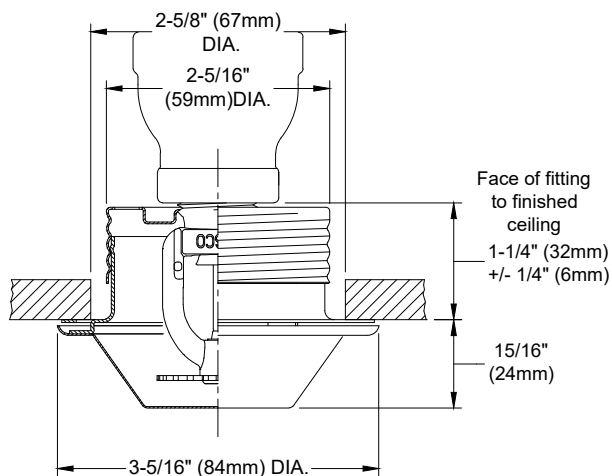
Model GFR2



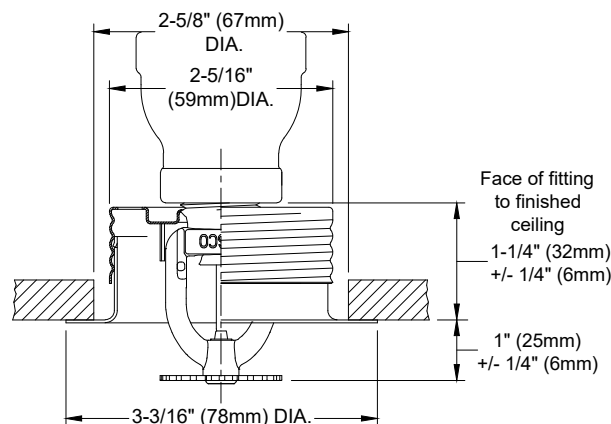
**\*Note:** Model F1Res LL sprinklers with Model FP recessed escutcheon or Model CCP cover plate may not be used where the pressure above the ceiling is positive with respect to the protected area. Ensure openings in the sprinkler cup are unobstructed following installation.

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

**Figure 5**



**CCP Recessed Escutcheon Installation**



**FP Recessed Escutcheon Installation**

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

**Table F**

Minimum Flow and Residual Pressure in Wet Pipe Systems <sup>(1)</sup>			
Maximum Coverage Area <sup>(2)</sup> ft. x ft. (m x m)	Flow gpm (l/min)	Pressure psi (bar)	Deflector to Ceiling Distance
14 x 14 (4.3 x 4.3)	13 (49)	7.0 (0.48)	1/2 to 1 inch (13 to 25 mm)
16 x 16 (4.9 x 4.9)	14 (53)	8.2 (0.57)	
18 x 18 (5.5 x 5.5)	18 (68)	13.5 (0.93)	
20 x 20 (6.1 x 6.1)	20 (76)	16.7 (1.15)	

**Notes:**

- 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.
- For coverage area dimensions less than those listed above, use the minimum required flow for the next larger maximum coverage area listed.
- The sprinkler must be installed into a ceiling with the listed cover plate installed.

**Model F1Res58 LL CCP Conical Concealed & Model FP Recessed Pendant Sprinkler**

**SIN RA3313**

**Technical Specifications**

**Style:** Conical Concealed Pendant and Recessed Pendant  
**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

**Finishes**

(See Table K)

**Sensitivity**

Fast-response

**Temperature Ratings**

155°F (68°C)

