Model B-1 — 3.0 K-factor Upright and Pendent Foam-Water Sprinklers

IMPORTANT

Refer to Technical Data Sheet TFP2300 for warnings pertaining to regulatory and health information.

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.

Scan the QR code or enter the URL in a web browser to access the most up-to-date electronic version of this document. Data rates may apply.

docs.jci.com/tycofire/tfp840

General Description

TYCO Model B-1 Upright and Pendent Foam-Water Sprinklers are air-aspirating foam discharge outlets designed for use in foam-water deluge systems. They are designed for flammable liquid risks where it is desired to apply foam from overhead sprinklers (either upright or pendent) and where follow-up with plain water in a standard spray sprinkler pattern is necessary as in the case of NFPA 16, "Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems."

It is recommended that the end user be consulted with respect to the suitability of the materials of construction for any given corrosive environment. The effects of ambient temperature, concentration of chemicals, and gas/chemical velocity, should be considered, at a minimum, along with the corrosive nature to which the sprinklers may be exposed.

The Model B-1 Foam-Water Sprinkler is a redesignation for the Gem Issue B-1 and Star Model B-1 Sprinklers.

NOTICE

The Model B-1 Foam-Water 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. Failure to do so may impair the performance of these devices.

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.

Technical Data

Approvals
UL and ULC Listed

Discharge outlets and foam concentrates are Listed for use together. Refer to the individual foam concentrate Listing for operating limitations and compatibility with the B-1 Foam-Water Sprinklers as provided in the UL Fire Protection Equipment Directory.

The Model B-1 Upright and Pendent Foam-Water Sprinklers meet the requirements of:

MIL-S-901C
(for light-weight Grade A shock-proof equipment)

MIL-H-24146



Maximum Working Pressure
175 psi (12,1 bar)

Discharge Coefficients
K=3.0 GPM/psi$^{1/2}$ (43,2 LPM/bar$^{1/2}$)

Thread Connection
1/2 in. NPT

Finish
Natural Bronze

Physical Characteristics

Body	Bronze
Deflector	Brass
Agitator	Brass

Operation

TYCO Model B-1 Foam-Water Sprinklers are designed with a unique venturi-style body. As foam solution (water and foam concentrate mixture) flows through the inlet of the body, air is drawn into the body through the openings adjacent to the wrenching area. The foam solution and air mix is then agitated to create an air-aspirated foam.

The B-1 Foam-Water Sprinklers are designed to discharge foam in a predetermined discharge pattern, as well as to discharge water similar to standard spray sprinklers. To meet the intent of NFPA 16, foam-water sprinklers must be able to sufficiently distribute water after depletion of the foam concentrate.

