

# Model ELO-16 GB FR

## 11.2 K-factor

## Quick Response - ECLH

## Standard Response - ECOH

Flush, Recessed or Extended Dry Pendant Glass Bulb Automatic Sprinkler

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## Product Description

The Central Model ELO-16 GB FR, 11.2 K-factor Quick Response Extended Coverage Light Hazard and Standard Response Extended Coverage Ordinary Hazard, Dry Pendant Sprinklers are decorative glass bulb automatic sprinklers designed for use

- where pendant sprinklers are required on dry pipe systems that are exposed to freezing temperatures (e.g. sprinkler drops from unheated portions of buildings), or
- where sprinklers and/or a portion of the connecting piping may be exposed to freezing temperatures (e.g. sprinkler drops from wet systems into freezers), or
- where pendant sprinklers are used on systems that are seasonably drained to avoid freezing (e.g. vacation resort areas).

The ELO-16 GB FR Dry Pendant Sprinklers are available in a wide range of operating temperatures and order lengths.

The ELO-16 GB FR Dry Pendant Sprinklers are listed for use in Light Hazard occupancies, with a quick response thermal sensitivity at spacings up to 18' x 18' (5,5 x 5,5 m). When used in light hazard occupancies, the ELO-16 GB FR Dry Pendant Sprinklers are limited to a type of unobstructed construction consisting of flat, smooth ceilings.

The ELO-16 GB FR Dry Pendant Sprinklers are listed for use in ordinary hazard occupancies, with a standard response thermal sensitivity at spacings up to 16' x 16' (4,9 x 4,9 m). When used in ordinary hazard occupancies, the ELO-16 GB FR Dry Pendant Sprinklers may be installed in unobstructed and non-combustible obstructed construction.

The ELO Dry Pendant Sprinklers are intended for use in fire sprinkler

systems designed in accordance with the standard installation rules recognized by the applicable Listing or Approval agency (e.g., UL Listing is based on NFPA 13 requirements). They produce a hemispherical water discharge pattern below the deflector.

The Recessed, Flush, and Extended Escutcheons for the ELO-16 GB FR Dry Pendant Sprinklers are separable two-piece designs which allow installation of the sprinklers and pressure testing of the fire protection system prior to installation of a suspended ceiling. They also permit removal of suspended ceiling panels without having to first shut down the fire protection system and remove the sprinklers.

**Operation:** When the ELO-16 GB FR Dry Pendant Sprinkler is in service, water is prevented from entering the assembly by the Plunger Assembly, a Plug & O-ring in the Inlet (Spool) of the Sprinkler. The glass Bulb contains a fluid which expands when exposed to heat. When the rated temperature is reached, the fluid expands sufficiently to shatter the glass Bulb, and the Bulb Seat is released. The GuideTube drops, allowing the Plug & O-ring to withdraw from the Inlet, which then allows the sprinkler to activate and flow water.

### WARNING

*The ELO-16 GB FR Dry Pendant Sprinklers described herein must be installed and maintained in compliance with this document, as well as with the applicable standards of the National Fire Protection Association, in addition to the standards of any other authorities having jurisdiction. Failure to do so may impair the integrity of these devices.*

