



#### Features

|                            |   |
|----------------------------|---|
| Minimum Operating Pressure | 7 psi (0.5 bar)   |
| Maximum Working Pressure   | 175 psi (12 bar)  |
| Discharge Coefficient      | K = 5.6 GPM/psi <sup>1/2</sup> (80.7 LPM/bar <sup>1/2</sup> ) |
| Temperature Rating         | 135°F/155°F/200°F<br>(57°C/68°C/93°C)                         |
| Leakage Test at Factory    | 30Kgf/cm <sup>2</sup><br>(0.3Mpa, 29.4bar, 426.7 psi)         |

#### Installation

The LIFECO sprinklers are intended for fire protection systems designed in accordance with the standard installation rules of the applicable listings or approval agency. (eg., NFPA 13 or FM's Loss Prevention Data Sheets)

#### Note:

Do not install any bulb type sprinkler if the bulb is cracked or there is a loss of fluid from the bulb. And with the sprinkler held horizontally, a small air bubble should be present. The sprinkler joint should be obtained with maximum torque of 28.5 Nm (21 ft-lbs)

#### Features

- Glass bulb
- Standard Spary Pattern
- K-factor 5.6
- Quick & Standard Response

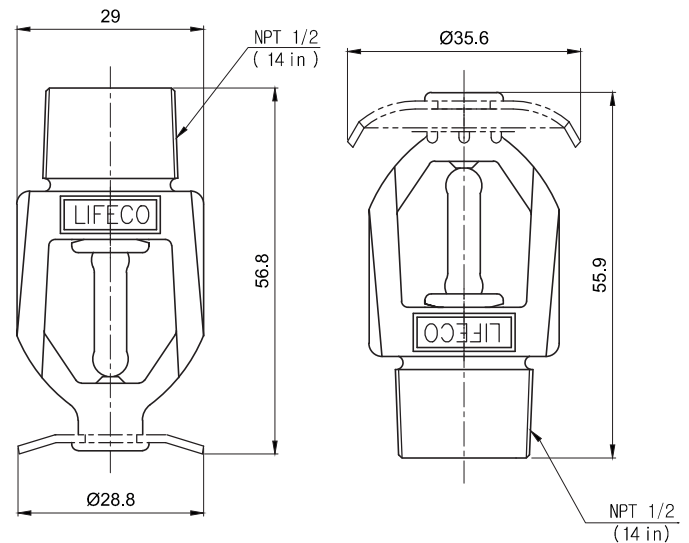
#### Description

The 1/2 inch orifice LIFECO Standard and Quick Response (ref. ISO 6182) Pendent and Upright Sprinklers are automatic and open sprinklers of the frangible bulb type. They are "Standard and Quick response orifice spray Sprinklers" intended for use in fire Sprinkler systems designed in accordance with the Standard installation (NFPA 13). The pendent and upright sprinklers all produce a hemi-spherical water distribution pattern below the deflector. It is most stable against the change of atmospheric temperature and is well matched to accommodate any architecture.

The 1/2 inch orifice LIFECO Standard and Quick Response Pendent and Upright are rated for use at a maximum service pressure of 12.3 kg/cm<sup>2</sup> (175psi) and they are available in the temperature ratings of 68°C (155°F, Red) and 93°C (200°F, Green). The flow rates "Q" in LPM (GPM) are determined by the following formula: Q = K P Where the nominal discharge coefficient "K" equals 80 (5.6); and, "P" equals the residual flowing pressure in kgf/cm<sup>2</sup> (psi). Listing standards permit the actual value of "K" to vary from 76.4 to 83.6 (5.3 to 5.8); however, for hydraulic calculations, a K-factor of 80 (5.6) is to be applied.

