

# Model EC-25 Extended Coverage Upright Sprinklers K-Factor 25.2 (360)

## General Description

TYCO Model EC-25 Extended Coverage Upright Sprinklers are UL Listed standard response, extended coverage sprinklers for Storage Protection (Area/Density) and FM Approved quick response, extended coverage sprinklers for storage and non-storage applications. Their use is especially advantageous as a means of decreasing the number of required sprinklers to protect occupancies requiring an area/density application of water.

These sprinklers offer a maximum coverage area of 196 ft<sup>2</sup> (18,2 m<sup>2</sup>), which is almost double the area offered by standard coverage sprinklers used for similar applications.

The Model EC-25 Sprinklers comply with the criteria for the protection of retail stores as described in the 2010 Edition of NFPA 13, Section 20.3.

Where the FM Approval is utilized, the Model EC-25 Sprinkler has successfully undergone full-scale fire testing at FM Global for ceiling-only storage applications. When used in conformance with applicable FM Global Property Loss Prevention Data Sheets, the Model EC-25 Sprinkler provides low hydraulic demand, the spacing advantages of extended coverage, and the obstruction benefits of an upright sprinkler.

For more information on applications and benefits of the Model EC-25 Sprinkler, refer to the available white papers at [www.tyco-fire.com](http://www.tyco-fire.com).

### 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.

### NOTICE

The Model EC-25 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 (for example, FM Global). Failure to do so may impair the performance of these devices.

Owners are responsible for maintaining their fire protection system and devices in proper operating condition. The installing contractor or sprinkler manufacturer should be contacted with any questions.

## Model/Sprinkler Identification Number (SIN)

TY9128

## Technical Data

### Approvals

- UL and C-UL Listed
- FM Approved
- NYC under MEA 355-01-E

(Approvals only apply to the service conditions indicated in the Design Criteria section.)

### Maximum Working Pressure

175 psi (12,1 bar)

### Pipe Thread Connection

- 1 inch NPT
- ISO 7-R1

### Discharge Coefficient

K=25.2 GPM/psi<sup>1/2</sup> (362,9 LPM/bar<sup>1/2</sup>)

### Temperature Ratings

- 165°F (74°C)
- 214°F (101°C)

### Maximum Coverage Area

196 ft<sup>2</sup> (18,2 m<sup>2</sup>)

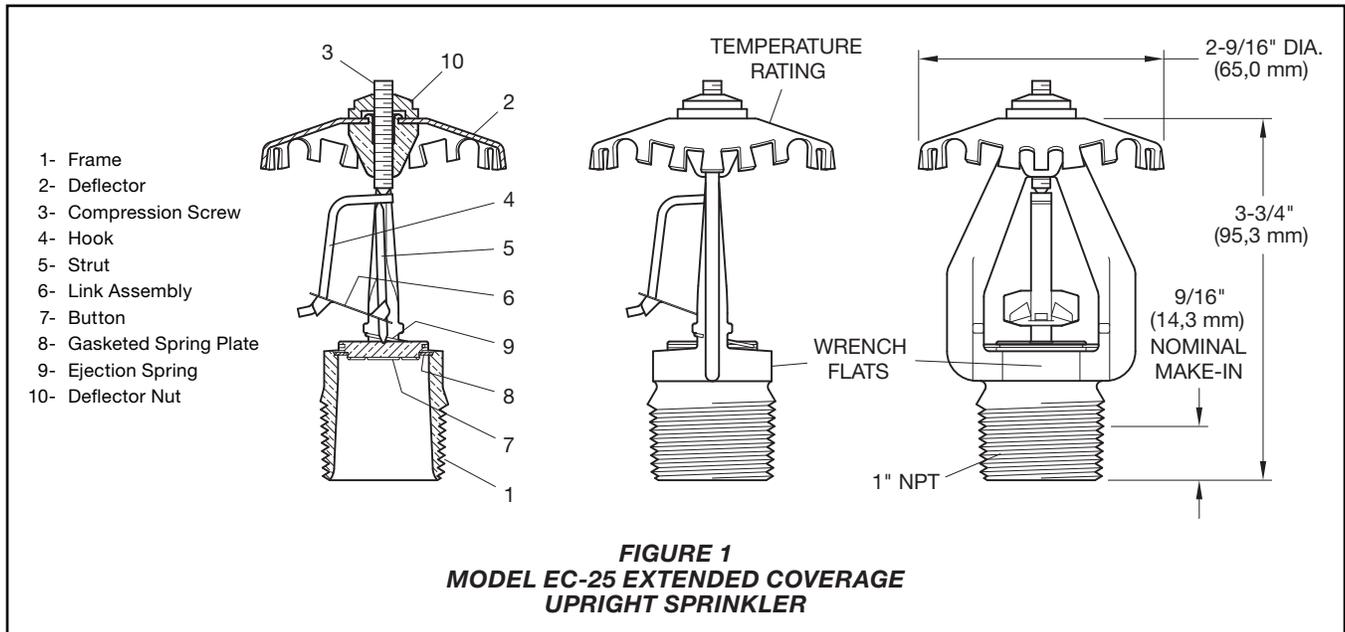
### Finish

Natural Brass



### Physical Characteristics

Frame .....	Brass
Deflector .....	Copper
Compression Screw .....	Stainless Steel
Hook .....	Monel
Strut .....	Monel
Link Assembly .....	Solder, Nickel
Button .....	Brass
Sealing Assembly .....	Beryllium Nickel w/TEFLON
Ejection Spring .....	Inconel
Deflector Nut .....	Brass