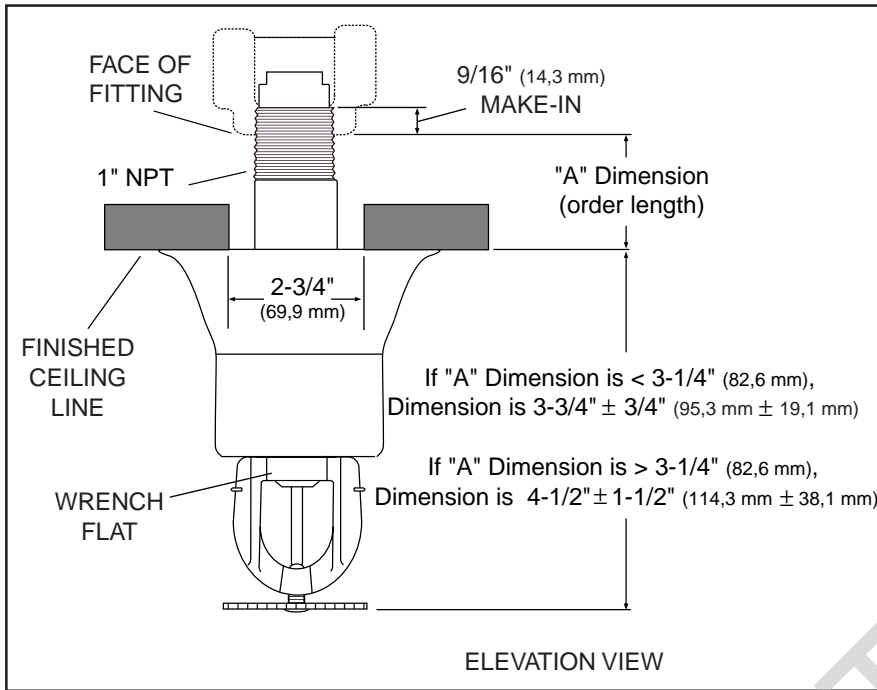
*The owner is responsible for maintaining their fire protection system and devices in proper operating condition. The installing contractor or sprinkler manufacturer should be contacted relative to any questions.*

*The ELO-16 GB FR Dry Pendant Sprinklers must only be installed in fittings that meet the requirements of the Design Criteria section.*