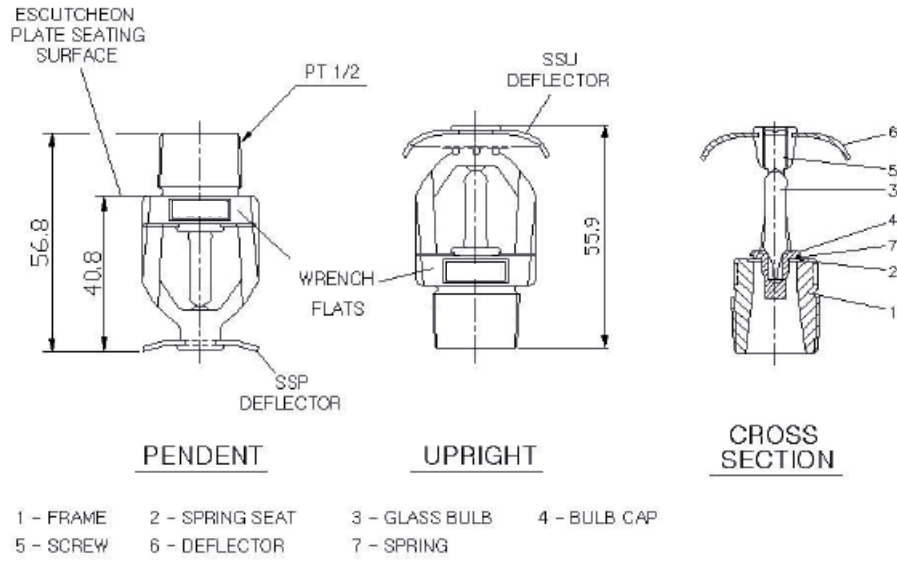
The Frame is made of brass forging (copper alloy) per KS D5101. The bulb cap (bulb retainer) is copper alloy per KS D5102 (C5191). The Spring Seat consists of a Beryllium Nickel disc spring that is sealed on both its inside and outside faces with a Teflon gasket.

The Compression Screw is copper alloy per KS D5101 (C3604) and the Deflector is copper alloy per KS D5201 (C2200). The model LF210 and LF220 series, Sprinklers utilize a 5mm diameter frangible bulb made by JOB. The model LF211 and LF221 series, Sprinklers utilize a 3mm diameter frangible bulb made by JOB. The Frame and Deflector of this sprinkler are Nickel Chrome plated. The bulb liquid color is red and green in accordance with the temperature ratings.

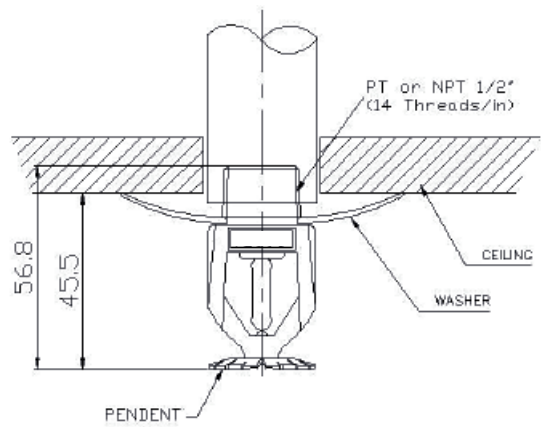


| SIN   | Response Type | Type    | System Working Pressure, psig | Temp Rating, °F |
|-------|---------------|---------|-------------------------------|-----------------|
| LF211 | QR            | Upright | 175                           | 135, 155, 200   |
| LF221 | QR            | Pendent | 175                           | 135, 155, 200   |
| LF210 | SR            | Upright | 175                           | 135, 155, 200   |
| LF220 | SR            | Pendent | 175                           | 135, 155, 200   |

