

# Reliable®

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

### 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 rating. The sprinkler has a nominal K Factor of 22.4 (metric 320), and is available with 1” NPT or ISO 7-R1 threads, or with the Victaulic® IGST™ Style V9 Sprinkler Coupling\*.

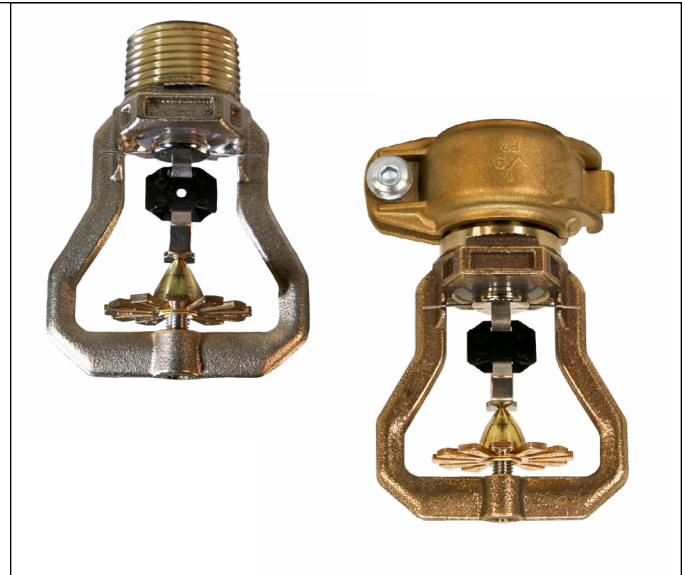
### Application and Installation

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, as documented in Table C:

- 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)

Follow installation criteria in NFPA 13 or FM Global Property Loss Prevention Data Sheets. For installations using the UL Listed Specific Application Criteria for ceiling heights up to 48 ft. (14.6 m), also follow the additional installation criteria contained in this bulletin.