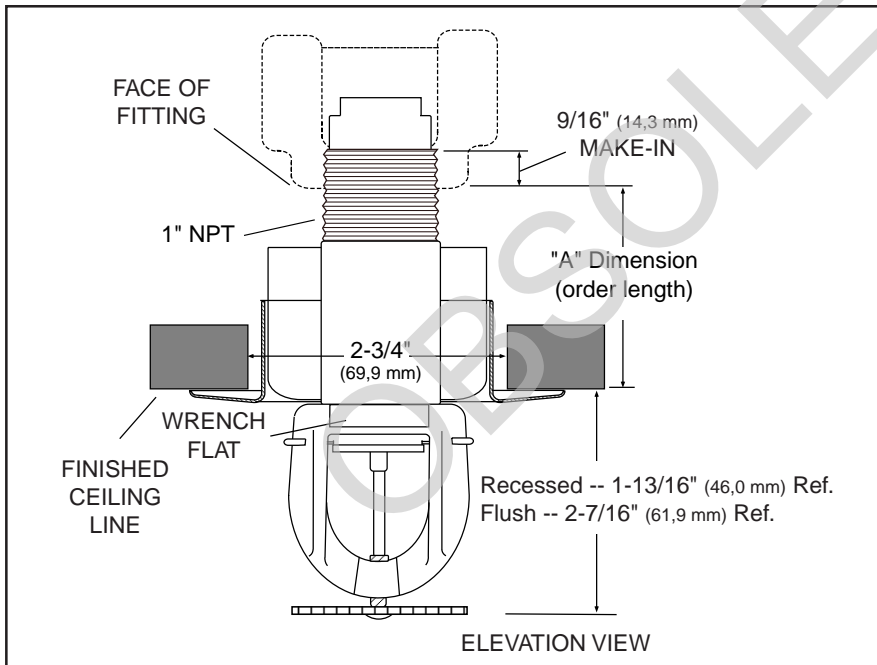


## ELO-16 GB FR Dry Pendant Extended Coverage Sprinklers

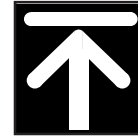
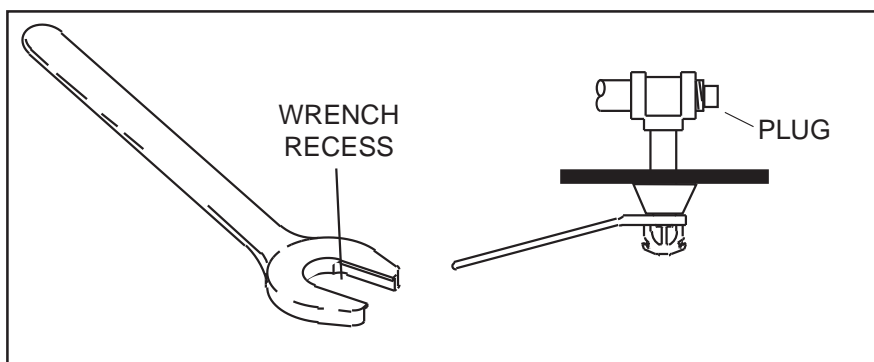
**Figure 1 - ELO-16 GB FR Dry Pendent Sprinkler, Extended**



**Figure 2 - ELO-16 GB FR Dry Pendent Sprinkler, Flush & Recessed**



**Figure 3 - W-Type 8 (1068) Sprinkler Wrench**



## Technical Data

**Sprinkler Identification Number**  
SIN C5239

**Approvals**

UL and ULC Listed. NYC Approved.  
(The approvals apply only to the service conditions indicated in the Design Criteria Section)

**Maximum Working Pressure**

175 psi (12,1 bar)

**Pipe Thread Connection**

1 inch NPT

**Discharge Coefficient**

$K = 11.2 \text{ GPM/psi}^{1/2}$  (161,3 LPM/bar<sup>1/2</sup>)

**Temperature Ratings**

155° F/68°C, 200° F/93°C, 286° F/141°C

**Finishes**

Sprinkler: White Polyester, Chrome Plated, or Natural Brass

**Physical Characteristics**

The Model ELO-16 GB FR Dry Pendent Sprinklers utilize a dezincification resistant (DZR) bronze frame & a 3 mm bulb. The Plug & Spool are brass & the O-ring is silicone rubber. The Main Tube is carbon steel. The Frame is bronze, the Deflector is brass & the Compression Screw is bronze. The Guide Tube & Bulb Seat are brass. The two pieces of the three available Escutcheons are low carbon steel.



## Design Criteria

The Model ELO-16 GB FR Dry Pendent Sprinklers are UL and ULC Listed & NYC Approved (MEA 120-97-E) as quick response sprinklers for use in light hazard occupancies, in accordance with current NFPA standards & the design parameters set forth in Table 1 of this Data Sheet.

The Model ELO-16 GB FR Dry Pendent Sprinklers are UL and ULC Listed & NYC Approved (MEA 120-97-E) as standard response sprinklers for use in ordinary hazard occupancies, in accordance with current NFPA standards & the design parameters set forth in Table 1 of this Data Sheet.

The minimum lateral spacing between the ELO-16 GB FR Dry Pendent Sprinklers, to prevent cold soldering, is 12'-6" (3,81 m).

The ELO-16 GB Dry Pendent Sprinklers are to be installed in the 1 inch NPT outlet of a malleable iron threaded tee fitting per ANSI B16.3 or cast iron threaded tee fitting per ANSI B16.4 with the end sprinkler fitting on a branch line to be plugged as shown in Figure 3. Only use maximum 2-1/2 inch size reducing tee's for dry pipe sprinkler systems.

**NOTES**

*Do not install the ELO-16 GB Dry Pendent Sprinklers into any other type fitting*

without first consulting the Technical Services Department. Failure to use the appropriate fitting may result in: failure of the sprinkler to properly operate due to formation of ice over the inlet Plug or binding of the inlet Plug; or, insufficient engagement of the inlet pipe threads with consequent leakage.

In the case of a dry pipe sprinkler system subject to freezing, the use of a fitting of other than the types specified may result in failure of the sprinkler to properly operate due to the formation of ice over the Inlet.