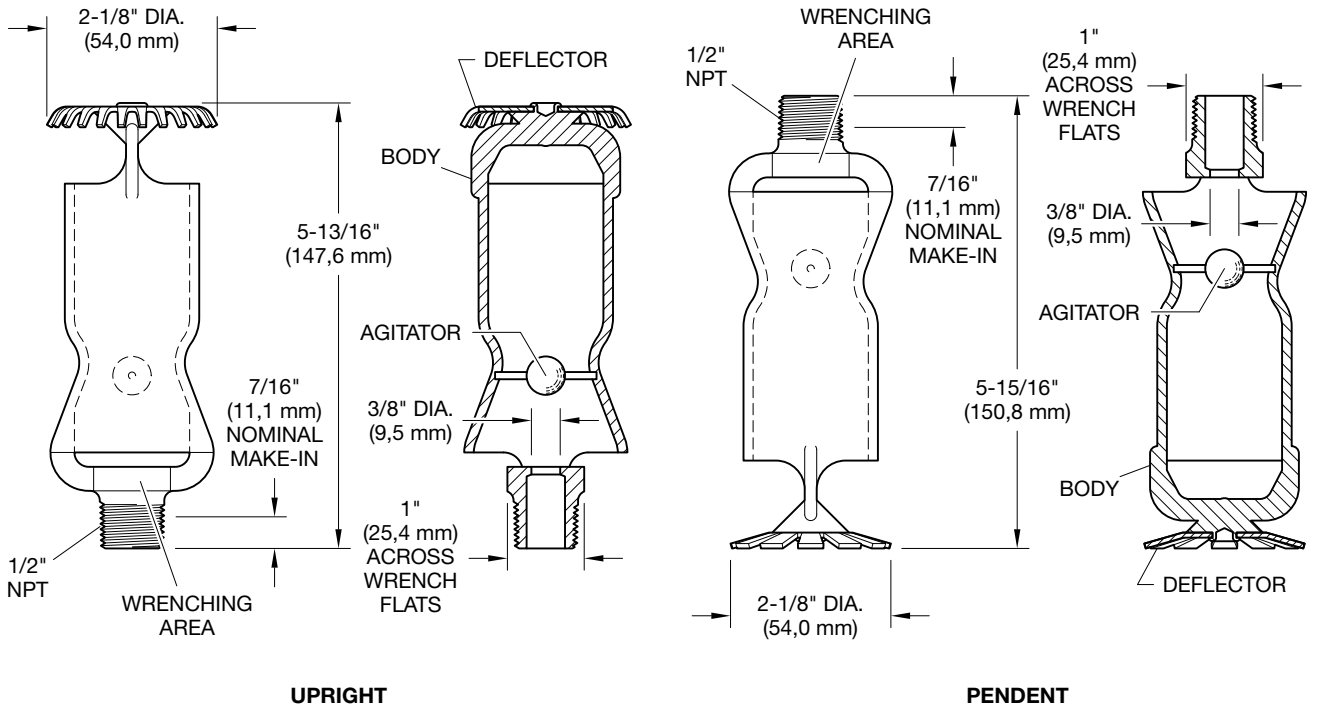


FIGURE 1
MODEL B-1 FOAM-WATER UPRIGHT AND PENDENT SPRINKLERS
NOMINAL DIMENSIONS

Design Criteria

TYCO Model B-1 Upright and Pendent Foam-Water Sprinklers are intended for fire protection systems designed in accordance with the standard installation rules for foam-water sprinklers systems recognized by the applicable Listing agency (for example, UL Listing is based on the requirements of NFPA 13 and 16).

Graph A provides the nominal discharge patterns for reference use.

Note: *The discharge patterns shown in Graph A are not to be used for design purposes or to disregard standard installation rules.*

Not less than two (2) foam-water sprinklers are to be installed in any area, regardless of size, in order to obtain pattern overlap.

The applied density (flow per unit of area) of foam solution must meet the requirements of the authority having jurisdiction for the type flammable liquid and occupancy. Per NFPA 16, coverage density must not be less than 0.16 gpm/ft² (6,52 mm/min) of floor area with a resulting minimum discharge pressure of not less than 30 psi (2,1 bar).

Foam-water sprinkler spacing must not exceed the requirements of NFPA 13 for extra hazard occupancies and the system must be hydraulically calculated to obtain the required density and discharge pressure.

Note: *Discharge outlets and foam concentrates are listed for use together. Refer to the individual foam concentrate listing for operating limitations and compatibility with the B-1 Foam-Water Sprinklers as provided in the UL Fire Protection Equipment Directory.*