Model HL22 Sprinkler

### 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

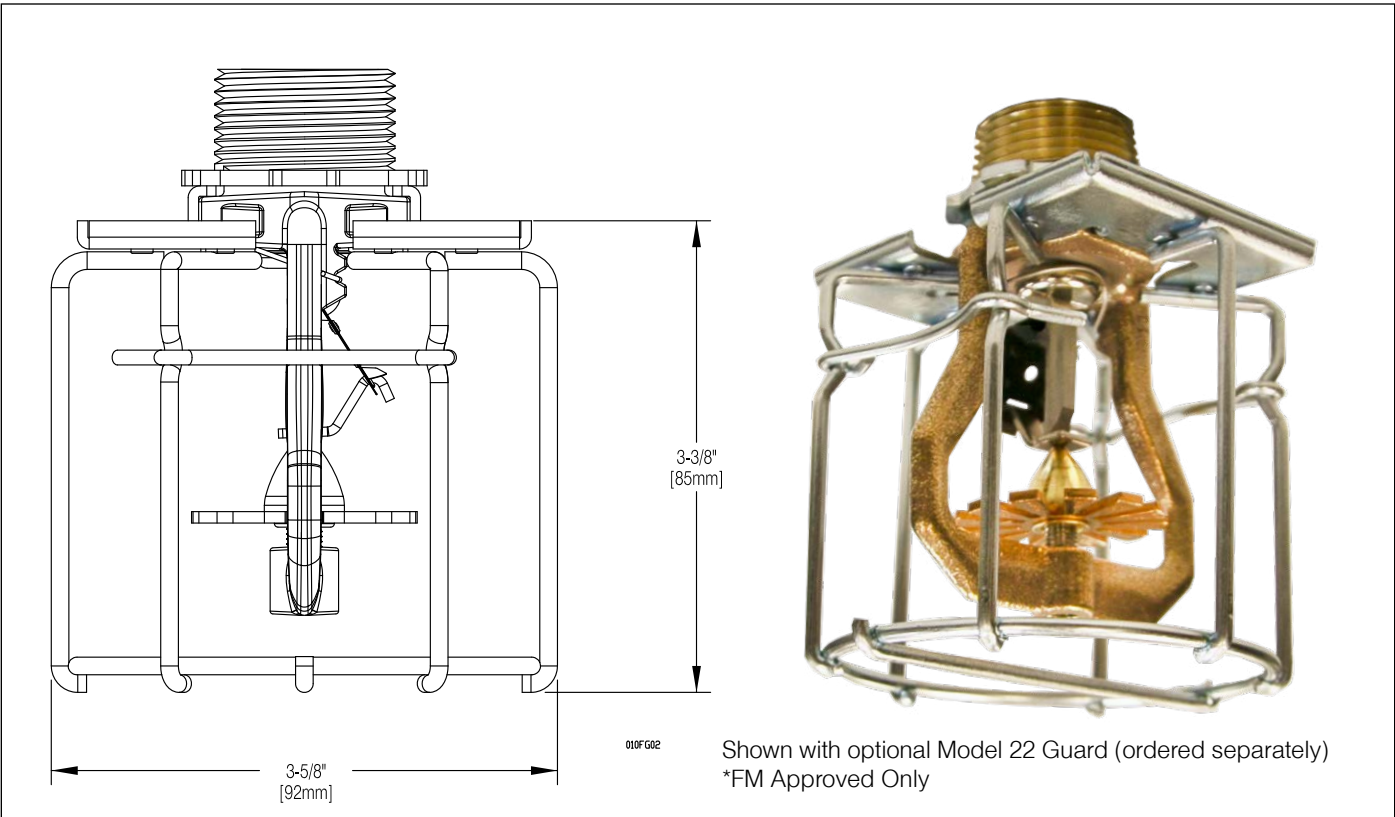
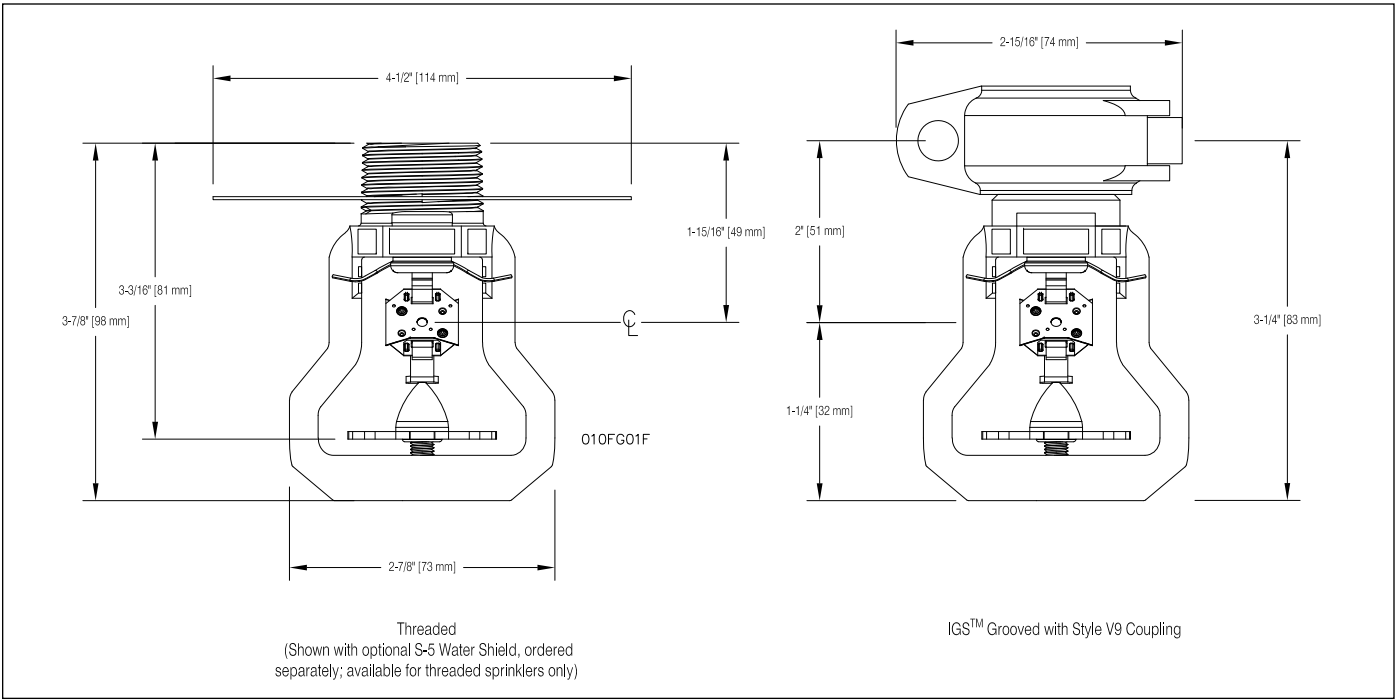
Sprinkler	Guard or Water Shield	Listings and Approvals
HL22 ESFR Pendent	Model S-5 Water Shield	FM
	Model 22 Guard	FM

