

Model BV4-QREC

5.6 K-factor Quick Response Extended Coverage Light Hazard

Concealed Pendent Glass Bulb Automatic Sprinklers

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General Description

The Central Model BV4-QREC, 5.6 K-factor, Quick Response, Extended Coverage Light Hazard (ECLH) Concealed 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 324 ft² (30,1 m²), as compared to the maximum coverage area of 225 ft² (20,9 m²) for standard coverage sprinklers.

Each unit includes a Cover Plate Assembly which conceals the sprinkler operating components above the ceiling. The separable two-piece design of the Cover Plate and Support Cup Assemblies allows installation of the sprinklers and pressure testing of the fire protection system prior to installation of a suspended ceiling or application of the finish coating to a fixed ceiling. They also permit removal of suspended ceiling panels for access to building service equipment without having to first shut down the fire protection system and remove sprinklers.

Also, the separable two-piece design of the sprinkler provides for 1/2 inch (12,7 mm) of vertical adjustment, to reduce the accuracy to which the length of fixed pipe drops to the sprinkler must be cut.

The BV4-QREC ECLH Concealed Pendent Sprinkler is shipped with a

Disposable Protection Cap. The Protective Cap is temporarily removed to install the BV4-QREC, and then replaced to protect the BV4-QREC while the ceiling is being installed and finished. The tip of the Protection Cap can be used to mark the center of the ceiling hole into plaster board, ceiling tiles, etc. by pushing the ceiling product against the Protection Cap. When the ceiling installation is complete, the Protection Cap is removed and the Cover Plate Assembly installed.

Operation: When exposed to heat from a fire, the Cover Plate, which is soldered to the Retainer Assembly at three points, falls away to expose the Sprinkler Assembly. At this point the Deflector supported by the Arms drops down to its operational position. 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 & flow water.

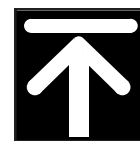
WARNING

The Model BV4-QREC ECLH Concealed Pendent Sprinklers described herein must be installed & 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.



Extended Coverage Light Hazard Concealed Pendent Sprinklers



Technical Data

Sprinkler Identification Number
SIN C3532

Approvals

UL and C-UL Listed. NYC Approved. (Refer to Table 1. The approvals apply only to the service conditions indicated in the Design Criteria Section)

Maximum Working Pressure
175 psi (12,1 bar)

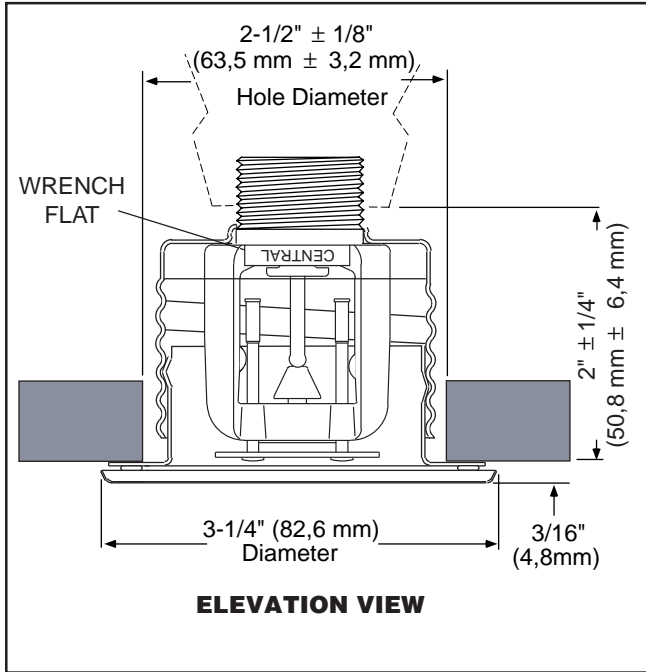
Pipe Thread Connection
1/2 inch NPT

Discharge Coefficient
K = 5.6 GPM/psi^{1/2} (80,6 LPM/bar^{1/2})