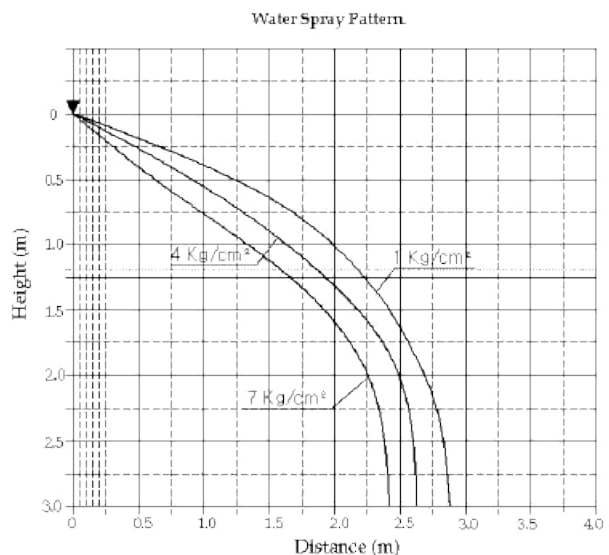
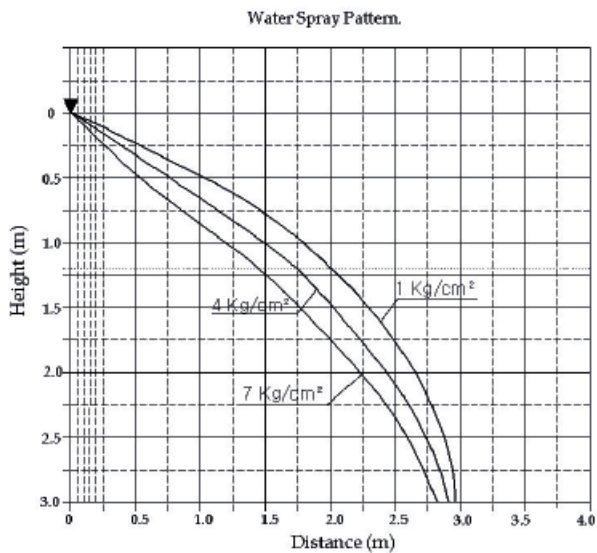
#### Sectional Detail



#### Installation Detail



#### Water Spray Pattern



**Upright (LF210 / 211)**  
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 E-mail: [info@famcocorp.com](mailto:info@famcocorp.com)  
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**Pendent (LF220 / 221)**  
 تهران، کیلومتر ۲۱ بزرگراه لشکری (جاده مخصوص کرج)  
 روبروی پالایشگاه نفت پارس، پلاک ۱۲



#### Description

The LIFECO Standard and Quick response sprinklers are thermo sensitive glass bulbsprinklers available in different finishes and temperature ratings to meet design requirements. These sprinklers are sidewall standard spray pattern to meet approval agencies requirement. Especially, the Nickel-Chrome plated sprinklers are decorative and attractive, so it is well matched to customer interior decoration. In addition, Nickel-Chrome plating might be utilized to extend the life of copper alloy sprinkler, although it has passed the standard corrosion test.

#### Materials

|               |  |
|---------------|--|
| Frame Forging | Brass AS1568 Alloy486                              |
| Deflector     | Copper C2200                                       |
| Spring Seat   | Ni-Be alloy, coated on both sides with Teflon Tape |
| Bulb          | Glass  |
| Bulb Cap      | Phosphor Bronze C5191                              |
| Screw Brass   | Brass C3604  |
| Spring Brass  | Brass C3604  |

#### Features

- Glass bulb
- Standard Spary Pattern
- K-factor 5.6
- Quick & Standard Response

#### Technical & Environmental Specification

|                            |  |
|----------------------------|--|
| Minimum Operating Pressure | 7 psi (0.5 bar)  |
| Maximum Working Pressure   | 175 psi (12 bar)   |
| Discharge Coefficient      | K = 5.6 GPM/psi <sup>1/2</sup><br>(80.7 LPM/bar <sup>1/2</sup> ) |
| Temperature Rating         | 135°F/155°F/175°F/200°F/286°F<br>(57°C/68°C/79°C/93°C/141°C)     |
| Leakage Test at Factory    | 30Kgf/cm <sup>2</sup><br>(0.3Mpa, 29.4bar, 426.7 psi)            |