Branch, cross, and feed main piping connected to Dry Sprinklers & subject to freezing temperatures must be pitched for drainage in accordance with the minimum requirements of the National Fire Protection Association for dry pipe sprinkler systems.

When Dry Sprinklers are to be used in wet pipe sprinkler systems protecting areas subject to freezing temperatures (e.g., sprinkler drops into freezers), consideration must be given to the appropriate length of the sprinkler that will prevent freezing of the water in the connecting pipes due to conduction.

When Dry Sprinklers penetrate a ceiling into an area subject to freezing, the clearance space around the Main Tube must be completely sealed in order to prevent the leakage of moist air into the freezing area which might result in the formation of condensate around the Frame, Deflector, Bulb Seat, or Bulb. Failure to prevent the formation of condensate could result in the build-up of ice around the releasing components & consequently, either an inadvertent operation of the sprinkler or impaired operation due to reduced thermal sensitivity.



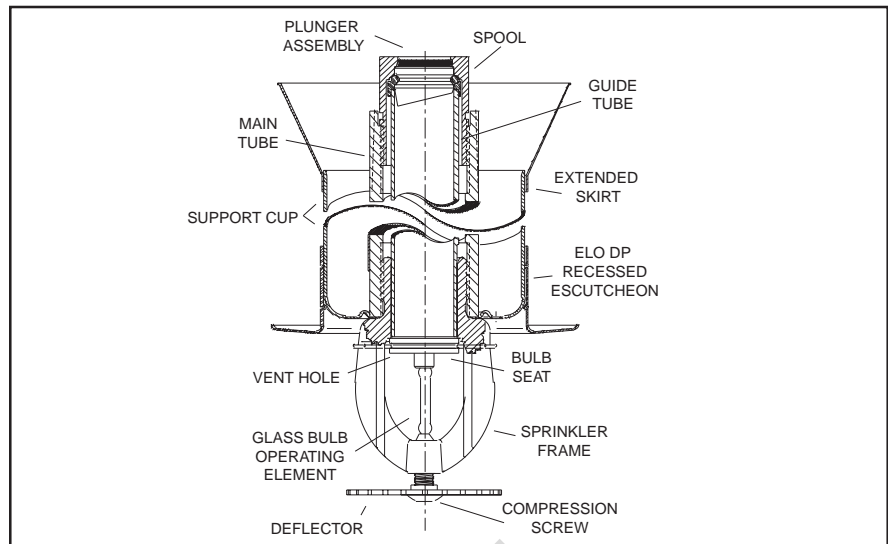
## Installation

The ELO-16 GB FR Dry Pendant Sprinklers must be installed in accordance with the following instructions:

### NOTES

The ELO-16 GB FR Dry Pendant Sprinklers must only be installed in fittings that meet the requirements of the Design Criteria section.

**Figure 4 - Cross Section, ELO-16 GB FR Dry Pendant**



Refer to the Design Criteria section for other important requirements regarding piping design and sealing of the clearance space around the Main Tube.

Do not install any bulb type sprinkler if the bulb is cracked or there is a loss of liquid from the bulb. With the sprinkler held horizontally, a small air bubble should be present. The diameter of the air bubble is approximately 1/16 inch (1,6 mm) for the 155°F/68°C to 3/32 inch (2,4 mm) for the 286°F/141°C rating.

A leak tight 1 inch NPT sprinkler joint should be obtained with a torque of 20 to 30 ft.lbs. (26,8 to 40,2 Nm). Higher levels of torque may distort the 1 inch NPT sprinkler inlet with consequent leakage or impairment of the sprinkler.

Do not attempt to compensate for insufficient adjustment in an Escutcheon Plate by under- or over-tightening the Sprinkler. Readjust the position of the sprinkler fitting to suit.

**Step 1.** The sprinkler must be installed only in the pendent position and with the deflector parallel to the mounting surface.

