

# Reliable®

## Model HL22 (SIN RA1011) K22.4 (320 metric) Early Suppression Fast Response (ESFR) Sprinkler

### Features:

1. cULus, VdS, and LPCB listed as a nominal K22.4 (320 metric) ESFR sprinkler.
2. FM Approved as a quick-response, storage and non-storage, sprinkler.
3. Fusible link operating element.
4. UL Listed Specific Application Criteria to Protect Class I - IV commodity and Cartoned Unexpanded Group A plastics stored up to 43 ft (13.1 m) in a 48 ft (14.6 m) building (see complete criteria in this Bulletin).

### Product Description

The Reliable Model HL22 is an Early Suppression Fast Response (ESFR) Sprinkler with a nominal k-factor of 22.4 (320 metric). This sprinkler is designed to respond quickly to growing fires with a high volume of water discharge to "suppress" rather than "control" fires.

FM Global classifies the Model HL22 as a quick-response sprinkler, storage and non-storage, when the sprinkler is used in accordance with FM Global Property Loss Prevention Data Sheets.

The Model HL22 sprinkler utilizes a levered fusible alloy solder link in either 165°F (74°C) or 212°F (100°C) temperature ratings. Model HL22 sprinklers are UL Listed for compliance with UL 1767 and have successfully completed high clearance tests for rack storage.

### Application and Installation

The HL22 ESFR sprinkler is intended for installation in accordance with NFPA 13 and Factory Mutual (FM) Loss Prevention Data Sheets 2-0 and 8-9, as well as the requirements of any Authorities Having Jurisdiction. See Table 1 for information on NFPA and FM Global design criteria for the Model HL22 sprinkler.

In addition to design criteria permitted by NFPA 13, the Model HL22 also has the following Specific Application Listing from UL:

Sprinkler: Model HL22 in 212°F (100°C) only

Maximum Ceiling Height: 48 ft. (14.6 m)

Maximum Storage Height: 43 ft. (13.1 m)

Minimum Aisle Width: 8 ft. (2.44 m)

Permitted Commodities: Class I - IV commodities, encapsulated or nonencapsulated, and Cartoned Group A Unexpanded plastics. Permitted Storage Arrangements: Single and double-row rack storage (no open top containers or solid shelves) and palletized and solid pile storage (no open top containers or solid shelves).

Minimum System Operating Pressure: 55 psi (3.79 bar).

Installation and Obstruction Criteria: Same as for K25.2 ESFR sprinklers, but with a maximum deflector to ceiling distance of 14 in. (356 mm)



Model HL22 Sprinkler

### Installation Criteria

The following general guidelines are provided for information only. NFPA and, where applicable, FM Global standards shall be consulted for complete design and installation criteria.

**Orientation:** Pendent. Deflector should be parallel with the ceiling or roof.

**System Type:** Wet Pipe Systems Only.

**Maximum area of coverage:** 100 ft<sup>2</sup> (9.3m<sup>2</sup>), greater coverage area are allowable in some cases.

**Minimum area of coverage:** 64 ft<sup>2</sup> (5.8m<sup>2</sup>).

**Maximum slope ceiling:** 2/12 pitch (9.5°).

**Maximum spacing:** 12 ft (3.7m) for building heights up to 30 ft (9.1m) and 10 feet (3.1m) for building heights greater than 30 ft (9.1m), except where otherwise permitted.

**Minimum spacing:** 8 feet (2.4m).

**Deflector distance from walls:** At least 4 inches (102mm) from walls, and no more than one-half the allowable distance permitted between sprinklers.

**Deflector to Top of Storage:** At least 36in (914mm).

**Deflector to ceiling Distance:** 6-18 in (152-457mm) per NFPA 13; 6-14 in (152-356mm) when using UL Listed Special Application criteria for ceilings up to 48 ft (14.6m).

