

Model K11 ECLH

Quick Response Extended Coverage Light Hazard Sprinklers



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General Description

The Central Model K11 ECLH, 11.2 K-Factor, Quick Response, Extended Coverage Light Hazard (ECLH) Pendent and Recessed Pendent Sprinklers are decorative glass bulb sprinklers designed for use in light hazard occupancies such as churches, hospitals, offices, and restaurants.

They are intended for use in automatic sprinkler systems designed in accordance with standard installation rules (e.g., NFPA 13) for the protection of light hazards up to a maximum coverage area of 400 ft² (37,2 m²), as compared to the maximum coverage area of 225 ft² (20,9 m²) for standard coverage sprinklers.

The recessed version of the Models K11 ECLH Sprinklers using a two-piece Series 4221 Recessed Escutcheon provides up to 1/2 inch (12,7 mm) of total adjustment from the flush pendent position. The adjustment provided by the Recessed Escutcheon reduces the accuracy to which the fixed pipe drops to the sprinklers must be cut.

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, which then allows the sprinkler to activate and flow water.

WARNINGS

The Model K11 ECLH 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 main-

taining their fire protection system and devices in proper operating condition. The installing contractor or sprinkler manufacturer should be contacted relative to any questions.

Technical Data

Sprinkler Identification Number
SIN C5232

Approvals
UL and C-UL Listed, FM Approved.
(Refer to Table A. The approvals apply only to the service conditions indicated in the Design Criteria section.)

Maximum Working Pressure
175 psi (12,1 bar)

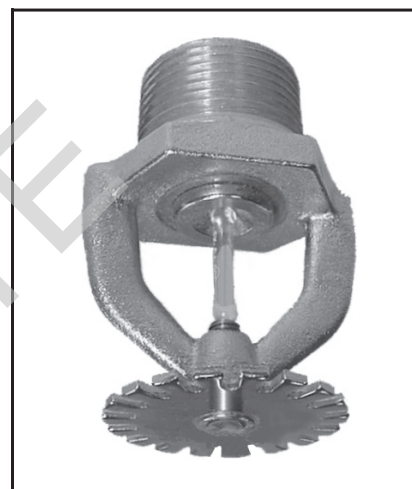
Pipe Thread Connection
3/4 inch NPT or ISO 7-R3/4

Nominal Discharge Coefficients
 $K = 11.2 \text{ GPM/psi}^{1/2}$
(161,3 LPM/bar^{1/2})

Temperature Ratings
135°F/57°C to 200°F/93°C

Finishes
Sprinkler: White Polyester, Chrome Plated, Natural Brass
Recessed Escutcheon: White Coated or Chrome Plated
(Other finishes are available on request.)

Physical Characteristics
The K11 ECLH utilizes a dezincification resistant (DZR) bronze frame, a brass button, and a 3 mm bulb. The frame orifice is sealed with a gasketed spring plate (Belleville Seal) consisting of a beryllium nickel disc spring that is sealed on both its inside and outside edges with a Teflon[®] gasket. The compression screw is bronze, and the deflector is brass.