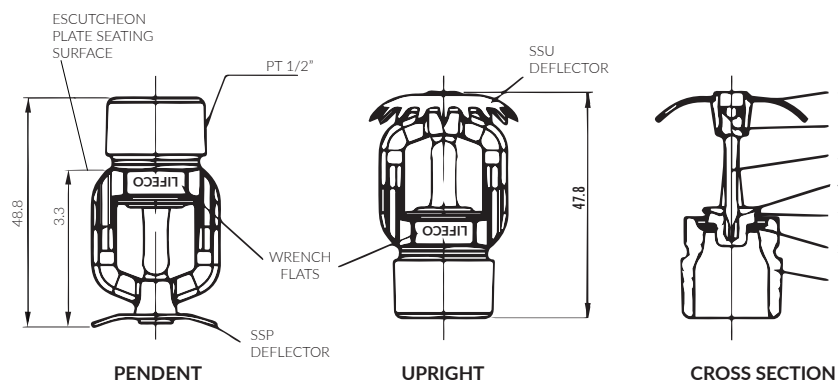
#### Installation

The LIFECO sprinklers are intended for fire protection systems designed in accordance with the standard installation rules of the applicable listings or approval agency. (eg., NFPA 13 or FM's Loss Prevention Data Sheets)

#### Note:

Do not install any bulb type sprinkler if the bulb is cracked or there is a loss of fluid from the bulb. And with the sprinkler held horizontally, a small air bubble should be present. The sprinkler joint should be obtained with maximum torque of 28.5 Nm (21 ft-lbs)

#### Design Criteria



1 - Frame

2 - Spring Seat

3 - Glass Bulb

4 - Bulb Cap

5 - Screw

6 - Deflector

7 - Spring

### Sprinkler Temperature Ratings & Finishes

| Sprinkler Temperature Classification | Sprinkler Nominal Temperature Rating <sup>1</sup> | Maximum Ambient Ceiling Temperature <sup>2</sup> | Bulb Color |
|--------------------------------------|---|--|------------|
| Ordinary                             | 135°F (57°C)                                      | 100°F (38°C)                                     | Orange     |
| Ordinary                             | 155°F (68°C)                                      | 100°F (38°C)                                     | Red        |
| Intermediate                         | 175°F (79°C)                                      | 150°F (65°C)                                     | Yellow     |
| Intermediate                         | 200°F (93°C)                                      | 150°F (65°C)                                     | Green      |
| High                                 | 286°F (141°C)                                     | 225°F (107°C)                                    | Blue       |

Sprinkler Finishes : Brass, Nickel-Chrome, White Polyester, Black Teflon Coating

#### Footnotes

- The sprinkler temperature rating is stamped on the deflector.
- Based on NFPA-13. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards.

### Sectional Detail

| SIN   | Response Type | Thread Size |      | Nominal K-Factor |        | Overall Length |      | Listings and Approvals |
|-------|---------------|-------------|------|------------------|--------|----------------|------|------------------------|
|       |               | PT          | NPT  | U.S.             | Metric | Inches         | mm   | UL/FM                  |
| LF310 | SR            | 1/2"        | 1/2" | 5.6              | 80.7   | 1.84           | 47.8 | A1, B1, C1, D1, E1     |
| LF311 | QR            | 1/2"        | 1/2" | 5.6              | 80.7   | 1.84           | 47.8 | A1, B1, C1, D1, E1     |
| LF320 | SR            | 1/2"        | 1/2" | 5.6              | 80.7   | 1.88           | 48.8 | A1, B1, C1, D1, E1     |
| LF321 | QR            | 1/2"        | 1/2" | 5.6              | 80.7   | 1.88           | 48.8 | A1, B1, C1, D1, E1     |