**Center Line of Thermal Sensing**

**Element To Ceiling Distance (FM Only):** Max. 17 in (425mm); Min. 2 in (50mm) with smooth ceilings; Min. 4 in (100mm) with non-smooth ceilings.

## Model HL22 Temperature Ratings and Approvals

Temperature Classification	Temperature Rating		Link Color	Frame Color	Maximum Ambient Temperature		Approvals	Sprinkler Identification Number (SIN)
	°F	°C			°F	°C		
Ordinary	165	74	Black	Uncolored	100	38	cULus, FM, VdS, LPCB, CNBOP	RA1011
Intermediate	212	100	White	White	150	66	cULus & UL Spec App, FM, VdS, LPCB, CNBOP	RA1011

## Installation Data

Sprinkler Type	Nominal Orifice	Thread Size	Nominal K-Factor		Maximum Working Pressure
			US	Metric	
Pendent	0.87" (22.1mm)	1" NPT ISO 7-R1 (Optional)	22.4	320	175 psi (12.1 bar)

## Listings and Approvals

1. Listed by Underwriters Laboratories, Inc. and UL certified for Canada (cULus).
2. FM Approved as a quick-response, storage and non-storage, sprinkler (FM).
3. VdS Schadenverhütung (VdS).
4. Loss Prevention Certification Board (LPCB).
5. CNBOP Technical Approval.

### Optional Guards and Water Shields

Sprinkler	Guard or Water Shield	Listings and Approvals
HL22 ESFR Pendent	S-5 Water Shield	FM

**Note:** Water shield is only listed for use when the sprinkler is installed within racks (IRAS).

## Maintenance

The HL22 Sprinkler should be inspected and the sprinkler system maintained in accordance with NFPA 25. Do not clean sprinklers with soap and water, ammonia or any other cleaning fluids. Remove dust by using a soft brush or gentle vacuuming. Replace any sprinkler that has been painted (other than factory applied) or damaged in any way. A stock of spare sprinklers should be maintained to allow quick replacement of damaged or operated sprinklers. Prior to installation, sprinklers should be maintained in the original cartons and packaging until used. This will minimize the potential for damage to sprinklers that would cause improper operation or non-operation.

## Engineering Specification

### Model HL22 ESFR

Sprinklers shall be Early Suppression Fast Response (ESFR) pendent suppression mode sprinklers cULus Listed and FM, VdS, and LPCB Approved for commodity storage applications. Sprinkler frame and deflector to be of bronze construction with deflector located inside of the frame arms. Sprinkler shall have a maximum listed/ap-

proved ceiling-to-deflector distance of 18". [Sprinklers shall have a UL Listed Specific Application criteria permitting single- and double-row rack storage (no open top containers or solid shelves) and palletized and solid pile storage (no open top containers or solid shelves) of Class I-IV commodities encapsulated or nonencapsulated and cartoned Group A unexpanded plastics stored up to 43 ft (13.1m) under ceilings up to 48 ft (14.6m) high when installed with 8 ft aisles, a minimum operating pressure of 55 psi (3.79 bar), a maximum deflector to ceiling distance of 14 in (356mm), and a temperature rating of 212°F (100°C).]

Fusible alloy solder link assembly shall utilize the strut and lever principle of operation with approved fast response beryllium-nickel thermal element with protective [black painted (165°F)] [white painted (212°F)] coating. Water seal shall consist of a Teflon-coated Belleville spring washer and brass cap assembly containing no plastic parts. ESFR sprinklers shall have a nominal K-factor of 22.4 and [1 in NPT][ISO 7-R1] threaded end connections. Sprinkler temperature rating shall be [Ordinary 165°F (74°C)] [Intermediate 212°F (100°C)]. ESFR pendent sprinklers shall be Reliable Model HL22, SIN RA1011 (Bulletin 010).