K11 ECLH Quick Response Pendent & Rec. Pendent Sprinklers

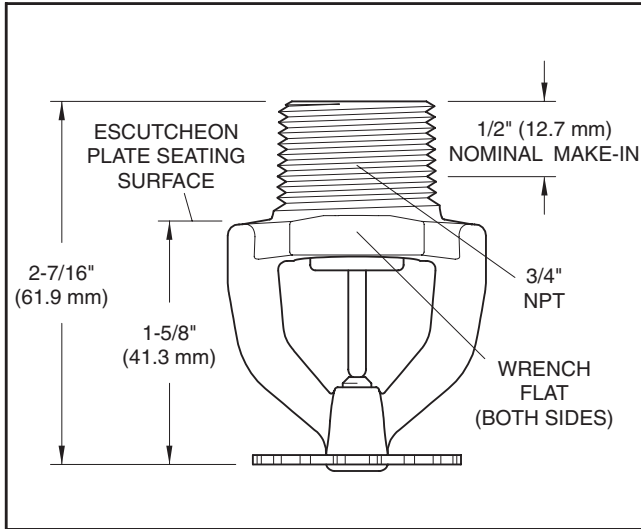


Figure 1
Models K11 ECLH
Pendent Sprinklers

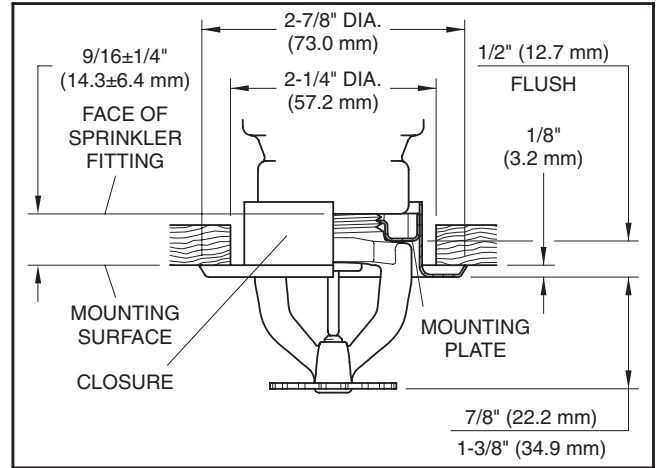


Figure 2
Models K11 ECLH
Pendent Sprinklers
With Series 4221 Recessed Escutcheon

		SPRINKLER FINISH						
		Pendent (C5232)				Recessed (C5232) w/Series 4221 Escutcheon		
Temperature Rating	Bulb Color Code	Natural Brass	Chrome Plated	Polyester Coated (All Colors)	Lead Coated	Natural Brass	Chrome Plated	Polyester Coated (All Colors)
135°F/57°C	Orange			1, 2, 3				1, 2, 3
155°F/68°C	Red			1, 2, 3				1, 2
175°F/79°C	Yellow			1, 2				1, 2
200°F/93°C	Green			1, 2				1, 2

Notes:

1. Listed by Underwriters Laboratories, Inc.
2. Listed by Underwriters Laboratories for use in Canada (i.e., C-UL Listed)
3. Approved by Factory Mutual Research Corporation.

Table A
Laboratory Listings and Approvals
(The laboratory listings and approvals only apply to the service conditions indicated in the Design Criteria section.)

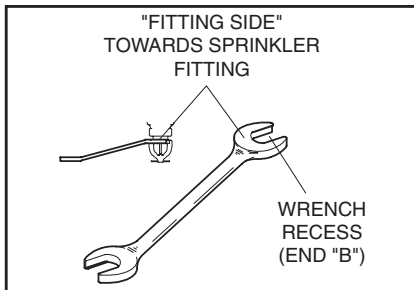


Figure 3
W-Type 3
Upright and Pendent
Sprinkler Wrench

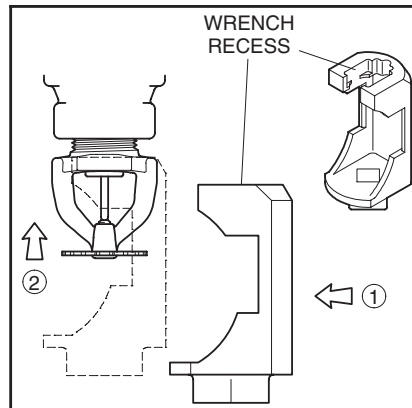


Figure 4
W-Type 5
Recessed Pendent
Sprinkler Wrench



Design Criteria

The Model K11 ECLH Sprinklers (SIN C5232) are only to be installed in accordance with Table B or C, as applicable. Only the Series 4221 Recessed Escutcheon is to be used for recessed installations.

RESPONSE	COVERAGE AREA W x L FT. x FT. (m x m)	MINIMUM FLOW GPM (LPM)	MINIMUM PRES. PSI (BAR)	PENDENT SPRINKLER TEMP. RATING °F	RECESSED SPRINKLER TEMP. RATING °F
QUICK	16 x 16 (4.9 x 4.9)	30 (114)	7.0 (0,48)	135, 155, 175, 200	135, 155, 175, 200
	18 x 18 (5.5 x 5.5)	32 (121)	8.2 (0,57)	135, 155, 175, 200	135, 155, 175
	20 x 20 (6.1 x 6.1)	40 (151)	12.8 (0,88)	135, 155, 175, 200	135, 175

NOTES:

- (a) The K11 ECLH Sprinklers may be used in QR-EC Light Hazard Occupancy automatic sprinkler applications per NFPA 13.
- (b) The K11 ECLH Sprinklers are only permitted to be used with unobstructed, smooth ceiling construction as defined by NFPA 13.
- (c) Follow the requirements of NFPA 13 for spacing of the K11 ECLH Sprinklers with respect to ceiling mounted obstructions.
- (d) The minimum allowable spacing between the K11 ECLH Sprinklers to prevent cold soldering is 8 feet (2,4 m).
- (e) The maximum permitted ceiling slope for K11 ECLH Sprinklers is a 2 inch (50,8 mm) rise over a 12 inch (304,8 mm) horizontal run.
- (f) The deflector-to-ceiling distance for the K11 ECLH Sprinklers is 1-5/8 to 12 inches (41,3 to 304,8 mm), unless the Series 4221 Recessed Escutcheon is utilized.

