

# Model ESFR-14 14.0 K-factor Pendent Sprinklers Early Suppression, Fast Response

## General Description

TYCO Model ESFR-14, 14.0 K-factor, Pendent Sprinklers (TY6236) are Early Suppression, Fast Response (ESFR) sprinklers having a nominal K-factor of 14.0. They are suppression-mode sprinklers that are especially advantageous as a means of eliminating the use of in-rack sprinklers when protecting high-piled storage.

Model ESFR-14 Sprinklers are primarily designed for protection of the following storage arrangements:

- most encapsulated or non-encapsulated common materials including cartoned, unexpanded plastics
- some storage arrangements of rubber tires, roll paper, flammable liquids

For more specific criteria, refer to Table A in this technical data sheet as well as the applicable design standard.

### NOTICE

The TYCO Model ESFR-14 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 (NFPA), in addition to the standards of any other authorities having jurisdiction (e.g., FM Approvals). Failure to do so may impair the performance of these devices.

### IMPORTANT

Always refer to Technical Data Sheet TFP700 for the "INSTALLER WARNING" that provides cautions with respect to handling and installation of sprinkler systems and components. Improper handling and installation can permanently damage a sprinkler system or its components and cause the sprinkler to fail to operate in a fire situation or cause it to operate prematurely.

The owner is responsible for maintaining their fire protection system and devices in proper operating condition. Contact the installing contractor or product manufacturer with any questions.

In all cases, the appropriate NFPA, FM Approvals installation standard, or other applicable standard, must be referenced to ensure applicability and to obtain complete installation guidelines. The general guidelines in this technical data sheet are not intended to provide complete installation criteria.

## Sprinkler Identification Number (SIN)

TY6236 – Pendent, K=14.0

## Technical Data

### Approvals

UL and C-UL Listed  
FM Approved

### Maximum Working Pressure

175 psi (12,1 bar)

### Pipe Thread Connections

3/4 inch NPT or  
ISO 7-R 3/4

### Discharge Coefficient

K=14.0 gpm/psi<sup>1/2</sup> (201,6 lpm/bar<sup>1/2</sup>)

### Temperature Ratings

155°F (68°C)  
200°F (93°C)

### Finish

Natural Brass

### Physical Characteristics

Frame	Brass
Deflector	Bronze
Compression Screw	Bronze
Button	Brass
Bulb (3 mm)	Glass
Sealing Assembly	Beryllium Nickel w/TEFLON



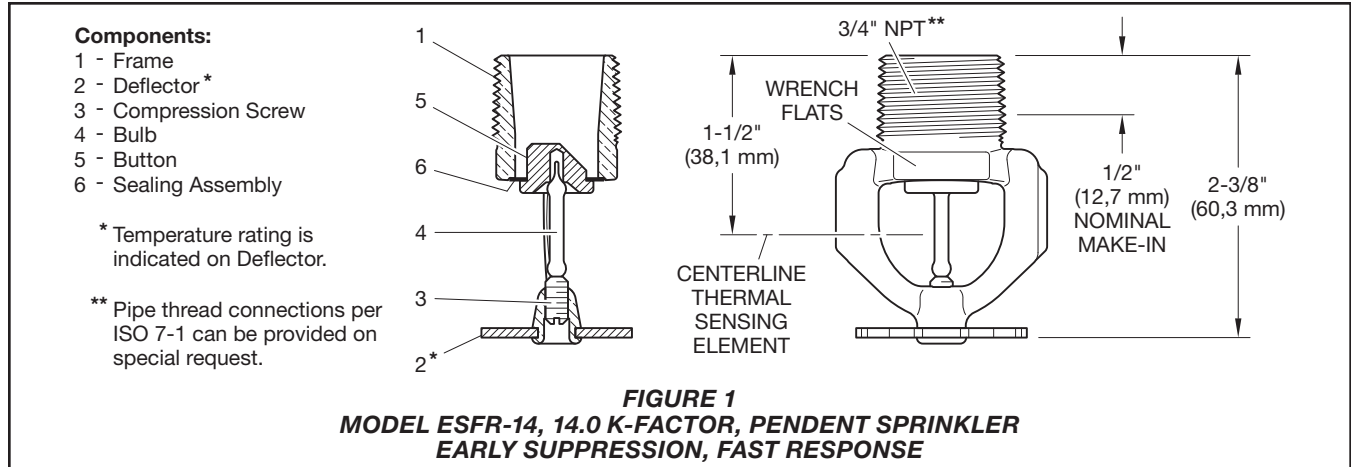
## Design Criteria

The following general guidelines provided for the TYCO Model ESFR-14, 14.0 K-factor, Pendent Sprinklers (TY6236) can be used for quick reference.

### NOTICE

The National Fire Protection Association and FM Approvals provide installation standards that must be used to properly design an automatic sprinkler system utilizing Early Suppression, Fast Response (ESFR) Sprinklers. The guidelines provided by NFPA and FM Global may differ; consequently, the appropriate standard must be used for a given installation.

In all cases, the appropriate NFPA or FM Approvals installation standard must be referenced to assure applicability and to obtain complete installation guidelines, since the following general guidelines are not intended to provide complete installation criteria.



**System Type**  
 Wet pipe

**Roof Construction**

Unobstructed or obstructed construction; for example, smooth ceiling, bar joists, beam and girder, and so forth.

Where the depths of solid structural members (e.g., beams and stem) exceed 12 inches (302 mm), install Model ESFR-14 Sprinklers in each channel formed by the structural members.

