



Model F1 Model F1 Recessed Standard Response Sprinklers

The Designer® Model F1 Sprinkler

Standard Upright
Standard Pendent
Extended Coverage Pendent
Conventional
Vertical Sidewall
Horizontal Sidewall
– HSW 1 Deflector
Horizontal Sidewall Extended Coverage
– EC-6 Deflector

The Designer® II Model F1 Recessed Sprinkler

Recessed Pendent
Recessed Extended Coverage Pendent
Recessed Extended Coverage Horizontal Sidewall

Approval Organizations

1. Underwriters Laboratories Inc.
2. Underwriters' Laboratories of Canada
3. Factory Mutual Research Corp.
4. Loss Prevention Council
5. NYC BS&A No. 587-75-SA
6. Pleniére Assemblée
7. Verband der Schadenversicherer
8. NYC MEA 258-93-E

UL Listing Category

Sprinklers, Automatic & Open (VNIV)

**Patents: US Patent No. 6,374,920 Applies to
Model F1 Vertical Sidewall Sprinklers**

Product Description

The F1 Glass Bulb Sprinkler combines the durability of a standard sprinkler with the attractive low profile of a decorative sprinkler. Whether installed on exposed piping or in an office ceiling, it is functional and attractive. The Horizontal and Vertical Sidewall Sprinklers provide an equally attractive appearance when ceiling piping cannot be used.

Beautifully versatile is the description for the Reliable Model F1 Recessed Designer glass bulb sprinkler. Recessing The Designer® enhances its already low profile decorative appearance, and facilitates a rapid and perfect installation.

Model F1 Recessed Designer's escutcheon is highly adjustable. The two piece construction makes field installation a very easy and rapid task. This also allows ceiling panels to later be removed without shutting down the fire protection system, thus facilitating maintenance of above ceiling services.

The Designer® Automatic Sprinkler utilizes a frangible glass bulb. The glass bulb consists of an accurately controlled amount of special fluid hermetically sealed inside of a precisely manufactured glass capsule. This glass bulb is specially constructed to provide fast thermal response.



Upright



Pendent



Vertical Sidewall



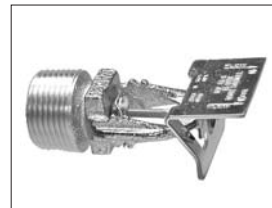
Conventional



Horizontal Sidewall



Recessed Pendent



Extended Coverage
Horizontal Sidewall



Recessed Extended
Coverage Horizontal
Sidewall



Extended Coverage
Pendent



Recessed Extended
Coverage Pendent

At normal temperatures, the glass bulb contains the fluid in both the liquid phase and in the vapor phase. The vapor phase can be seen as a small bubble. As heat is applied, the liquid expands forcing the bubble smaller and smaller as the liquid pressure increases. Continued heating forces the liquid to push out against the bulb, causing the glass to shatter, opening the waterway and allowing the deflector to distribute the discharging water.

The F1 Sprinkler temperature rating is identified by the color of the glass bulb capsule as well as frame color where applicable.

Model F1 Upright, Pendent & Conventional Sprinklers

Installation Wrench: Model D Sprinkler Wrench



Upright



Pendent



Conventional

Installation Data:

Nominal Orifice	Thread Size	Nominal K Factor		Sprinkler Height	Approval Organization	Sprinkler Identification Numbers (SIN)	
		US	Metric			Upright	Pendent
Standard-Upright (SSU) and Pendent (SSP) Deflectors Marked to Indicate Position							
½" (15mm)	½" NPT (R½)	5.6	80	2.2" (56mm)	1,2,3,4,5,6,7	R1725	R1715
⅞" (20mm)	¾" NPT (R¾) ⁽¹⁾	8.0	115	2.3" (58mm)	1,2,3,4,7,8	R1722	R1712
½" (15mm) ⁽³⁾	½" NPT (R½)	5.6	80	2.2" (56mm)	7		
⅞" (20mm) ⁽³⁾	¾" NPT (R¾)	8.0	115	2.3" (58mm)	7		
⅞" (11mm)	½" NPT (R½)	4.2	60	2.2" (56mm)	1,2,8	R1723	R1713
⅜" (10mm)	½" NPT (R½) ⁽²⁾	2.8	40	2.54" (65mm)	1,2,8	R1721	R1711
10mm XLH	R ⅜	4.2	60	56.1mm	4,6,7	R1724	R1714
Conventional-Install in Upright or Pendent Position							
10mm XLH	R ⅜	4.2	60	56.1mm	—	R1774	
15mm	½" NPT (R½)	5.6	80	56.1mm	4,6,7	R1775	
20mm	¾" NPT (R¾)	8.0	115	58.1mm	4,7	R1772	

⁽¹⁾ LPC Approval up 286°F (141°C)

⁽²⁾ FM Approval for SSU up to and including 200°F (93°C) only.

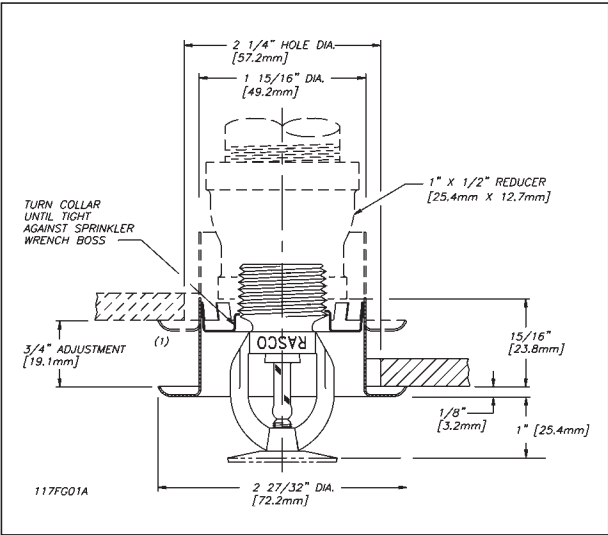
⁽³⁾ VdS Approval for Intermediate Response 155°F (68°C) only.

Model F1 Recessed Pendent Sprinkler

Installation Wrench: Model RC1 Sprinkler Wrench



F1 Recessed



(1) When installed directly into a tee, the escutcheon dimension's adjustment will be reduced.

Installation Data:

Nominal Orifice	Thread Size	Nominal K Factor		Sprinkler Height	Approval Organizations	Sprinkler Identification Numbers (SIN)
		US	Metric			
1/2" (15mm)	1/2" NPT (R 1/2)	5.6	80	2.2" (56mm)	1,2,3 ⁽²⁾ ,4,5,7	R1715
17/32" (20mm)	3/4" NPT (R 3/4)	8.0	115	2.3" (58mm)	1,2,3 ⁽²⁾ ,4,8	R1712
1/2" (15mm) ⁽⁴⁾	1/2" NPT (R 1/2)	5.6	80	2.2" (56mm)	7	
17/32" (20mm) ⁽⁴⁾	3/4" NPT (R 3/4)	8.0	115	2.3" (58mm)	7	
7/16" (11mm)	1/2" NPT (R 1/2)	4.2	60	2.2" (56mm)	1,2,8	R1713
3/8" (10mm)	1/2" NPT (R 1/2)	2.8	40	2.2" (56mm)	1,2,8	R1711
10mm	R 3/8	4.2	60	56.1mm	4 ⁽³⁾ ,7	R1714

(2) FM Approval

- Light Hazard – No Limitations.
- Ordinary Hazard – Groups 1 & 2, Wet Systems only.

(3) LPC Approval is for 57°C through 93°C ratings.

(4) VdS Approval for Intermediate Response 155°F (68°C) only.