Table B
UL and C-UL Listing Criteria for Installation of
K11 ECLH Pendent and Recessed Pendent Sprinklers

RESPONSE	COVERAGE AREA W x L FT. x FT. (m x m)	MINIMUM FLOW GPM (LPM)	MINIMUM PRES. PSI (BAR)	PENDENT SPRINKLER TEMP. RATING °F	RECESSED SPRINKLER TEMP. RATING °F
QUICK	16 x 16 (4.9 x 4.9)	30 (114)	7.0 (0,48)	135, 155	135
	18 x 18 (5.5 x 5.5)	32 (121)	8.2 (0,57)	135, 155	135
	20 x 20 (6.1 x 6.1)	40 (151)	12.8 (0,88)	135, 155	135

NOTES:

- (a) The K11 ECLH Sprinklers may be used in QR-EC Light Hazard Occupancy automatic sprinkler system applications per FM installation standards.
- (b) The K11 ECLH Sprinklers are only permitted to be used with smooth level ceilings per FM installation standards.
- (c) The minimum allowable spacing between the K11 ECLH Sprinklers to prevent cold soldering is 8 feet (2,4 m).
- (d) The maximum permitted ceiling slope for K11 ECLH Sprinklers is a 1 inch (25,4 mm) rise over a 12 inch (304,8 mm) horizontal run.
- (e) The deflector-to-ceiling distance for the K11 ECLH Sprinklers is 1-5/8 to 4 inches (41,3 to 101,6 mm), unless the Series 4221 Recessed Escutcheon is utilized.
- (f) The maximum ceiling height for the K11 ECLH Sprinklers is 10 feet (3,1 m).

TABLE C
FM Approval Criteria For Installation of
K11 ECLH Pendent and Recessed Pendent Sprinklers



Installation

The Model K11 ECLH Sprinklers must be installed in accordance with the following instructions:

NOTES

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 135°F/57°C to 200°F/93°C temperature ratings.

A leak tight 3/4 inch NPT sprinkler joint should be obtained with a torque of 10 to 20 ft.lbs. (13,4 to 26,8 Nm). A maximum of 30 ft.lbs. (40,7 Nm) of torque is to be used to install sprinklers. Higher levels of torque may distort the 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. Model K11 ECLH Sprinklers must be installed in the pendent position and with the deflector parallel to the mounting surface.

Step 2. After installing the Series 4221 mounting plate (or other escutcheon, as applicable) over the sprinkler pipe threads and with pipe thread sealant applied to the pipe threads, hand tighten the sprinkler into the sprinkler fitting.

Step 3. Wrench tighten pendent sprinklers using only the W-Type 3 (End B) Sprinkler Wrench. Wrench tighten the recessed pendent sprinklers using only the W-Type 5 Sprinkler Wrench. The wrench recess of the applicable sprinkler wrench (Ref. Figure 3 and 4) is to be applied to the sprinkler wrench flats (Ref. Figure 1).



Care & Maintenance

The Model K11 ECLH Sprinklers must be maintained and serviced in accordance with the following instructions:

NOTES

Absence of an escutcheon, which is used to cover a clearance hole, may

delay the time to 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.

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 temperature 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 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 com-

panies 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 CONSEQUENTIAL 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, and size, as applicable. Refer to Price List for complete listing of Part Numbers.

Please Specify:

Model K11 ECLH Pendent Sprinkler.
W-Type 3 Sprinkler Wrench.
W-Type 5 Sprinkler Wrench.
Series 4221 Recessed Escutcheon.

Conversion Factors:

1 ft. =	0.3048 m
1 sq. ft. =	0.093 m ²
1 gpm =	3.785 Lpm
1 psi =	0.06895 bar
1 gpm/ft ² =	40.74 mm/min