**Ceiling Slope**

Maximum 2 inch rise for 12 inch run (16.7%)

**Maximum Coverage Area**

100 ft<sup>2</sup> (9,3 m<sup>2</sup>)

In some cases, the installation standards permit a greater coverage area.

**Minimum Coverage Area**

64 ft<sup>2</sup> (5,8 m<sup>2</sup>) per  
 NFPA 13 / FM Global 2-0

**Maximum Spacing**

12 ft (3,7 m) for building heights up to 30 ft (9,1 m)

10 ft (3,1 m) for building heights greater than 30 ft (9,1 m)

**Minimum Spacing**

8 ft (2,4 m)

**Minimum Clearance to Commodity**

36 inches (914 mm)

**NFPA 13**

**Deflector-to-Ceiling Distance**

6 to 14 inches (152 to 356 mm)

**FM Global 2-0**

Consult FM Global guidelines for allowable deflector-to-ceiling distances as well as thermal-sensing element-to-ceiling criteria.

**Operation**

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, allowing the sprinkler to activate and water to flow.

**Installation**

TYCO Model ESFR-14 Pendent Sprinklers must be installed in accordance with this section.

**General Instructions**

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.

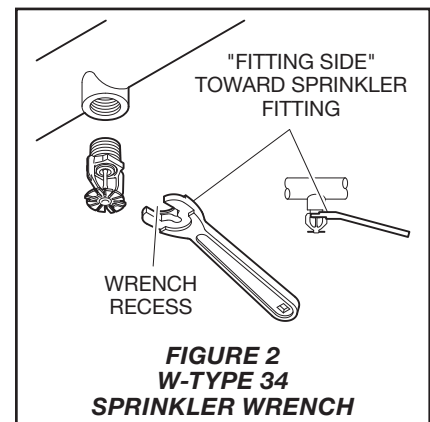
A leak-tight 3/4 inch NPT sprinkler joint should be obtained by applying a minimum-to-maximum torque of 10 to 20 ft.-lbs. (13,4 to 26,8 Nm). Higher levels of torque can distort the sprinkler inlet with consequent leakage or impairment of the sprinkler.

**Note:** Install the Model ESFR-14 Pendent Sprinkler only in the pendent position (Figure 1).

**Step 1.** With pipe thread sealant applied, hand-tighten the sprinkler into the sprinkler fitting.

**Step 2.** Wrench-tighten the Model ESFR-14 Sprinkler using only the W-Type 34 Sprinkler Wrench (Figure 2) and by fully engaging (seating) the wrench on the sprinkler wrench flats (Figure 1).

**Step 3.** After installation, inspect the bulb of each Model ESFR-14 Sprinkler for damage. In particular, verify that the bulb is not cracked. Replace damaged sprinklers.



Storage Type	NFPA	FM Global
Open Frame (i.e., no solid shelves) Single, Double, Multiple-Row, or Portable Rack Storage of Class I-IV and Group A or B Plastics	Refer to NFPA 13 Chapters 16 and 17	Refer to FM Global 2-0 and 8-9
Solid Pile or Palletized Storage of Class I-IV and Group A or B Plastics	Refer to NFPA 13 Chapters 14 and 15	Refer to FM Global 2-0 and 8-9
Idle Pallet Storage	Refer to NFPA 13 Chapter 12	Refer to FM Global 2-0, 8-9, and 8-24
Rubber Tire Storage	Refer to NFPA 13 Chapter 18	Refer to FM Global 2-0 and 8-3
Roll Paper Storage (Refer to the Standard)	Refer to NFPA 13 Chapter 19	Refer to FM Global 8-21
Flammable/Ignitable Liquid Storage (Refer to the Standard)	Refer to NFPA 30	Refer to FM Global 7-29
Aerosol Storage (Refer to the Standard)	Refer to NFPA 30B	Refer to FM Global 7-31
Automotive Components in Portable Racks (Control mode only; refer to the Standard)	N/A	N/A
N/A – Not Applicable		
<b>TABLE A</b> <b>MODEL ESFR-14 PENDENT SPRINKLERS</b> <b>COMMODITY SELECTION AND DESIGN CRITERIA OVERVIEW</b>		

## Care and Maintenance

TYCO Model ESFR-14, 14.0 K-factor, Pendent Sprinklers (TY6236) must be maintained and serviced in accordance with this section.

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

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

Automatic sprinklers 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 to the sprinklers 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. (Refer to 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. Contact the installing contractor or product manufacturer with any questions.

Automatic sprinkler systems are recommended to be inspected, tested, and maintained by a qualified Inspection Service in accordance with local requirements and/or national codes.

## Limited Warranty

For warranty terms and conditions, visit [www.tyco-fire.com](http://www.tyco-fire.com).

## Ordering Procedure

Contact your local distributor for availability. When placing an order, indicate the full product name and Part Number (P/N).

### Sprinkler Assemblies

Specify: Model ESFR-14 (TY6236), K=14.0, Pendent Sprinkler with (specify) temperature rating, Natural Brass, P/N (specify):

155°F (68°C) ..... 58-449-1-155  
 200°F (93°C) ..... 58-449-1-200

### Special Order

#### Sprinkler Assemblies with ISO 7-1 Thread Connections

Specify: Model ESFR-14 (TY6236), K=14.0, Early Suppression, Fast Response Pendent Sprinkler with ISO 7-1 Thread Connection, (specify) temperature rating, Natural Brass, P/N (specify):

155°F (68°C) ..... 58-443-1-155  
 200°F (93°C) ..... 58-443-1-200

### Sprinkler Wrenches

Specify: W-Type 34 Sprinkler Wrench  
 P/N 56-462-1-001