**Step 2.** With pipe thread sealant applied to the pipe threads, hand tighten the sprinkler into the sprinkler fitting.

**Step 3.** Wrench tighten the sprinkler by wrenching on the Main Tube with a pipe wrench whenever the casing is readily accessible. Otherwise, use a W-Type 8 Sprinkler Wrench (Ref. Figure 3). The wrench recess of the W-Type 8 is to be

(Continued on Page 4)

**Table 1 - UL and ULC Listing Criteria for the Installation of Model ELO-16 GB FR Extended Coverage Dry Pendant Sprinklers**

Spacing	Minimum Flow/Pressure Light Hazard (0.1 gpm/sq. ft.)	Minimum Flow/Pressure Ordinary Hazard I (0.15 gpm/sq. ft.)	Minimum Flow/Pressure Ordinary Hazard II (0.20 gpm/sq. ft.)
14' x 14' (4,9m x 4,9m)	---	30.0 gpm / 7.2 psi 113,6 Lpm / 0,50 bar (Flush, Rec. & Ext.)	39.0 gpm / 12.1 psi 147,6 Lpm / 0,83 bar (Flush, Rec. & Ext.)
16' x 16' (4,9m x 4,9m)	30.0 gpm / 7.2 psi 113,6 Lpm / 0,50 bar (Flush, Rec. & Ext.)	39.0 gpm / 12.1 psi 147,6 Lpm / 0,83 bar (Flush, Rec. & Ext.)	51.0 gpm / 20.7 psi 193,1 Lpm / 1,43 bar (Flush, Rec. & Ext.)
18' x 18' (5,5m x 5,5m)	33.0 gpm / 8.7 psi 124,9 Lpm / 0,60 bar (Flush & Extended)	---	---

### Ordering Length for Dry Pendant Heads

**Flush** — The "A" dimension is measured from the face of the tee to the finished ceiling. This is only approximately flush. Order to the nearest 1/4" (6,4 mm). **Minimum "A" dimension is 2" (50,8 mm).**

**Recessed** — The "A" dimension is measured from the face of the tee to the finished ceiling. **Minimum "A" dimension is 2-1/4" (57,2 mm). Adjustment is ±3/8" (9,5 mm).**

**Extended** — The "A" dimension is measured from the face of the tee to the finished ceiling. Follow one of these two options:

If this dimension is **less than or equal to 3-1/4" (82,6 mm)**, total adjustment is 1-1/2" (38,1 mm) (from the mid point of the adjustment range ±3/4" (19,1 mm)). Order to the nearest 1/4" (6,4 mm). **Minimum "A" dimension is 0".**

If this dimension is **greater than 3-1/4" (82,6 mm)**, the total adjustment is 3" (76,2 mm) (from the mid point of the adjustment range ±1-1/2" (38,1 mm)). Order to the nearest 1/4" (6,4 mm). **Minimum "A" dimension is 3-1/4" (82,6 mm).**



## Installation (Cont.)

applied to the sprinkler wrench flats (Ref. Figure 1 & 2).

**Step 4.** After a suspended ceiling has been installed or the finish coat has been applied to a fixed ceiling (as applicable), slide on the outer piece of the Escutcheon until it comes in contact with the ceiling. Do not lift the ceiling panel out of its normal position.



## Care & Maintenance

The ELO-16 GB FR Dry Pendent Sprinklers must be maintained and serviced in accordance with the following instructions.

### NOTES

*Absence of the outer piece of an escutcheon, which is used to cover a clearance hole, may delay the time to sprinkler operation in a fire situation.*

*Before closing a fire protection system main control valve for maintenance work on the fire protection system which it controls, permission to shut down the affected fire protection systems must be obtained from the proper authorities and all personnel who may be affected by this action must be notified.*

*It is recommended that the piping connected to Dry Sprinklers be periodically checked to assure that proper pitch and drainage is in accordance with the minimum requirements of the National Fire Protection Association if the piping is subject to freezing temperatures.*

*A Vent Hole is provided in the Bulb Seat (Ref. Figure 4) to indicate if the Dry Sprinkler is remaining dry. Evidence of leakage from the Vent Hole is an indication that there may be weepage past the O-ring seal and, therefore, it is an indication that the sprinkler needs to be removed for determining the cause of leakage (e.g. an improper installation or an ice plug). The fire protection system control valve must be closed and the system drained before removing the sprinkler.*

Sprinklers which are found to be leaking or exhibiting visible signs of corrosion must be replaced.