**Recessed Escutcheons/Cover Plates**

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

**Sprinkler Wrenches**

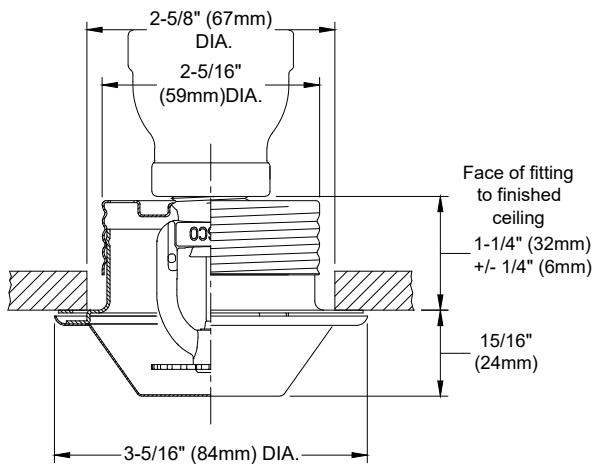
Model GFR2



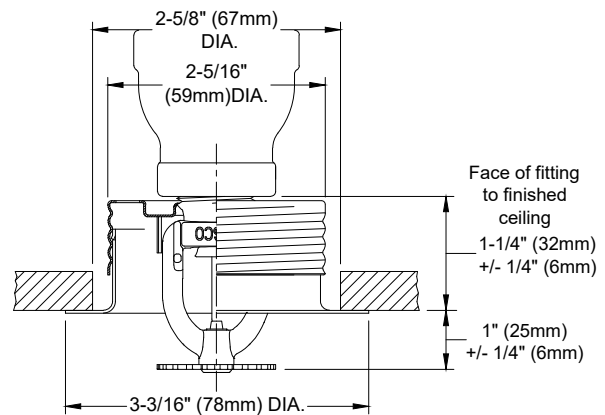
**\*Note:** Model F1Res LL sprinklers with Model FP recessed escutcheon or Model CCP cover plate may not be used where the pressure above the ceiling is positive with respect to the protected area. Ensure openings in the sprinkler cup are unobstructed following installation.

**Model F1Res58 LL CCP and FP Recessed Pendant Sprinkler Installation Dimensions**

**Figure 6**



**CCP Recessed Escutcheon Installation**



**FP Recessed Escutcheon Installation**

**Model F1Res58 LL CCP Pendant & FP Recessed Pendant Hydraulic Design Criteria**

**Table G**

Minimum Flow and Residual Pressure in Wet Pipe Systems <sup>(1)</sup>			
Maximum Coverage Area <sup>(2)</sup> ft. x ft. (m x m)	Flow gpm (l/min)	Pressure psi (bar)	Deflector to Ceiling Distance
16 x 16 (4.9 x 4.9)	16 (61)	7.6 (0.52)	1/2 to 1 inch (13 to 25 mm)
18 x 18 (5.5 x 5.5)	19 (72)	10.8 (0.75)	
20 x 20 (6.1 x 6.1)	22 (83)	14.4 (1.0)	

**Notes:**

- 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.
- For coverage area dimensions less than those listed above, use the minimum required flow for the next larger maximum coverage area listed.
- The sprinkler must be installed into a ceiling with the listed cover plate installed.



**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

**Finishes**

(See Table K)

**Sensitivity**

Fast-response

**Temperature Ratings**

155°F (68°C)

175°F (79°C)

**Recessed Escutcheons**

F2 Recessed

**Sprinkler Wrenches**

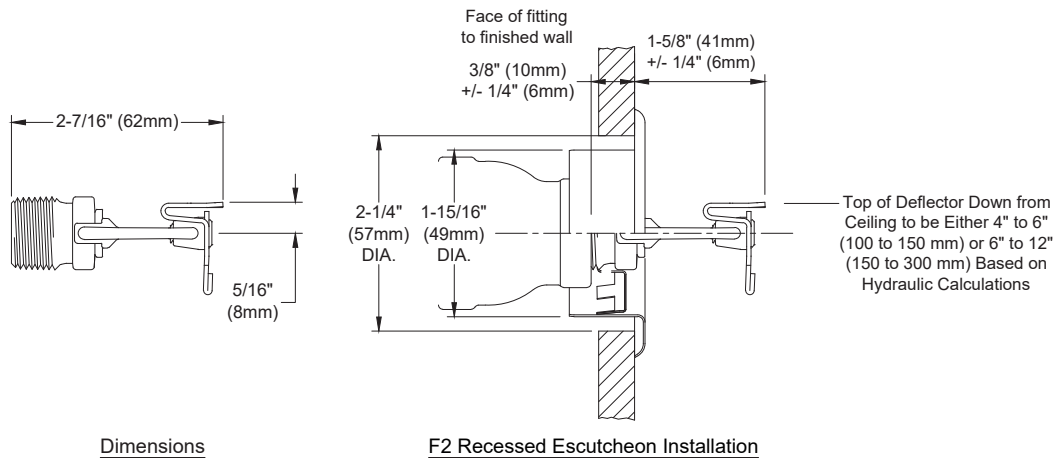
Model W2

Model GFR2 (Recessed)