## Operation

The fusible link assembly is comprised of two link halves that are joined together by a thin layer of solder. When the rated temperature is reached, the solder melts and the two link halves separate, allowing the sprinkler to activate and flow water.

## Design Criteria

### UL AND C-UL LISTING CRITERIA

The Model EC-25 Extended Coverage Upright Sprinklers (TY9128) are UL and C-UL Listed for installation in accordance with the extended coverage upright spray sprinkler requirements of NFPA 13 or other applicable NFPA standards when used in conjunction with the following guidelines:

- Suitable for the protection of extra hazard and high-piled storage occupancies where area/density design criteria are provided.
- Suitable for “unobstructed” or “noncombustible obstructed” construction.
- The Model EC-25 Sprinklers having been specifically tested and listed for noncombustible obstructed construction are suitable for use within trusses or bar joists having noncombustible web members greater than 1 inch (25.4 mm) when applying the 4 times obstruction criteria rule defined under “Obstructions to Sprinkler Discharge Pattern Development”.

- The maximum coverage area per sprinkler is 196 ft.<sup>2</sup> (18,2 m<sup>2</sup>).
- The maximum distance between sprinklers is 15 feet (4,6 m) when the coverage area does not exceed 144 ft.<sup>2</sup> (13,4 m<sup>2</sup>), and the maximum distance between sprinklers is 14 feet (4,3 m) when the coverage area does not exceed 196 ft.<sup>2</sup> (18,2 m<sup>2</sup>).
- The minimum distance between sprinklers is 8 feet (2,44 m).
- The minimum flow requirement is based on the design density applied over the actual coverage area per sprinkler.

For example: when sprinkler spacing is 14 ft. x 12 ft. - 6 in. (4,3 m x 3,8 m) or 175 ft<sup>2</sup> (16,3 m<sup>2</sup>), and the design density is 0.6 GPM/ft<sup>2</sup> (24,4 mm/min), the sprinkler design flow rate is 105 GPM (397 LPM) and the required design pressure is 17.4 psi (1,2 bar).

- The minimum clearance between the deflector and the top of storage is 36 inches (0,9 m). For clearances of 36 inches (0,9 m) up to 48 inches (1,21 m), the minimum design pressure is 22 psi (1,52 bar). For clearances of 48 inches (1,21 m) and greater, the minimum design pressure is established by the minimum flow requirement. However, the pressure can never be less than 7 psi (0,5 bar).

- Ordinary and intermediate temperature rated Model EC-25 Sprinklers have been investigated for use in high-piled storage occupancies at the hydraulic demand normally associated with high temperature sprinklers. As such, the Model EC-25 Sprinklers are listed storage sprinklers having a K-factor greater than 11.2 (161,4) and having ordinary and intermediate temperature ratings (that is, 165°F or 74°C and 214°F or 101°C). Consequently, the Model EC-25 Sprinklers, in accordance with NFPA 13, may be used in conjunction with the density curves for high temperature sprinklers.
- NFPA obstruction rules for Extended Coverage Sprinklers must be utilized.

## FM APPROVAL CRITERIA

The Model EC-25 Extended Coverage Upright Sprinklers (TY9128) are FM Approved to be utilized in accordance with the following guidelines.

### Application

The Model EC-25 Extended Coverage Upright Sprinklers are FM Approved ceiling-level Storage Sprinklers for storage occupancy hazards and other similar high heat release type fires. When compared with other FM Approved Storage Sprinklers, the Model EC-25 Sprinkler provides low hydraulic demand, the spacing advantages of extended coverage, and the FM obstruction benefits of an upright sprinkler.

Model EC-25 Sprinklers should be used in conformance with applicable FM Global Property Loss Prevention Data Sheets.

### Hydraulic Design

To determine the hydraulic design for the Model EC-25 Sprinkler refer to the applicable FM Global Property Loss Prevention Data Sheet.

### System Type

Wet-pipe systems are acceptable.

### Sprinkler Spacing

The maximum coverage area per sprinkler is 196 ft<sup>2</sup> (18,2 m<sup>2</sup>). The minimum coverage area per sprinkler is 100 ft<sup>2</sup> (9,3 m<sup>2</sup>). The maximum distance between sprinklers is 14 ft. (4,3 m). The minimum distance between sprinklers is 10 ft. (3,05 m).