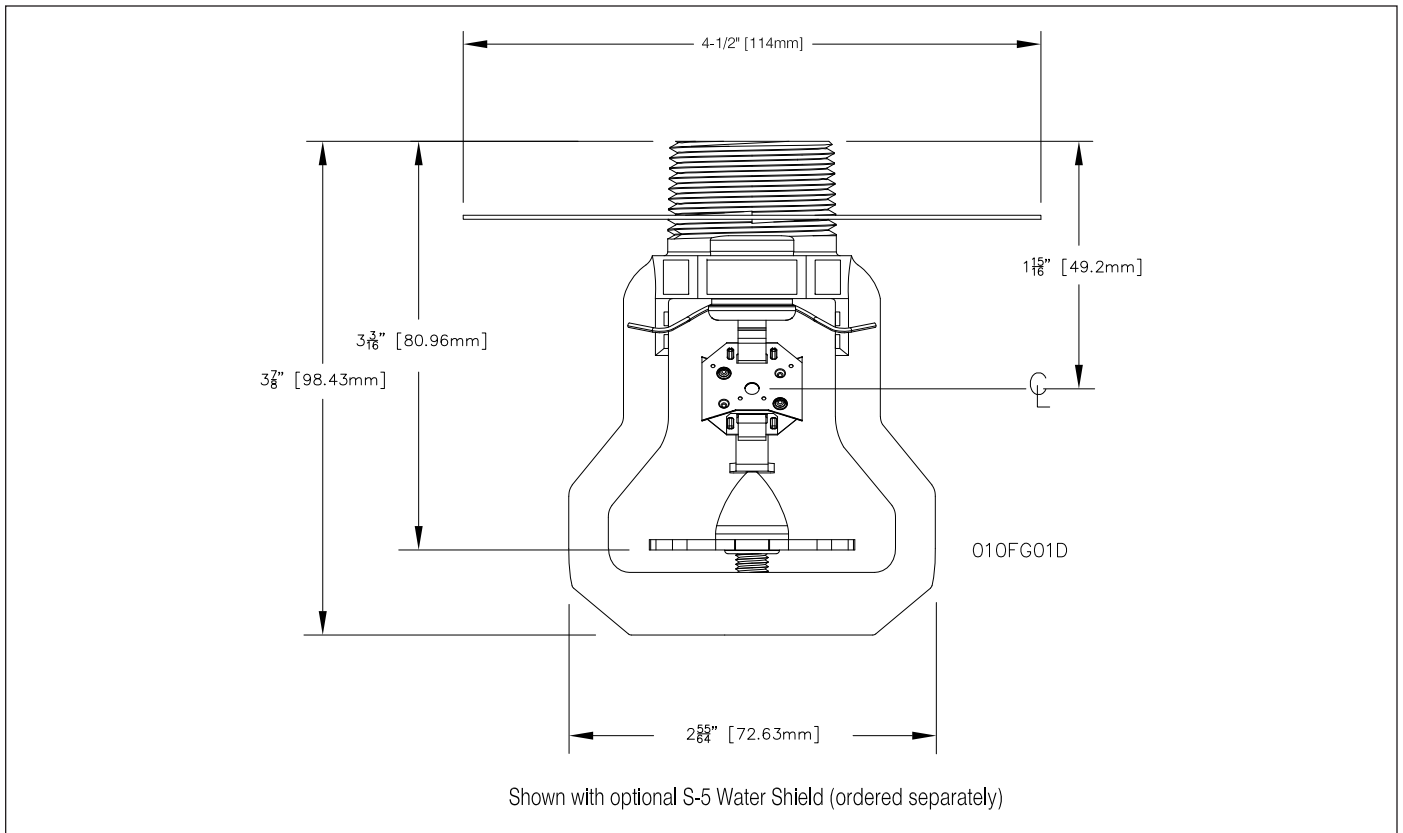
## Ordering Information

### Specify:

1. Sprinkler Model: HL22
2. Temperature Rating: [165°F (74°C)][212°F (100°C)]
3. Thread Type: [1 in NPT][ISO 7-R1]



Use only the Model H1 sprinkler wrench for removal and installation. Any other type of wrench may damage the sprinkler.