Installation

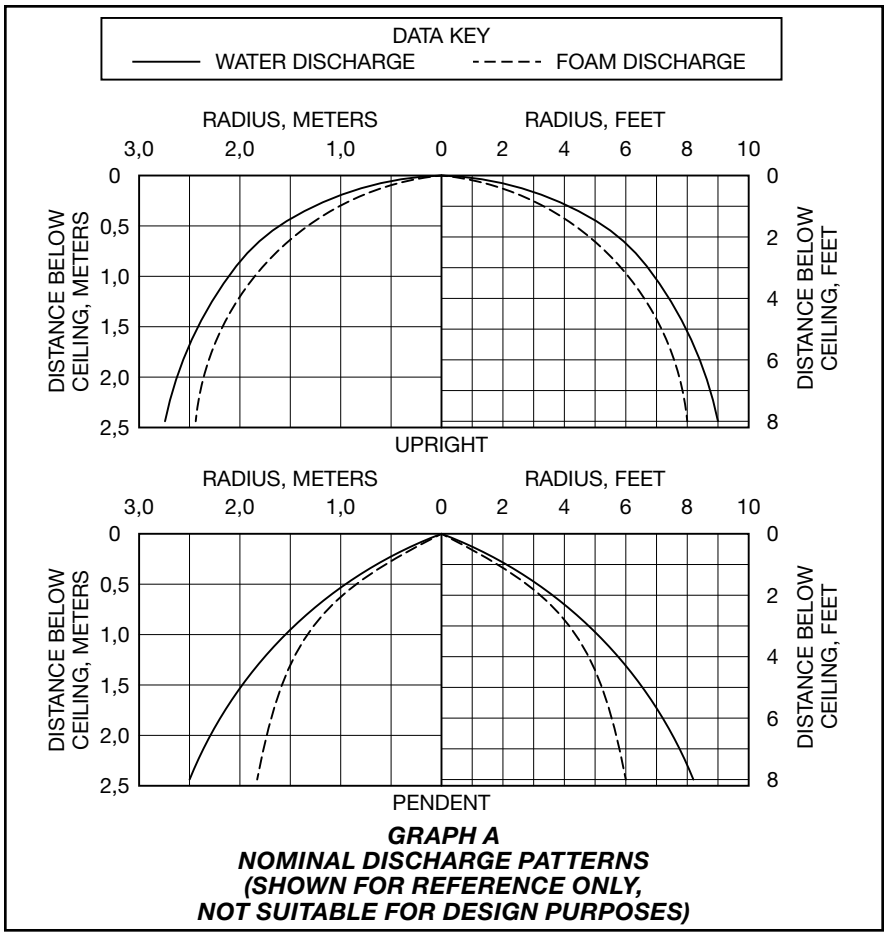
TYCO Model B-1 Foam-Water Sprinklers must be installed in accordance with this section.

General Instructions
Obtain a leak-tight 1/2 in. NPT sprinkler joint by applying a minimum-to-maximum torque of 7 to 14 ft-lb (9,5 to 19,0 N·m). Higher levels of torque may distort the sprinkler inlet and cause impairment of the sprinkler.

Upright and Pendent Sprinklers
Note: *Pendent sprinklers are to be installed in the pendent position; upright sprinklers are to be installed in the upright position.*

Step 1. With pipe thread sealant applied to the pipe threads, hand tighten the sprinkler into the sprinkler fitting.

Step 2. Tighten the sprinkler into the sprinkler fitting using an 8 in. or 10 in. adjustable wrench. With reference to Figures 1 and 2, the adjustable wrench is only to be applied to the wrench flats of the wrenching area.



GRAPH A
NOMINAL DISCHARGE PATTERNS
(SHOWN FOR REFERENCE ONLY,
NOT SUITABLE FOR DESIGN PURPOSES)

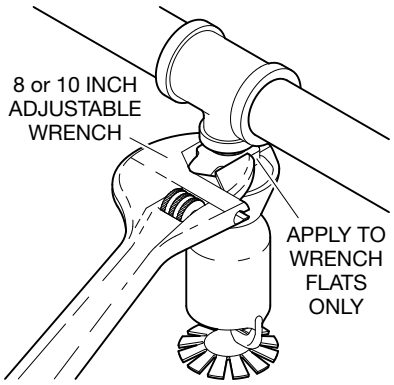


FIGURE 2
WRENCH FLATS

Care and Maintenance

TYCO Model B-1 Foam-Water Sprinklers must be maintained and serviced in accordance with this section.

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

Model B-1 Foam-Water Sprinklers must never be painted, plated, coated or altered in any way after leaving the factory; otherwise, the spray performance may be impaired.

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.

Frequent visual inspections are recommended to be initially performed for sprinklers installed in potentially corrosive atmospheres to verify the integrity of the materials of construction as they may be affected by the corrosive conditions present for a given installation. Thereafter, annual inspections per NFPA 25 are required.

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.

It is recommended that foam-water sprinkler systems 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.

Ordering Procedure

Contact your local distributor for availability. When placing an order, indicate the full product name, including description and part number (P/N).

Upright Foam-Water Sprinklers
Specify: Model B-1 Upright Foam-Water Sprinkler, P/N 49-210-1-001

Pendent Foam-Water Sprinklers
Specify: Model B-1 Pendent Foam-Water Sprinkler, P/N 49-211-1-001

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