Automatic sprinklers must never be shipped or stored where their temperatures will exceed 100°F/38°C and they must never be painted, plated, coated or otherwise altered after leaving the factory. Modified sprinklers must be replaced. Sprinklers that have been exposed to corrosive products of combustion, but have not operated,

should be replaced if they cannot be completely cleaned by wiping the sprinkler with a cloth or by brushing it with a soft bristle brush.

Care must be exercised to avoid damage - before, during, and after installation. Sprinklers damaged by dropping, striking, wrench twist/slippage, or the like, must be replaced. Also, replace any sprinkler that has a cracked bulb or that has lost liquid from its bulb (ref. Installation Section).

The owner is responsible for the inspection, testing, and maintenance of their fire protection system and devices in compliance with this document, as well as with the applicable standards of the National Fire Protection Association (e.g., NFPA 25), in addition to the standards of any other authorities having jurisdiction. The installing contractor or sprinkler manufacturer should be contacted relative to any questions.

It is recommended that automatic sprinkler systems be inspected, tested, and maintained by a qualified Inspection Service.



## Limited Warranty

Products manufactured by Tyco Fire Products are warranted solely to the original Buyer for ten (10) years against defects in material and workmanship when paid for and properly installed and maintained under normal use and service. This warranty will expire ten (10) years from date of shipment by Tyco Fire Products. No warranty is given for products or components manufactured by companies not affiliated by ownership with Tyco Fire Products or for products and components which have been subject to misuse, improper installation, corrosion, or which have not been installed, maintained, modified or repaired in accordance with applicable Standards of the National Fire Protection Association, and/or the standards of any other Authorities Having Jurisdiction. Materials found by Tyco Fire Products to be defective shall be either repaired or replaced, at Tyco Fire Products' sole option. Tyco Fire Products neither assumes, nor authorizes any person to assume for it, any other obligation in connection with the sale of products or parts of products. Tyco Fire Products shall not be responsible for sprinkler system design errors or inaccurate or incomplete information supplied by Buyer or Buyer's representatives.

IN NO EVENT SHALL TYCO FIRE PRODUCTS BE LIABLE, IN CONTRACT, TORT, STRICT LIABILITY OR UNDER ANY OTHER LEGAL THEORY, FOR INCIDENTAL, INDIRECT, SPECIAL OR CONSEQUEN-

TIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LABOR CHARGES, REGARDLESS OF WHETHER TYCO FIRE PRODUCTS WAS INFORMED ABOUT THE POSSIBILITY OF SUCH DAMAGES, AND IN NO EVENT SHALL TYCO FIRE PRODUCTS' LIABILITY EXCEED AN AMOUNT EQUAL TO THE SALES PRICE.

**THE FOREGOING WARRANTY IS MADE IN LIEU OF ANY AND ALL OTHER WARRANTIES EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**



## Ordering Information

**Ordering Information:** When placing an order, indicate the full product name. Please specify the quantity, model, style, orifice size, temperature rating, type of finish or coating, and sprinkler wrench. Refer to price list for complete listing of Part Numbers.

Order dry pendants by "A" dimension to the nearest 1/4" (6,4 mm).

**Patents:** U.S.A. Patent Number 5,366,022 is applicable to the Model ELO-16 GB FR Dry Pendent Sprinklers. Other Patents are pending with regard to other design features.

*Teflon is a trademark of the DuPont Corp.*