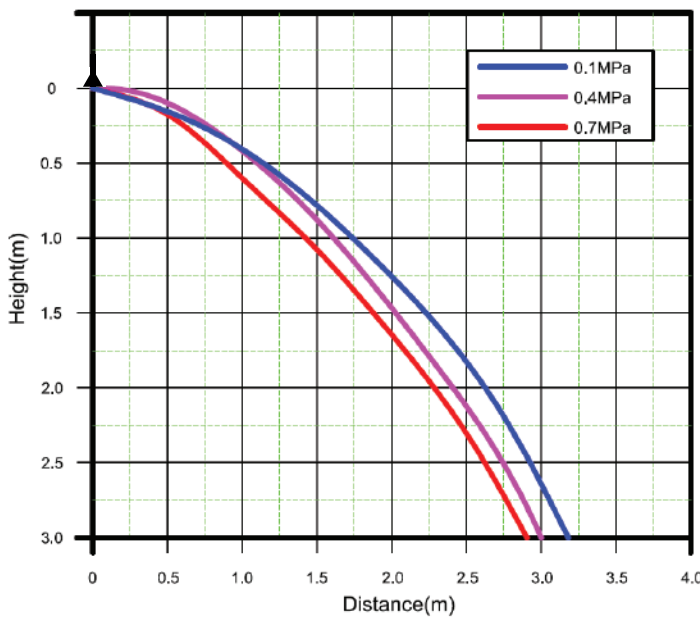
#### Approved Temperature Ratings

- A - 135°F (57°C)
- B - 155°F (68°C)
- C - 175°F (79°C)
- D - 200°F (93°C)
- E - 286°F (141°C)

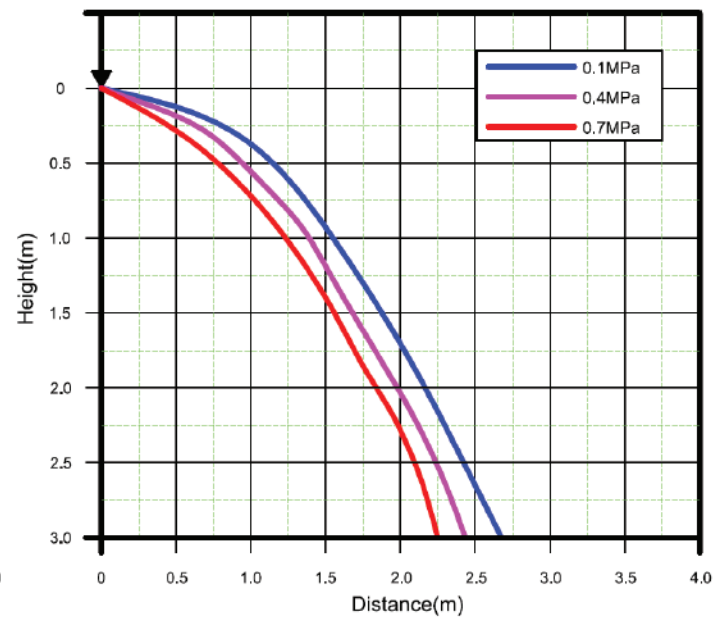
#### Approved Finishes

- 1- Brass, Nickel-Chrome, White Polyester, and Black Teflon coating

### Water Spray Pattern



Upright LF310 / LF311



Pendent LF320 / LF321

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تهران، کیلومتر ۲۱ بزرگراه لشگری (جاده مخصوص کرج)

روبروی پالایشگاه نفت پارس، پلاک ۱۲

In line with our policy of continuous product improvement LIFECO reserves the right to modify specifications without prior notice.



## Materials

|               |  |
|---------------|--|
| Frame Forging | Brass AS1568 Alloy486                              |
| Deflector     | STS304   |
| Spring Seat   | Ni-Be alloy, coated on both sides with Teflon Tape |
| Bulb          | Glass  |
| Bulb Cap      | Phosphor Bronze C5191                              |
| Screw Brass   | C3604  |
| Spring Brass  | C3604  |

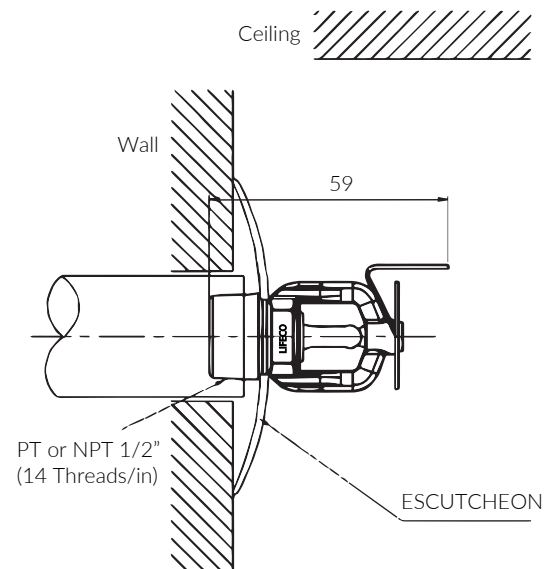
## Installation

The LIFECO sprinklers are intended for fire protection systems designed in accordance with the standard installation rules of the applicable listings or approval agency. (eg., NFPA 13 or FM's Loss Prevention Data Sheets)