**Model F1Res44 LL Horizontal Sidewall Sprinkler Installation Dimensions**

**Figure 7**



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

**Table H**

Minimum Flow and Residual Pressure in Wet Pipe Systems <sup>(1)</sup>			
Maximum Coverage Area <sup>(2)</sup> ft. x ft. (m x m)	Flow gpm (l/min)	Pressure psi (bar)	Deflector to Ceiling Distance
12 x 12 (3.7 x 3.7)	12 (45)	7.5 (0.52)	4 to 6 inches (100 to 150 mm)
14 x 14 (4.3 x 4.3)	14 (53)	10.2 (0.70)	
15 x 15 (4.6 x 4.6)	15 (57)	11.6 (0.80)	
16 x 16 (4.9 x 4.9)	16 (61)	13.3 (0.92)	
16 x 18 (4.9 x 5.5)	18 (68)	16.8 (1.16)	
16 x 20 (4.9 x 6.1)	23 (87)	27.4 (1.89)	
18 x 18 (5.5 x 5.5)	19 (72)	18.7 (1.29)	6 to 12 inches (150 to 300 mm)
12 x 12 (3.7 x 3.7)	14 (53)	10.2 (0.7)	
14 x 14 (4.3 x 4.3)	16 (61)	13.2 (0.91)	
15 x 15 (4.6 x 4.6)	16 (61)	13.2 (0.91)	
16 x 16 (4.9 x 4.9)	17 (64)	15.0 (1.03)	
16 x 18 (4.9 x 5.5)	20 (76)	20.7 (1.43)	
16 x 20 (4.9 x 6.1)	23 (87)	27.4 (1.89)	

**Notes:**

- 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.
- For coverage area dimensions less than those listed above, use the minimum required flow for the next larger maximum coverage area listed.



**Model F1Res44 LL SWC Conical Concealed Horizontal Sidewall Sprinkler**

**SIN RA3331**

**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 K)

**Sensitivity**

Fast-response

**Temperature Ratings**

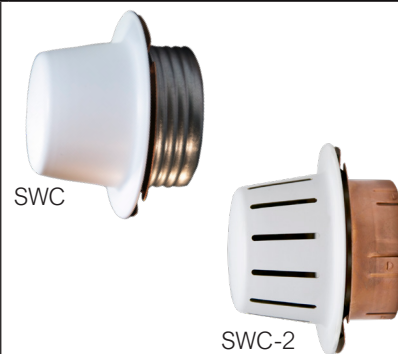
155°F (68°C)  
 175°F (79°C) <sup>(1)</sup>

**Cover Plates**

SWC Conical Concealed Plate<sup>(2)</sup>  
 SWC-2 (Slotted) Conical Concealed Plate<sup>(3)</sup>

**Sprinkler Wrenches**

Model GFR2



**Note:**

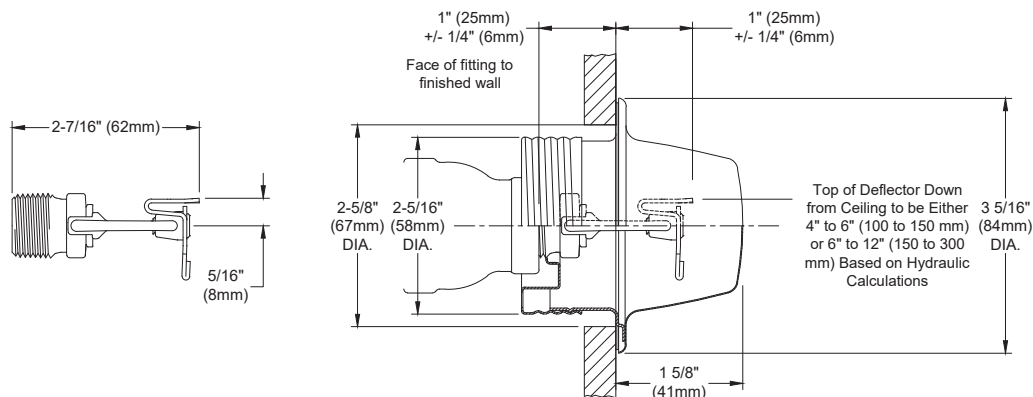
<sup>(1)</sup> Not for installation where the maximum ceiling temperature exceeds 100°F due to cover plate temperature rating.