Model F1 Vertical Sidewall Sprinkler

Installation Wrench: Model D Sprinkler Wrench

Installation Position: Upright or Pendent

Approval Type: Light Hazard Occupancy



Vertical Sidewall

U.S. Patent No. 6,374,920

Installation Data:

Nominal Orifice	Thread Size	Nominal K Factor		Sprinkler Height	Approval Organizations	Sprinkler Identification Numbers (SIN)
		US	Metric			
1/2" (15mm)	1/2" NPT (R1/2)	5.6	80	2.2" (56.1mm)	1,2,3,4 ⁽¹⁾ , 6, 8	R1785

⁽¹⁾ LPC Approval is pendent only, 57°C through 141°C ratings.

Sprinkler Type	Deflector to Ceiling Distance (Min. - Max.)
Upright	4"(102mm) - 12"(305mm)
Pendent	4"(102mm) - 12"(305mm)

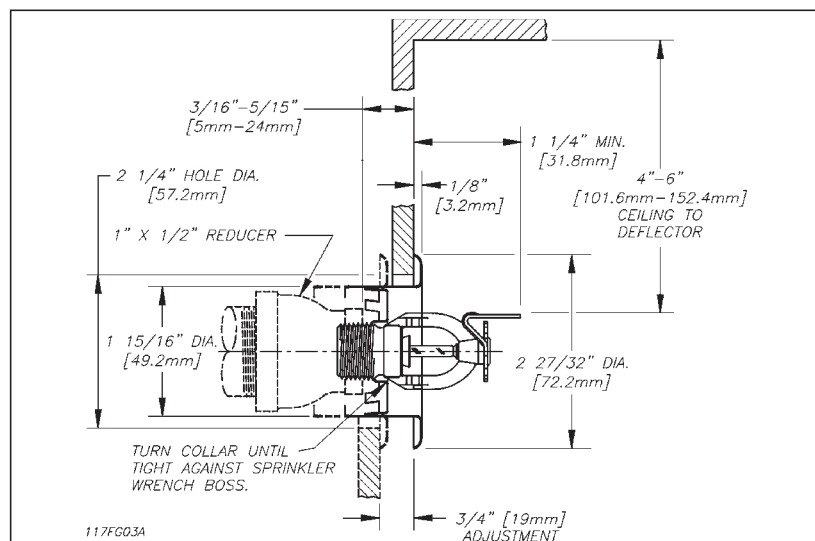
Model F1 Horizontal Sidewall Sprinkler

Deflector: HSW 1

Installation Wrench: Model D Sprinkler Wrench



Horizontal Sidewall



Installation Data:

Nominal Orifice	Thread Size	Nominal K Factor		Sprinkler Length	Approval Organizations		Sprinkler Identification Numbers (SIN)
		US	Metric		Light Hazard	Ordinary Hazard	
1/2" (15mm)	1/2" NPT (R1/2)	5.6	80	2.63" (67mm)	1,2,3,5	1,2,5	R1735

Note: UL and ULC Listing permits use with F1 escutcheons, light hazard only.

Model F1 Extended Coverage Pendent Sprinkler

Deflector: EC Pendent

Installation Wrench: Model D Sprinkler Wrench

Approval Type: Extended Coverage — Light Hazard Occupancy



Extended Coverage
Pendent

Installation Data:

Nominal Orifice	Thread Size	Nominal K Factor		Sprinkler Height	Approval Organizations	Temperature Rating		Sprinkler Identification Numbers (SIN)
		US	Metric			°F	°C	
1 ⁷ / ₃₂ " (20mm)	3 ³ / ₄ " NPT (R3 ³ / ₄)	8.0	115	2.2" (56mm)	1,2,8	135; 155	57; 68	R1742
1 ¹ / ₂ " (15mm)	1 ¹ / ₂ " NPT (R1 ¹ / ₂)	5.6	80	2.2" (56mm)	1,2,8	135; 155	57; 68	R1745