### Note:

Do not install any bulb type sprinkler if the bulb is cracked or there is a loss of fluid from the bulb. And with the sprinkler held horizontally, a small air bubble should be present. The sprinkler joint should be obtained with maximum torque of 28.5 Nm (21 ft-lbs)

## Installation Details



## Features

- Glass bulb
- Standard Spary Pattern
- K-factor 5.6
- Quick & Standard Response

## Description

The LIFECO Standard and Quick response sprinklers are thermo sensitive glass bulbsprinklers available in different finishes and temperature ratings to meet design requirements. These sprinklers are sidewall standard spray pattern to meet approval agencies requirement. Especially, the Nickel-Chrome plated sprinklers are decorative and attractive, so it is well matched to customer interior decoration. In addition, Nickel-Chrome plating might be utilized to extend the life of copper alloy sprinkler, although it has passed the standard corrosion test.

## Technical & Environmental Specification

|                            |  |
|----------------------------|--|
| Minimum Operating Pressure | 7 psi (0.5 bar)  |
| Maximum Working Pressure   | 175 psi (12 bar)   |
| Discharge Coefficient      | K = 5.6 GPM/psi <sup>1/2</sup><br>(80.7 LPM/bar <sup>1/2</sup> ) |
| Temperature Rating         | 135°F/155°F/175°F/200°F/286°F<br>(57°C/68°C/79°C/93°C/141°C)     |
| Leakage Test at Factory    | 30Kgf/cm <sup>2</sup><br>(0.3Mpa, 29.4bar, 426.7 psi)            |

## Approval Chart

| SIN   | Response Type | Thread Size |      | Nominal K-Factor |        | Overall Length |    | Listings and Approvals |
|-------|---------------|-------------|------|------------------|--------|----------------|----|------------------------|
|       |               | PT          | NPT  | U.S.             | Metric | Inches         | mm |                        |
| LF340 | SR            | 1/2"        | 1/2" | 5.6              | 80.7   | 2.32           | 59 | A1, B1, C1, D1, E1     |
| LF341 | QR            | 1/2"        | 1/2" | 5.6              | 80.7   | 2.32           | 59 | A1, B1, C1, D1, E1     |

### Approved Temperature Ratings

- A - 135°F (57°C)
- B - 155°F (68°C)
- C - 175°F (79°C)
- D - 200°F (93°C)
- E - 286°F (141°C)

### Approved Finishes

- 1- Brass, Nickel-Chrome, White Polyester, and Black Teflon coating





#### Features

- Fusible Alloy Type
- Standard Spray Pattern
- K-factor 5.6
- Quick & Standard Response
- Option for White cover available