<sup>(2)</sup> 135°F SWC Conical Concealed Plate for 155°F (68°C) sprinklers

<sup>(3)</sup> 135°F SWC-2 (Slotted) Conical Concealed Plate for 175°F (79°C) sprinklers

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

**Figure 8**



Dimensions

SWC & SWC-2 Concealed Cover Plate Installation

**Note:** Model F1Res44 LL sprinklers with SWC cover plate may not be used where the pressure behind the sprinkler is positive with respect to the pressure in the protected area. Ensure that openings in the sprinkler cup are unobstructed following installation.

**Model F1Res44 LL SWC Conical Concealed Horizontal Sidewall Sprinkler Hydraulic Design Criteria**

**Table I**

Minimum Flow and Residual Pressure in Wet Pipe Systems <sup>(1)</sup>					
Maximum Coverage Area <sup>(2)</sup> ft. x ft. (m x m)	Ordinary Temperature Rating 155°F (68°C)		Intermediate Temperature Rating 175°F (79°C)		Deflector to Ceiling Distance
	Flow gpm (l/min)	Pressure psi (bar)	Flow gpm (l/min)	Pressure psi (bar)	
12 x 12 (3.7 x 3.7)	13 (49)	8.7 (0.60)	14 (53)	10.2 (0.7)	4 to 6 inches (100 to 150 mm)
14 x 14 (4.3 x 4.3)	14 (53)	10.2 (0.7)	14 (53)	10.2 (0.7)	
15 x 15 (4.6 x 4.6)	16 (61)	13.2 (0.91)	--	--	
16 x 16 (4.9 x 4.9)	17 (64)	15.0 (1.03)	--	--	
16 x 18 (5.5 x 5.5)	19 (72)	18.7 (1.31)	--	--	
16 x 20 (4.9 x 6.1)	23 (87)	27.4 (1.89)	--	--	6 to 12 inches (150 to 300 mm)
12 x 12 (3.7 x 3.7)	14 (53)	10.2 (0.7)	--	--	
14 x 14 (4.3 x 4.3)	15 (57)	11.7 (0.81)	--	--	
15 x 15 (4.6 x 4.6)	17 (64)	15.0 (1.03)	--	--	
16 x 16 (4.9 x 4.9)	18 (68)	16.8 (1.16)	--	--	
16 x 18 (4.9 x 5.5)	20 (76)	20.7 (1.43)	--	--	

**Notes:**

- 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.
- For coverage area dimensions less than those listed above, use the minimum required flow for the next larger maximum coverage area listed.

**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

**Finishes**

(See Table K)

**Sensitivity**

Fast-response

**Temperature Ratings**

155°F (68°C)  
 175°F (79°C)

**Recessed Escutcheons**

F2 Recessed

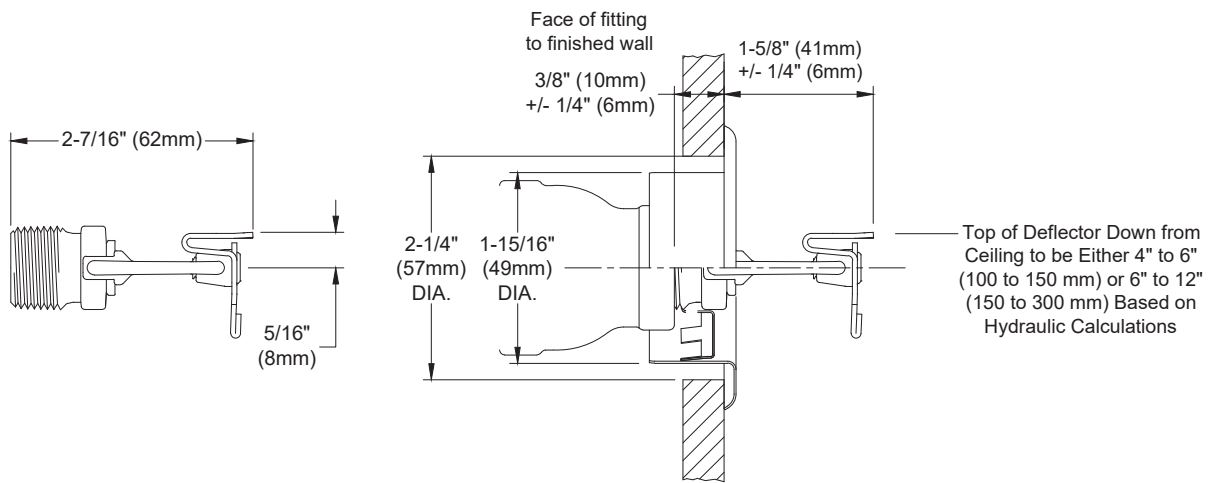
**Sprinkler Wrenches**

Model W2  
 Model GFR2 (Recessed)