COVERAGE AREA							
Flow Rate		Pressure				Max. Area Width x Length	
		Nominal					
		K=8.0 (115)		K=5.6 (80)			
gpm	L/min	psi	bar	psi	bar	ft. x ft.	m x m
26	98.4	10.6	0.7	21.6	1.5	16 x 16	4.9 x 4.9
33	125.0	17.0	1.2	34.7	2.4	18 x 18	5.5 x 5.5
40	151.4	25.0	1.7	51.0	3.5	20 x 20	6.0 x 6.0

Model F1 Recessed Extended Coverage Pendent Sprinkler

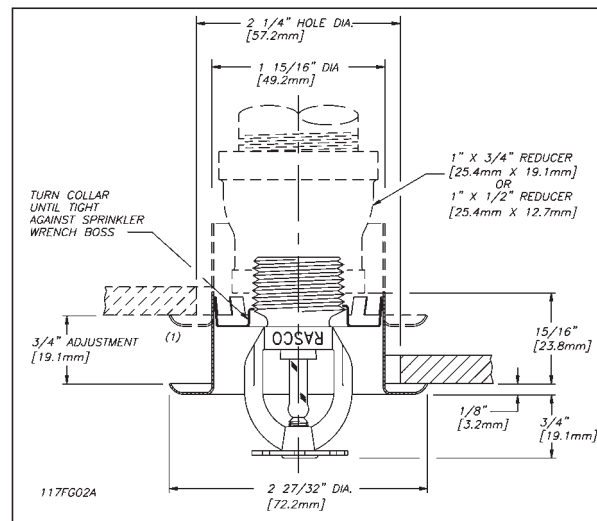
Deflector: EC Pendent

Installation Wrench: Model RC1 Sprinkler Wrench

Approval Type: Extended Coverage — Light Hazard Occupancy



Extended Coverage
Recessed



⁽¹⁾ When installed directly into a tee, the escutcheon dimension's adjustment will be reduced.

Installation Data:

Nominal Orifice	Thread Size	Nominal K Factor		Sprinkler Height	Approval Organizations	Temperature Rating		Sprinkler Identification Numbers (SIN)
		US	Metric			°F	°C	
1 ⁷ / ₃₂ " (20mm)	3 ³ / ₄ " NPT (R3 ³ / ₄)	8.0	115	2.2" (56mm)	1,2,8	135; 155	57; 68	R1742
1 ¹ / ₂ " (15mm)	1 ¹ / ₂ " NPT (R1 ¹ / ₂)	5.6	80	2.2" (56mm)	1,2,8	135; 155	57; 68	R1745

COVERAGE AREA							
Flow Rate		Pressure				Max. Area Width x Length	
		Nominal					
		K=8.0 (115)		K=5.6 (80)			
gpm	L/min	psi	bar	psi	bar	ft. x ft.	m x m
26	98.4	10.6	0,7	21.6	1,5	16 x 16	4.9 x 4.9
33	125.0	17.0	1,2	34.7	2,4	18 x 18	5.5 x 5.5
40	151.4	25.0	1,7	51.0	3,5	20 x 20	6.0 x 6.0

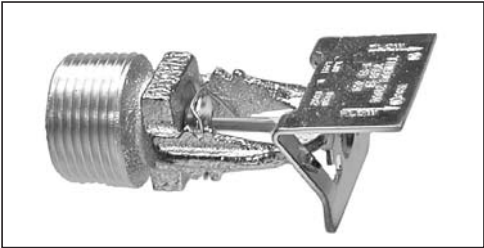
Model F1 Extended Coverage Horizontal Sidewall Sprinkler

Deflector: EC-6

Glass Bulb: 3mm 155°F (68°C) Standard, Unless 5mm 135°F (57°C) is Specified

Installation Wrench: Model D Sprinkler Wrench

Approval Type: Extended Coverage — Light Hazard Occupancy



Extended Coverage Horizontal Sidewall

Installation Data:

Nominal Orifice	Thread Size	K Factor		Sprinkler Height	Approval Organizations	Temperature Rating		Sprinkler Identification Numbers (SIN)
		US	Metric			°F	°C	
17/32" (20mm)	3/4" NPT (R3/4)	8.0	115.3	2.75" (70mm)	1,2,8	135 (5mm bulb)	57	R1762
						155 (3mm bulb)	68	

COVERAGE AREA						
Flow Rate		Pressure		Max. Area Width x Length		Deflector to Ceiling Dimensions (Min. - Max.)
gpm	L/min	psi	bar	ft. x ft.	m x m	4"(102mm) - 6"(152mm) 4"(102mm) - 6"(152mm)
36	136.3	20.3	1,4	16 x 22	4.9 x 6.7	
39	147.6	23.8	1,6	16 x 24	4.9 x 7.3	

Model F1 Recessed Extended Coverage Horizontal Sidewall Sprinkler

Deflector: EC-6

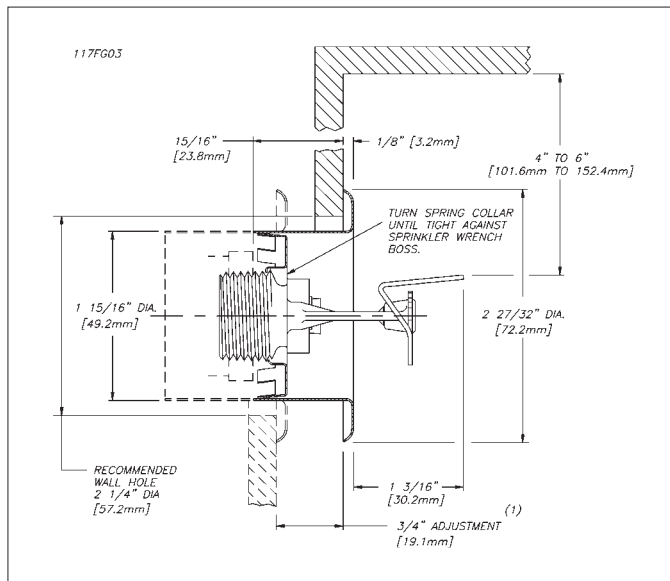
Glass Bulb: 3mm 155°F (68°C) Only

Installation Wrench: Model GFR1 Sprinkler Wrench

Approval Type: Extended Coverage — Light Hazard Occupancy



Recessed Extended Coverage
Horizontal Sidewall



⁽¹⁾ When installed directly into a tee, the escutcheon dimension's adjustment will be reduced.

Installation Data:

Nominal Orifice	Thread Size	K Factor		Sprinkler Height	Approval Organizations	Temperature Rating		Sprinkler Identification Numbers (SIN)
		US	Metric			°F	°C	
17/32" (20mm)	3/4" NPT (R3/4)	8.0	115.3	2.75" (70mm)	1,2,8	155	68	R1762

COVERAGE AREA						
Flow Rate		Pressure		Max. Area Width x Length		Deflector to Ceiling Dimensions (Min. - Max.)
gpm	L/min	psi	bar	ft. x ft.	m x m	
36	136.3	20.3	1,4	16 x 22	4.9 x 6.7	4"(102mm) - 6"(152mm)
39	147.6	23.8	1.6	16 x 24	4.9 x 7.3	4"(102mm) - 6"(152mm)

Model F1 & F1 Recessed Sprinklers

Application

Model F1 and F1 Recessed sprinklers are used in fixed fire protection systems: Wet, Dry, Deluge or Preaction. Care must be exercised that the orifice size, temperature rating, deflector style and sprinkler type are in accordance with the latest published standards of the National Fire Protection Association or the approving Authority Having Jurisdiction.

Installation

Model F1 sprinklers are standard response sprinklers intended for installation as specified in NFPA 13. They must also be installed with the Model D Sprinkler Wrench specifically designed by Reliable for use with these sprinklers.