*Note: When a wall or obstruction makes a minimum spacing of 10 ft. (3,05 m) impossible, consult FM Global Property Loss Prevention Data Sheet 2.0 for applicable guidelines.*

### Sprinkler Location

Locate sprinklers with respect to the ceiling/roof in accordance with FM Global Property Loss Prevention Data Sheet 2.0.

### Obstructions

Follow the obstruction requirements as detailed in FM Global Property Loss Prevention Data Sheet 2.0.

### Other Details

All other design details should be in accordance with FM Global Property Loss Prevention Data Sheet 2.0 as well as any other applicable FM Global Data Sheet.

## Installation

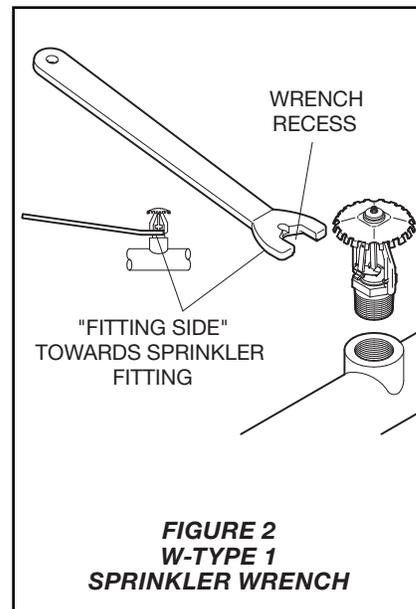
The TYCO Model EC-25 Upright Sprinklers are to be installed in accordance with the following instructions:

### NOTICE

*Damage to the fusible Link Assembly during installation can be avoided by handling the sprinkler using only the frame arms and the appropriate sprinkler wrench. Do not grip or apply any force to the Fusible Link Assembly. Damaged sprinklers must be replaced immediately.*

Obtain a leak-tight 1 inch NPT sprinkler joint by applying a minimum-to-maximum torque of 20 to 30 ft.lbs. (26,8 to 40,2 Nm). Higher levels of torque may distort the sprinkler inlet with consequent leakage or impairment of the sprinkler.

1. Install the Model EC-25 Sprinkler in the upright position.
2. With pipe-thread sealant applied, hand-tighten the sprinkler into the sprinkler fitting. Do not apply any force to the Link Assembly, and handle the Model EC-25 Sprinkler only by the Frame arms.
3. Wrench-tighten the Model EC-25 Sprinkler using only the W-Type 1 Sprinkler Wrench (Figure 2) and by fully engaging (seating) the wrench on the sprinkler Wrench Flats.
4. After installation, inspect the Link Assembly of each Model EC-25 Sprinkler for damage. In particular, verify that the Link Assembly and Hook are positioned as illustrated in Figure 1, and that the Link Assembly has not been bent, creased, or forced out of its normal position in any way. Damaged sprinklers must be replaced immediately.



## Care and Maintenance

The TYCO Model EC-25 Sprinkler must be maintained and serviced in accordance with the following instructions.

### NOTICE

*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 system from the proper authorities and notify all personnel who may be affected by this decision.*

Inspection, testing, and maintenance must be performed as indicated below and in accordance with the local requirements and/or national codes. Any impairment must be immediately corrected.

Responsibility lies with owners 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 any authorities having jurisdiction. Contact the installing contractor or product manufacturer regarding 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**

Products manufactured by Tyco Fire Protection Products (TFPP) 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 TFPP. No warranty is given for products or components manufactured by companies not affiliated by ownership with TFPP 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 TFPP to be defective shall be either repaired or replaced, at TFPP's sole option. TFPP neither assumes, nor authorizes any person to assume for it, any other obligation in connection with the sale of products or parts of products. TFPP 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 TFPP be liable, in contract, tort, strict liability or under any other legal theory, for incidental, indirect, special or consequential damages, including but not limited to labor charges, regardless of whether TFPP was informed about the possibility of such damages, and in no event shall TFPP's 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.

This limited warranty sets forth the exclusive remedy for claims based on failure of or defect in products, materials or components, whether the claim is made in contract, tort, strict liability or any other legal theory.

This warranty will apply to the full extent permitted by law. The invalidity, in whole or part, of any portion of this warranty will not affect the remainder.

## **Ordering Procedure**

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

### **Sprinkler Assemblies with 1-Inch NPT Connections**

Specify (temperature rating), natural brass, Model EC-25 Extended Coverage Upright Sprinkler (TY9128), and P/N (below).

165°F (74°C) . . . . . P/N 58-450-1-165  
214°F (101°C) . . . . . P/N 58-450-1-214

### **“Special Order” Sprinkler Assemblies with ISO 7/1 Thread Connections**

Specify (temperature rating), natural brass, Model EC-25 Extended Coverage Upright Sprinkler (TY9128) with thread connection per ISO 7/1, and P/N (below).

165°F (74°C) . . . . . P/N 58-451-1-165  
214°F (101°C) . . . . . P/N 58-451-1-214

### **Sprinkler Wrench** Specify W-Type 1 Sprinkler Wrench, P/N 56-872-1-025.