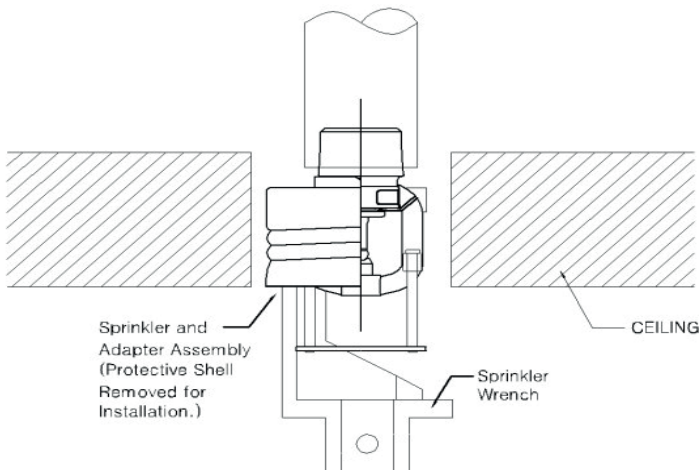
#### Installation

|                              |   |
|------------------------------|---|
| Minimum Operating Pressure   | 7 psi (0.5 bar)   |
| Maximum Working Pressure     | 175 psi (12 bar)  |
| Discharge Coefficient        | K = 5.6 GPM/psi <sup>1/2</sup> (80.7 LPM/bar <sup>1/2</sup> )   |
| Temperature Rating Sprinkler | 155 / 200 °F (68 / 93 °C)<br>Cover Assembly: 135 / 165 °F (57 / 74 °C)  |
| Leakage Test at Factory      | (Air) 30 Kgf/cm <sup>2</sup> (0.3Mpa, 29.4bar, 426.7 psi)<br>Forged Brass AS1568 Alloy486<br>Deflector: Copper C2680S<br>Spring Seat: Ni-Be alloy, coated on both sides |
| Materials Frame              | Glass Bulb Cap: Phosphor Bronze C5191   |

#### Features

LIFECO Standard and Quick Response Concealed Pendent Sprinkler LF820 and LF821 are thermosensitive glass-bulb spray sprinklers with the cover plate. The sprinkler is preassembled with a threaded adapter for installation with a low-profile cover assembly that provides up to 10mm of vertical adjustment. The two-piece design allows installation and testing of the sprinkler prior to installation of the cover plate. The "thread-on", "thread-off" design of the concealed cover plate assembly allows easy installation of the cover plate after the system has been tested and the ceiling finish has been applied. The cover assembly can be removed and reinstalled, allowing temporary removal of ceiling panels without taking the sprinkler system out of service or removing the sprinkler.

#### Installation



The LIFECO sprinklers are intended for fire protection systems designed in accordance with the standard installation rules of the applicable listings or approval agency. (eg., NFPA 13 or FM's Loss Prevention Data Sheets)

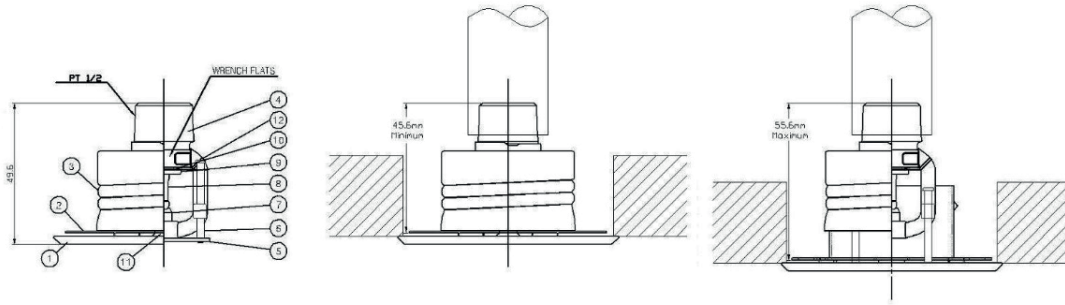
#### Note:

Do not install any bulb type sprinkler if the bulb is cracked or there is a loss of fluid from the bulb. And with the sprinkler held horizontally, a small air bubble should be present. The sprinkler joint should be obtained with maximum torque of 28.5 Nm (21 ft-lbs)

#### Operation

During fire conditions, when the temperature around the sprinkler approaches its operating temperature, the cover plate detaches. Continued heating of the exposed sprinkler causes the heat-sensitive liquid in the glass bulb to expand and the bulb to shatter, releasing the bulb cap and sealing spring assembly. Water flowing through the sprinkler orifice strikes the sprinkler deflector, forming a uniform spray pattern to extinguish or control the fire.

### Design Criteria



CROSS SECTION

- 1-COVER PLATE 2-RETAINER 3-COVER ADAPTER 4-FRAME 5-DEFLECTOR 6-DEFLECTOR PIN  
7-SCREW 8-GLASS BULB 9-BULB CAP 10-SPRING SEAT 11-PLATE SPRING 12-SPRING

| SIN   | Spray Pattern | Response | Thread Size |      | Nominal K Factor | Vertical Adjustment | Approval |
|-------|---------------|----------|-------------|------|------------------|---------------------|----------|
|       |               |          | NPT.        | BSP  |                  |                     |          |
| LF820 | Pendent       | SR       | 5.6         | 15mm |                  | 10mm                | UL       |
| LF821 | Pendent       | QR       | 5.6         | 15mm |                  | 10mm                | UL       |

### Water Spray Pattern