**Model F1Res58 LL Residential Horizontal Sidewall Sprinkler Installation Dimensions**

**Figure 9**



Dimensions

F2 Recessed Escutcheon Installation

**Model F1Res58 LL Horizontal Sidewall Sprinkler Hydraulic Design Criteria**

**Table J**

Minimum Flow and Residual Pressure in Wet Pipe Systems <sup>(1)</sup>			
Maximum Coverage Area <sup>(2)</sup> ft. x ft. (m x m)	Flow gpm (l/min)	Pressure psi (bar)	Deflector to Ceiling Distance
12 x 12 (3.7 x 3.7)	16 (61)	7.6 (0.52)	4 to 6 inches (100 to 150 mm)
14 x 14 (4.3 x 4.3)	18 (68)	9.7 (0.66)	
15 x 15 (4.6 x 4.6)	19 (72)	10.7 (0.74)	
16 x 16 (4.9 x 4.9)	21 (80)	13.2 (0.91)	
16 x 18 (4.9 x 5.5)	25 (95)	18.6 (1.28)	
16 x 20 (4.9 x 6.1)	29 (110)	25.0 (1.72)	6 to 12 inches (150 to 300 mm)
12 x 12 (3.7 x 3.7)	22 (83)	14.4 (1.0)	
14 x 14 (4.3 x 4.3)	22 (83)	14.4 (1.0)	
15 x 15 (4.6 x 4.6)	24 (91)	17.1 (1.18)	
16 x 16 (4.9 x 4.9)	26 (98)	20.1 (1.39)	
16 x 18 (4.9 x 5.5)	31 (117)	28.6 (1.97)	

**Notes:**

- 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.
- For coverage area dimensions less than those listed above, use the minimum required flow for the next larger maximum coverage area listed.

Standard Finishes			Special Application Finishes		
Sprinkler <sup>(1)</sup>	F1, F2, & FP <sup>(3)</sup> , Escutcheons	CCP, SWC (Conical) Cover Plates <sup>(1)</sup>	Sprinkler <sup>(1)</sup>	F1, F2, & FP <sup>(3)</sup> Escutcheons	CCP, SWC (Conical) Cover Plates <sup>(1)(3)</sup>
Bronze	Brass	--	Bright Brass	Bright Brass	Bright Brass
Chrome Plated	Chrome Plated	Chrome Plated	Satin Chrome	Satin Chrome	Satin Chrome
White Polyester <sup>(2)</sup>	White Polyester	White Paint	Black Polyester <sup>(2)</sup>	Black Polyester	Black Paint
--	--	--	Custom Color Polyester	Custom Color Polyester	Custom Color Paint
--	--	--	Electroless Nickel PTFE <sup>(2)</sup>	--	--

**Notes:**

1. Paint or any other coating applied over the factory finish will void all approvals and warranties.
2. cULus Listed Corrosion Resistant.
3. Model FP, CCP, and SWC assemblies consist of an unfinished galvanized cup with a finish trim ring or cover plate.

**Installation**

Models F1Res LL sprinklers are to be installed as shown in this bulletin. Model F1, F2, and FP recessed escutcheons are the only recessed escutcheons to be used with Model F1Res LL sprinklers. Not all F1Res LL 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 exposed or surface mount Model F1Res LL sprinklers, use only the Model W2 sprinkler Wrench; for installing Models F1Res LL Recessed Pendent, Sidewall, Conical Concealed Pendent (CCP), and Sidewall Concealed (SWC and SWC-2) sprinklers use only the Model GFR2 sprinkler wrench. The Model GFR2 sprinkler wrench is intended for use with a standard 1/2" square drive ratchet. Use of wrenches other than those specified may damage these sprinklers.

Installation of F1Res LL 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 LL 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.

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 LL 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.

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)

cULus Certified for Health Effects to NSF/ANSI/ANSI/CAN600

cULus Certified less than 0.25% Lead Content to NSF/ANSI 372 Annex G, and WaterMark Certified (certificate no. 23347)

## Guarantee

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

## Patents

For patents applicable to products contained in this technical bulletin, please visit [www.r-s.co](http://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 K)

### Escutcheon or Cover Plate

- Model
- Finish (See Table K)

### Sprinkler Wrench

- Model W2 (Pendent and HSW)
- Model GFR2 (Recessed and Concealed)