The Model F1 Recessed Sprinklers are to be installed with a maximum recess of $\frac{3}{4}$ inch (19mm). The Model F1 Escutcheon illustrated is the only recessed escutcheon to be used with the Model F1 Pendent and EC Sprinklers. The use of any other recessed escutcheon will void all approvals and negate all warranties. When installing Model F1 Recessed Pendent, EC Pendent, and EC HSW Sprinklers, use the Model GFR1 Sprinkler Wrench. Any other type of wrench may damage these sprinklers.

Glass bulb sprinklers have orange covers to protect the bulb during the installation process. REMOVE THIS PROTECTION ONLY AFTER THE SYSTEM HAS BEEN HYDROSTATICALLY TESTED AND, WHEN APPLICABLE, THE ESCUTCHEONS HAVE BEEN INSTALLED. RASCO wrenches are designed to install sprinklers when covers are in place.

Ordering Information

Specify:

1. Sprinkler Model
2. Sprinkler Type
3. Orifice Size
4. Deflector Type
5. Temperature Rating:
Specify Bulb Size when ordering
Model F1 EC HSW Sprinkler.
6. Sprinkler Finish
7. Escutcheon Finish (where applicable)

Maintenance

The Models F1 and F1 Recessed Sprinklers should be inspected quarterly and the sprinkler system maintained in accordance with NFPA 25. Do not clean sprinklers with soap and water, ammonia or any other cleaning fluid. Remove any sprinkler which has been painted (other than factory applied) or damaged in any way. A stock of spare sprinklers should be maintained to allow quick replacement of damaged or operated sprinklers. Prior to installation, sprinklers should be maintained in the original cartons and packaging until used to minimize the potential for damage to sprinklers that would cause improper operation or non-operation.

Temperature Ratings

Classification	Sprinkler Temperature		Maximum Ambient Temperature		Bulb Color
	°F	°C	°F	°C	
Ordinary	135	57	100	38	Orange
Ordinary	155	68	100	38	Red
Intermediate	175	79	150	66	Yellow
Intermediate	200	93	150	66	Green
High ⁽¹⁾	286	141	225	107	Blue
Extra High ⁽¹⁾	360	182	300	149	Mauve

⁽¹⁾ Not Available For F1 Recessed

Patents: U.S. Patent No. 6,374,920

Applies to Model F1 Vertical Sidewall Sprinklers.

Finishes ⁽¹⁾

Standard Finishes	
Sprinkler	Escutcheon
Bronze Chrome White Polyester Coated ⁽³⁾	Brass Chrome White Painted
Special Application Finishes	
Sprinkler	Escutcheon
Bright Brass ^{(2) (6)} Black Plated ⁽⁶⁾ Black Paint ⁽³⁾⁽⁶⁾ Off White ^{(3) (6)} Satin Chrome Lead Plated ^{(3) (4)} Wax Coated ^{(3) (4) (6)} Wax Over Lead ^{(3) (4) (5)}	Bright Brass Black Plated Black Paint Off White Satin Chrome

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

⁽²⁾ 200°F (93°C) maximum.

⁽³⁾ UL and ULC Listed, and NYC Approved Only.

⁽⁴⁾ 155°F to 200°F (68°C to 93°C) ratings only.

⁽⁵⁾ 286°F (141°C) Sprinklers may be coated for ambient conditions not exceeding 150°F (66°C).

⁽⁶⁾ LPC approved for 10mm and 15mm sprinklers only.

The equipment presented in this bulletin is to be installed in accordance with the latest pertinent Standards of the National Fire Protection Association, Factory Mutual Research Corporation, or other similar organizations and also with the provisions of governmental codes or ordinances whenever applicable.

Products manufactured and distributed by Reliable have been protecting life and property for over 80 years, and are installed and serviced by the most highly qualified and reputable sprinkler contractors located throughout the United States, Canada and foreign countries

Manufactured by



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