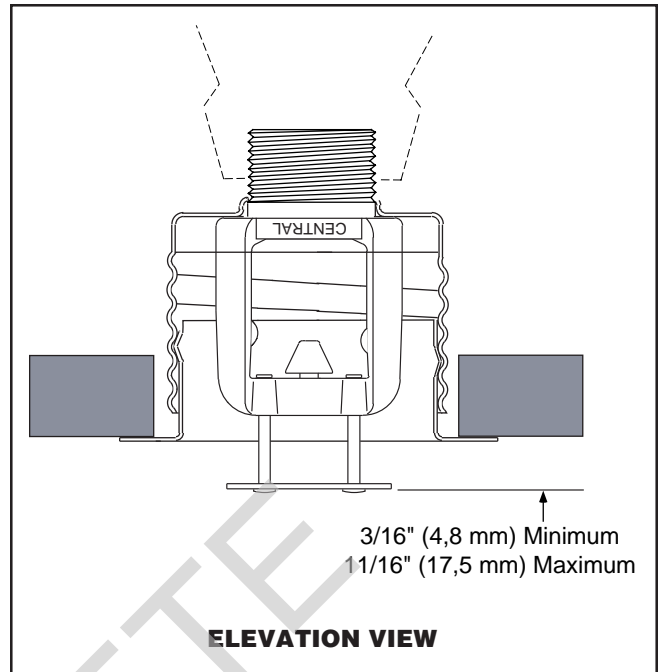
Temperature Ratings
155°F/68°C Sprinkler - 135°F/57°C Plate
200°F/93°C Sprinkler - 165°F/74°C Plate

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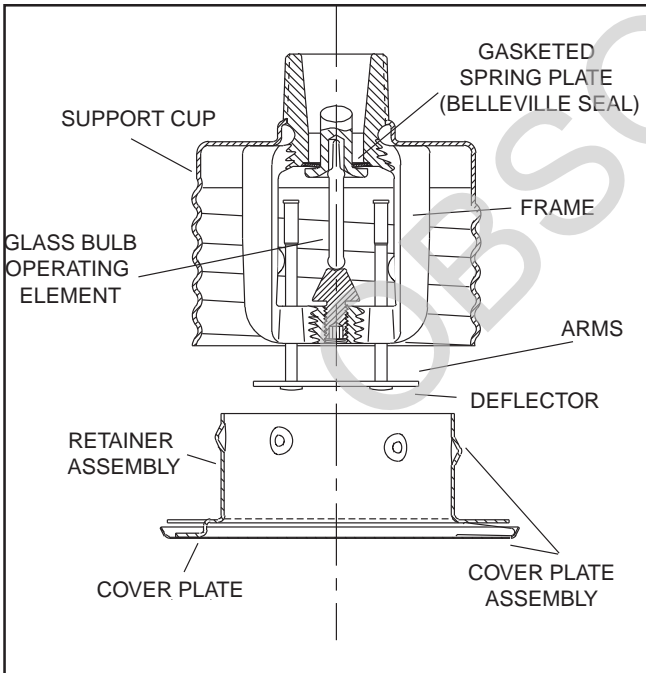
**Figure 1 - Model BV4-QREC,
ECLH Concealed Pendent Sprinkler**



**Figure 2 - Model BV4-QREC, ECLH
Concealed Pendent Sprinkler (Activated)**



**Figure 3 - Cross Section Model BV4-QREC,
ECLH Concealed Pendent Sprinkler**



**Figure 4 - BV4 Sprinkler Wrench
(Part #1075)**



Technical Data (Cont.)

Finishes

Sprinkler: Natural Brass

Cover Plate: Chrome or Brass Plated; *Flat White, Bright White, or Custom Painted

* Standard Finish supplied when White is specified

Physical Characteristics

The Model BV4-QREC ECLH Concealed Pendent Sprinklers utilize a dezincification resistant (DZR) bronze frame and a 3 mm bulb. The two-piece button assembly is brass and copper. The sprinkler 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 arms and deflector are bronze, and the support cup is steel. The cover plate and retainer assembly are brass.



Design Criteria

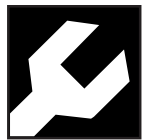
The Model BV4-QREC ECLH Concealed Pendent Sprinklers are UL and C-UL listed and NYC Approved (MEA 64-93-E Vol. II), for use in light hazard occupancies, using the design criteria in Table 1 as well as any additional requirements specified in current NFPA 13 Standards for Extended Coverage Pendent Sprinklers.

The Model BV4-QREC ECLH Concealed Pendent Sprinklers are only listed with the Series BV4 Concealed Cover Plates. The minimum lateral spacing between the BV4-QREC ECLH Concealed Pendent Sprinklers, to prevent cold soldering, is 8 feet (2,4 m).

The Support Cup of the Model BV4-QREC ECLH Concealed Pendent Sprinkler has several slots in the base of the cup which allows heat from a fire to flow past the thermal sensitive operating element accelerating sprinkler activation. Due to the presence of these slots, the installation of these sprinklers in ceilings which have positive pressure in the space above, is not permitted.

