Model A Intermediate Level
5.6 & 8.0 K-factor Standard Response

Upright & Pendent Pendent Fusible Solder Type Automatic Sprinkler

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General Description

The Central Model A, 5.6 & 8.0 K-factor Upright & Pendent Intermediate Level Automatic Sprinklers are designed for use in sprinkler systems having sprinklers at multiple elevations in the same area. Intermediate Level Sprinklers are primarily designed for use in rack storage sprinkler systems, where their thermally sensitive elements must be shielded from the water spray of higher elevation sprinklers which could operate earlier during a fire. Intermediate Level Sprinklers are also used in applications such as beneath open gridded catwalks.

Both the upright and pendent versions come complete with the water sheild affixed to the sprinkler. The pendent version can also be created using a pendent Model A Standard Spray Sprinkler and a separate water sheild (WS-2) that is threaded on the 1/2" or 3/4" NPT of the sprinkler prior to installing the sprinkler into the fitting.

If there is a possibility that the Intermediate Level Sprinklers may be exposed to mechanical damage, a head guard and/or water sheild assembly (G-2 or WSG-2) can be added to the Model A Standard Spray Sprinker, creating an Intermediate Level Sprinkler.

These sprinklers are available with wax and lead coatings that may be utilized to extend the life of copper alloy sprinklers beyond that which would otherwise be obtained when exposed to corrosive atmospheres.

Although wax and lead coated sprinklers have passed the standard corrosion tests of the applicable approval agencies, the testing is not representative of all possible corrosive atmospheres. Consequently, it is recommended that the end user be consulted with respect to the suitability of these corrosion resistant coatings for any given corrosive environment. The effects of ambient temperature, concentration of chemicals, and gas/chemical velocity, should be considered, as a minimum, along with the corrosive nature of the chemical to which the sprinklers will be exposed.

Operation: A fusible alloy is sealed into a bronze actuating rod (center strut) by a stainless steel ball. When the alloy melts at its rated temperature, the ball is forced upward into the center strut, releasing the two ejectors and operating the sprinkler.

WARNING

The Model A Intermediate Level 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 maintaining 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

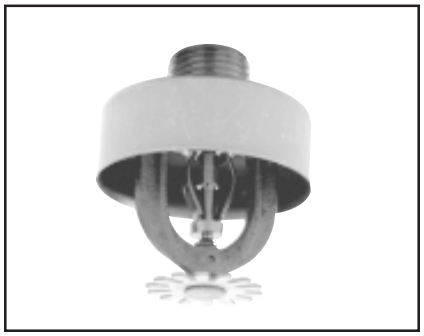
Sprinkler Identification Number
SIN C3113 - A Int. Level UP (K=5.6)
SIN C3211 - A Pend (K=5.6)*
SIN C3111 - A UP (K=5.6)*
SIN C4113 - A Int. Level UP (K=8.0)
SIN C4211 - A Pend (K=8.0)*
SIN C4111 - A UP (K=8.0)*
SIN C4813 - A Int. Level UP (K=8.0, 1/2")
SIN C4911 - A Pend (K=8.0, 1/2")*
SIN C4811 - A UP (K=8.0, 1/2")*

*add Head Guard and/or Shield

Approvals
UL & ULC Listed. FM & NYC Approved (Refer to Table 1 - 2. The approvals apply only to the service conditions indicated in the Design Criteria Section)

Maximum Working Pressure
175 psi (12,1 bar)
250 psi (17,3 bar) UL & ULC (K=5.6)

Pipe Thread Connection
1/2 inch NPT -(K=5.6 & K=8.0)
3/4 inch NPT - (K=8.0)



Intermediate Level Automatic Sprinklers

Discharge Coefficient
K = 5.6 GPM/psi$^{1/2}$ (80,6 LPM/bar$^{1/2}$)
K = 8.0 GPM/psi$^{1/2}$ (116,8 LPM/bar$^{1/2}$)

Temperature Ratings
165°F/74°C, 212°F/100°C, 286°F/141°C

Finishes
Sprinkler: Chrome Plated, or Natural Brass

Head Guard/Shield: Red or Chrome

Corrosion Resistant Coatings
Sprinkler: Wax, Lead & Wax-over-Lead

Physical Characteristics
The Model A Intermediate Level Sprinklers utilize a dezincification resistant (DZR) bronze frame and a brass deflector. The waterway is sealed with copper seal disk, and the fusible assembly is constructed of bronze and stainless steel components.