Model HL22 Technical Data

Table A

ITEM	DESCRIPTION
Sprinkler Identification Number (SIN)	RA1011
K Factor US (Metric)	22.4 (320)
Thread Size	1" (R1)
Sprinkler Orientation	Pendent
Maximum Working Pressure, PSI (bar)	175 PSI (12 bar)

<b>Storage Type</b>	<b>NFPA</b>	<b>FM GLOBAL</b>
Sprinkler Type	ESFR	Storage
Response Type	ESFR	Quick Response
System Type	Wet	Wet
Temperature Rating F (C)	165F, 212 (74, 100)	165, 212 (74, 100)
Roof Construction	See NFPA 13	See FM Global 2-0
Ceiling Slope	See NFPA 13	See FM Global 2-0
Maximum Coverage Area	See NFPA 13	See FM Global 2-0
Minimum Coverage Area	See NFPA 13	See FM Global 2-0
Maximum Spacing	See NFPA 13	See FM Global 2-0
Minimum Spacing	See NFPA 13	See FM Global 2-0
Minimum Clearance to Commodity	See NFPA 13	See FM Global 2-0
Sprinkler Distance to Ceiling	See NFPA 13	See FM Global 2-0
Open Frame, Single, Double, Multiple Row, or Portable Rack Storage of Class I - IV, Cartoned Unexp Plastics	See NFPA 13	See FM 2-0 & 8-9
Solid Pile or Palletized Storage of Class I - IV and Cartoned Unexp Plastics	See NFPA 13	See FM 2-0 & 8-9
Idle Pallet Storage	See NFPA 13	See FM 2-0,8-9 & 8-24
Rubber Tire Storage	See NFPA 13	See FM 2-0 & 8-3
Rolled Paper Storage	See NFPA 13	See FM 8-21
Flammable Liquid Storage	See NFPA 30	See FM 7-29
Aerosol Storage	See NFPA 30B	See FM 7-31
Auto Components in Portable Racks	N/A	N/A

DESCRIPTION	UL, Specific Application Criteria
Sprinkler Type	ESFR
Temperature Rating F (C)	212 (100)
Response Type	ESFR
System Type	Wet
Maximum Area of Coverage	100 ft2 (9,3m2)
Minimum Area of Coverage	64 sq. ft.(5.8m2)
Maximum Slope Ceiling	2/12 pitch
Maximum Spacing	10 ft. (3.1m)
Minimum Spacing	8 ft. (2.4m)
Deflector Distance from Walls	Minimum: 4" (102 mm) from walls Maximum:1/2 the allowable distance between sprinklers
Deflector to Top of Storage	Minimum 36" (914mm)
Deflector to Ceiling Distance	6"- 14" (152-356mm)
Maximum Ceiling Height	48' (14.6m)
Maximum Storage Height	43' (13.1m)
Storage Arrangement	Single and double row rack storage, palletized and solid pile storage. No open top containers or solid shelves.
Commodity	Class I-IV commodities, encapsulated or nonencapsulated, and Cartoned Group A Unexpanded plastics
Sprinkler System Design	55 PSI (3.8 bar) design pressure, 12 sprinklers in remote area
Obstruction Criteria	ESFR Obstruction Criteria per NFPA 13
Minimum Aisle Width	8' (2.4m)
Hose Stream Allowance and Duration	250 GPM (950 lpm) for 60 minutes

The equipment presented in this bulletin is to be installed in accordance with the latest published Standards of the National Fire Protection Association, Factory Mutual Research Corporation, or other similar organizations and also with the provisions of governmental codes or ordinances whenever applicable.

Products manufactured and distributed by Reliable have been protecting life and property for almost 100 years.

Manufactured by



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