Table 1 - UL and C-UL Listing Criteria for the Installation of Model BV4-QREC Extended Coverage Light Hazard Concealed Pendent Sprinklers

Spacing	Minimum Flow/Pressure LH (0.1 gpm/sq. ft.)	Temperature Rating
16' x 16' (4,9 m x 4,9 m)	26.0 gpm / 21.6 psi 98,4 Lpm / 1,49 bar	155°F/68°C Sprinkler - 135°F/57°C Plate 200°F/93°C Sprinkler - 165°F/74°C Plate
18' x 18' (5,5 m x 5,5 m)	33.0 gpm / 34.7 psi 124,9 Lpm / 2,39 bar	155°F/68°C Sprinkler - 135°F/57°C Plate 200°F/93°C Sprinkler - 165°F/74°C Plate



Installation

The Model BV4-QREC ECLH Concealed Pendent 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 155°F/68°C to 3/32 inch (2,4 mm) for the 200°F/93°C rating.

A leak tight 1/2 inch NPT sprinkler joint should be obtained with a torque of 7 to 14 ft.lbs. (9,5 to 19,0 Nm). A maximum of 21 ft.lbs. (28,5 Nm) of torque is to be used to install 1/2 inch NPT sprinklers. Higher levels of torque may distort the sprinkler inlet with consequent leakage or impairment of the sprinkler.

Do not attempt to make up for insufficient adjustment in the escutcheon plate by under- or overtightening

the sprinkler. Readjust the position of the sprinkler fitting to suit.

Step 1. The sprinkler must only be installed only in the pendent position and with the centerline of the sprinkler perpendicular to the mounting surface.

Step 2. Remove the Protective Cap.

Step 3. With pipe thread sealant applied to the pipe threads, hand tighten the sprinkler into the sprinkler fitting.

Step 4. Wrench tighten the Sprinkler using only the BV4 Sprinkler Wrench (Ref. Figure 4). The BV4 Sprinkler Wrench is to be applied to the Sprinkler Wrench flats only.

Step 5. Replace the Protective Cap by pushing it upwards until it bottoms out against the Support Cup. The Protective Cap helps prevent damage to the Deflector and Arms during ceiling installation and/or during application of the finish coating of the ceiling. It may also be used to locate the center of the clearance holes by gently pushing the ceiling material up

against the center point of the Protective Cap.

NOTE

As Long as the Protective Cap remains in place, the system is considered to be "Out of Service"

Step 6. After the ceiling has been completed with the 2-1/2 inch (66,7 mm) diameter clearance hole and in preparation for installing the Cover Assembly, remove and discard the Protective Cap, and verify that the Deflector moves up and down freely. If the Sprinkler has been damaged and the Deflector does not move up and down freely, replace the entire Sprinkler Assembly. Do not attempt to modify or repair a damaged sprinkler.

Step 7. Screw on the Cover Plate/ Retainer Assembly until its flange just comes in contact with the ceiling. Do not continue to screw on the Cover Plate/Retainer Assembly such that it lifts a ceiling panel out of its normal position. If the Cover Plate/Retainer Assembly cannot be engaged sufficiently to contact the ceiling, the sprinkler fitting must be repositioned.



Care & Maintenance

The Model BV4-QREC ECLH Concealed Pendent Sprinklers must be maintained and serviced in accordance with the following instructions.

NOTES

Absence of the Cover Plates which is used to cover a clearance hole, may delay the time to operation in a fire situation.

When properly installed, there is a nominal 3/32 inch (2,4 mm) air gap between the lip of the Cover Plate and the ceiling. This air gap is necessary for proper operation of the sprinkler. If the ceiling is to be repainted after the installation of the sprinkler, care must be exercised to ensure that the new paint does NOT seal off any of the air gap.

Factory painted Cover Plates MUST NOT be repainted. They should be replaced, if necessary, by factory painted units.

Do not pull the Cover Plates relative to the Retainer Assembly. Separation may result.

Before closing a fire protection system main control valve for maintenance work on the fire protection system it controls, permission to shut down the affected fire protection systems must be obtained from the proper authorities. 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 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).

If a sprinkler must be removed for some reason, do not reinstall it or a replacement without reinstalling the Cover Plate Assembly. If a Cover Plate Assembly becomes dislodged during service, replace it immediately.

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.

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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.

Patents: U.S.A. Patent Number 4,014,388 is applicable to the Model BV4-QREC ECLH Concealed Pendent Sprinklers. Other Patents are pending with regard to other design features.

Teflon is a trademark of the DuPont Corp.