Figure 1- Factory Assembled, Multi-Level Upright

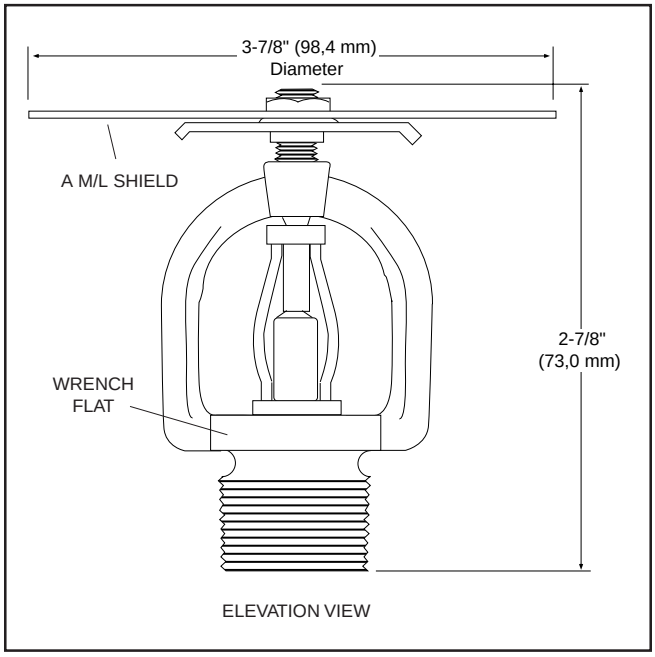


Figure 2 - Multi-Level Upright with Guard and Shield

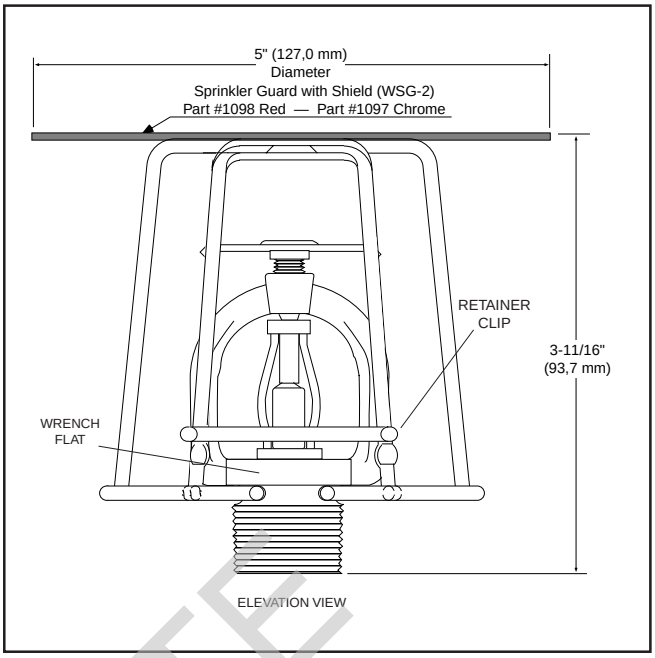


Figure 3 - Factory Assembled, Multi-Level Pendent

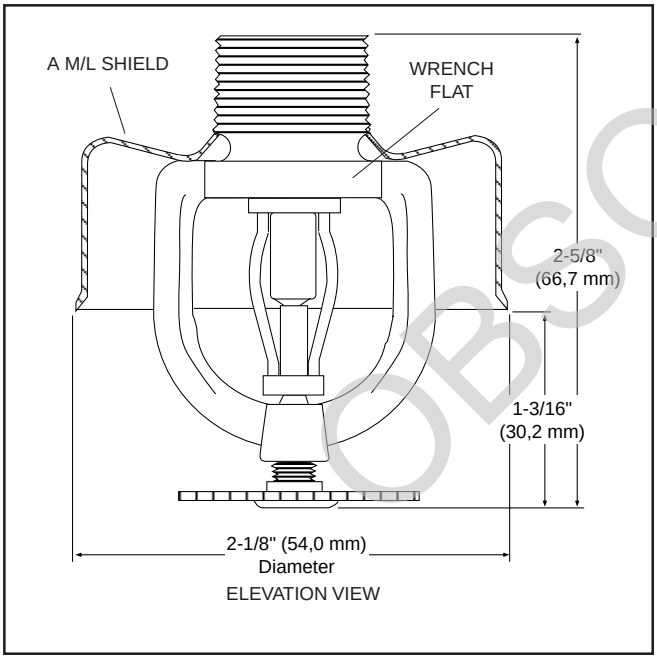


Figure 4 - Multi-Level Pendent with Water Shield & Guard

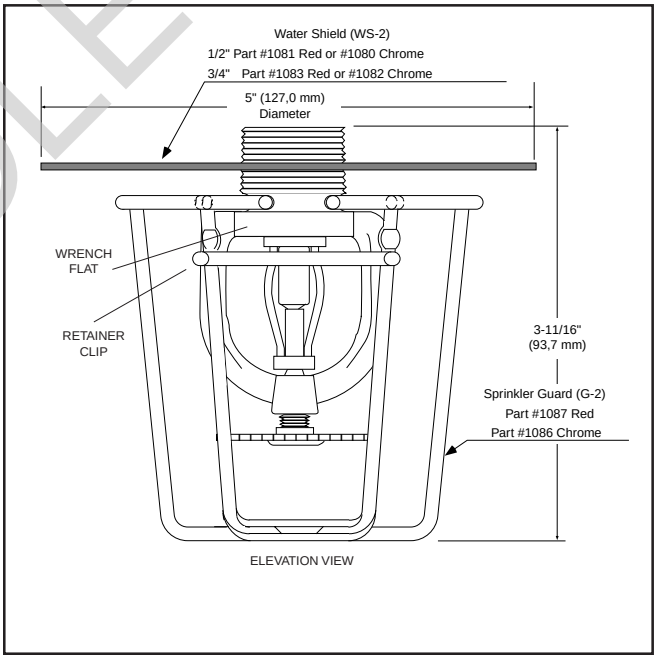


Figure 5 - Combination Sprinkler Wrench
(Part #1106)

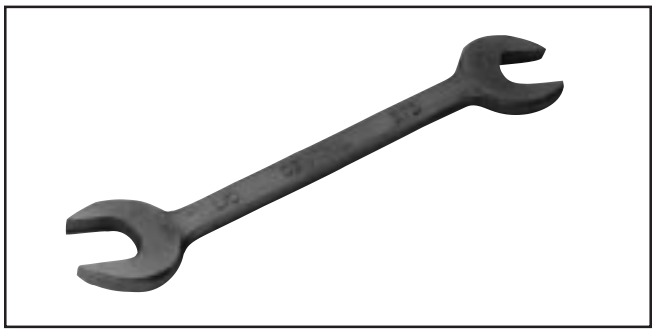
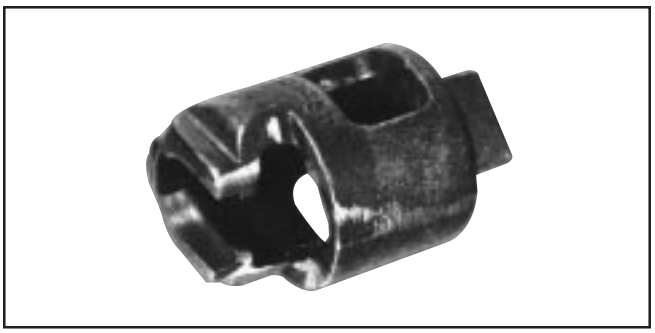


Figure 6 - Universal Sprinkler Wrench
1/2" NPT (Part #1122) and 3/4" NPT (Part #1123) Factory Assembled Intermediate Level Pendent Sprinklers



Design Criteria

The Model A, Standard Response Upright & Pendent Intermediate Level Sprinklers, whether factory assembled (Ref. Table 2) or created using the Model A Standard Spray Sprinkler and a Head Guard and/or Water Shield (Ref. Table 1), are UL, ULC Listed and NYC Approved for use in accordance with current NFPA standards.

The Model A, Standard Response Upright & Pendent Intermediate Level Sprinklers, whether factory assembled (Ref. Table 2) or created using the Model A Standard Spray Sprinkler and a Head Guard and/or Water Shield (Ref. Table 1), are FM Approved for use in accordance with the FM Loss Prevention Data Sheets.

For a complete description of all listings and approvals for the Model A Standard Spray Sprinklers used as Intermediate Level Sprinklers, created using the Model A Standard Spray Sprinkler and a Head Guard and/or Water Shield, reference data sheet 1-1.0.

Factory assembled Intermediate Level Sprinklers cannot be used with a Head Guard Assembly.

NOTE

Inquiries concerning the appropriateness of wax or lead coated sprinklers for a given corrosive environment should be submitted to the attention of the Technical Services Department. Wax or lead coated sprinklers are not suitable ro use in open sprinkler applications.

Installation

The Model A Intermediate Level Automatic Sprinklers must be installed in accordance with the following instructions.

NOTES

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. 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 3/4 inch NPT sprinklers. Higher levels of torque may distort the sprinkler inlet with consequent leakage or impairment of the sprinkler.

If the wax coating on a wax coated sprinkler is damaged during installation, refer to Data Sheet 1-1.0 for guidelines on the proper repair proceedures.

Upright Sprinklers

Step 1. Upright sprinklers must be installed only in the upright position. The deflector is to be parallel to the ceiling, roof, or mounting surface, as applicable.

Step 2. With pipe thread sealant applied to the pipe threads, hand tighten the sprinkler into the sprinkler fitting.

Step 3. Tighten the sprinkler into the sprinkler fitting using only the Combination Wrench (Ref. Fig. 5), except that an 8 or 10 inch adjustable Crescent wrench is to be used for wax coated sprinklers. Both the Combination Wrench and the adjustable Crescent wrench are to be applied to the wrench flats only.

(Continued on Page 4)

Table 1 - Laboratory Listings and Approvals (Model A Standard Spray Sprinklers using a Head Guard and/or Water Shield)

Model	SIN	G-2	WS-2	WSG-2
A	C3111	1,2,3	---	1,2,3
	C3211	1,2,3	1,2,3	---
	C4111	1,2,3	---	1,2,3
	C4211	1,2,3	1,2,3	---
	C4811	1,2,3	---	1,2,3
	C4911	1,2,3	1,2,3	---

1. Listed by Underwriters Laboratories, Inc.
2. Listed by Underwriters' Laboratories of Canada (ULC).
3. Approved by Factory Mutual Research Corporation.

Table 2 - Laboratory Listings and Approvals (Model A ntermediate Level Sprinklers - Factory Assembled)

		SPRINKLER FINISH				
		Factory Assembled Pendent and Upright				
Temperature Rating	Frame Color Code	Natural Brass	Chrome Plated	Lead Coated	Wax Coated	Wax Over Lead Coated
165°F/74°C	Unpainted	1,3,4,5	1,3,4,5	1,4	1	1
212°F/100°C	White	1,3,4,5	1,3,4,5	1,4	1	1
286°F/141°C	Blue	1,3,4,5	1,3,4,5	1,4	2	2

NOTES

1. Listed by Underwriters Laboratories, Inc.
2. Listed by Underwriters Laboratories, Inc. for maximum 150°F/68°C ambient temperatures.
3. Listed by Underwriters' Laboratories of Canada.
4. Approved by Factory Mutual Research Corporation.
5. Approved by the City of New York under BSA 375-75-SA.

Installation (Cont.)

Pendent Sprinklers

Step 1. Pendent sprinklers must be installed only in the pendent position. The deflector is to be parallel to the ceiling, roof, or mounting surface, as applicable.

Step 2. With pipe thread sealant applied to the pipe threads, hand tighten the sprinkler into the sprinkler fitting.

Step 3. Tighten the sprinkler into the sprinkler fitting using only the Universal Sprinkler Wrench (Ref. Fig. 6). The Universal Sprinkler Wrench is to be applied to the wrench flats only.

Pendent Sprinkler Created using the WS-2 Water Shield

Step 1. Pendent sprinklers must be installed only in the pendent position. The deflector is to be parallel to the ceiling, roof, or mounting surface, as applicable.

Step 2. Thread the WS-2 Water Shield onto the sprinkler threads with the stamped marking toward the deflector and just to the end of the threads. There should be an 1/8" gap between the plate and the Sprinkler Wrench Flat.

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

Step 4. Tighten the sprinkler into the sprinkler fitting using only the Combination Wrench (Ref. Fig. 5), except that an 8 or 10 inch adjustable Crescent wrench is to be used for wax coated sprinklers. Both the Combination Wrench and the adjustable Crescent wrench are to be applied to the wrench flats only.

Step 5. Rotate the WS-2 Water Shield clockwise (looking up) so that it engages with the sprinkler threads.

Head Guards

Step 1. After the sprinkler has been installed, gently spread the two base sections of the G-2 or WSG-2 Head Guard and slide the guard around the sprinkler head so the base of the guard is located between the sprinkler threads and the wrench flats of the sprinkler.

Step 2. Fasten the two horizontal retaining clips in place, over the proper vertical rib of the guard. Make sure this action results in a tight fit between the clip and the rib. If not, bend the clip slightly and repeat the procedure until a tight fit is obtained.

Step 3. If installing the G-2 Head Guard on a pendent sprinkler with the WS-2 Water Shield, turn the water shield clockwise on the sprinkler thread until it "bottoms out" against the base of the wire guard.

Care & Maintenance

The Model A Intermediate Level Sprinklers must be maintained and serviced in accordance with the following instructions.

NOTES

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.

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 or overheated sprinklers must be replaced.

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.

Frequent visual inspections are recommended to be initially performed for wax and/or lead coated sprinklers, after the installation has been completed, to verify the integrity of the wax and/or lead coating. Thereafter, annual inspections per NFPA 25 should suffice; however, instead of inspecting from the floor level, a random sampling of close-up visual inspections should be made, so as to better determine the exact sprinkler condition and the long term integrity of the wax and/or lead coating, as it may be affected by the corrosive conditions present.

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.

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, orifice size, temperature rating, type of finish or coating, and sprinkler wrench. Refer to price list for complete listing of Part Numbers.

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