### Notes:

1. Guards and shields are approved for threaded sprinklers only.
2. Water shield is listed for use only when the sprinkler is installed within racks (IRAS) or under open grating (or similar) areas as required by NFPA or FM standards.
3. Guard is listed for use only when the sprinkler is installed within racks (IRAS).

\*Note: Victaulic® and IGST™ are trademarks of Victaulic Company.

**Reliable Automatic Sprinkler Co., Inc.**, 103 Fairview Park Drive, Elmsford, New York 10523



Model HL22 Technical Data

Table A

ITEM	DESCRIPTION
Sprinkler Identification Number (SIN)	RA1011
K Factor US (Metric)	22.4 (320)
End Connection	1" NPT or ISO7 R-1 threads, IGS™ Style V9 Sprinkler Coupling
Sprinkler Orientation	Pendent
Maximum Working Pressure, PSI (bar)	175 PSI (12 bar)

## 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	End Connection	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)
		1" NPT threaded ISO 7-R1 threaded IGS™ Style V9 Sprinkler Coupling			

## Installation

For threaded sprinklers, use only the Model W5 sprinkler wrench. Any other type of wrench may damage the sprinkler. Sprinklers should be tightened between 22 - 30 ft-lbs (30 - 41 Nm) torque. Sprinklers not tightened to recommended torque or tightened past recommended torque may cause leakage or impairment of the sprinkler. Damaged sprinklers must be replaced immediately.

For grooved sprinklers, push the IGS™ Style V9 Sprinkler Coupling onto the grooved outlet until contact with the center leg of the gasket occurs. Align the sprinkler frame arms and the pads of the coupling with the sprinkler piping and tighten the coupling until the pads of the coupling meet. For additional information, please reference Victaulic technical bulletin I-V9.

**Caution:** When handling sprinklers, hold sprinklers only by the frame arms and do not apply any force on the link assembly.

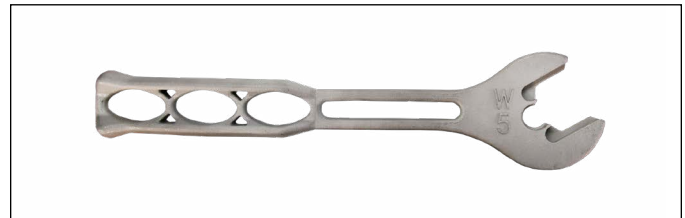


Fig. 1 - Model W5 Wrench (for threaded sprinklers only)

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, to minimize the potential for damage to sprinklers that would cause improper operation or non-operation.

Once operated, automatic sprinklers cannot be reassembled and reused. New sprinklers of the same size, type and temperature rating must be installed. A cabinet of replacement sprinklers should be provided for this purpose.

## Maintenance

The Model HL22 ESFR Sprinkler should be inspected and the sprinkler system maintained in accordance with NFPA 25. Do not clean sprinkler with soap and water, ammonia or any other cleaning fluid. Remove any sprinkler that has been painted (other than factory applied)



**Note:** 1" S/142 IGS™ grooved welded outlets are also available from Reliable.

## Ordering Information

### Specify:

- Sprinkler Model: HL22
- Temperature Rating
  - 165F (74C)
  - 212F (100C)
- End Connection
  - 1" NPT thread
  - ISO 7 R-1 thread
  - Victaulic® IGS™ Style V9 Sprinkler Coupling

<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)	165, 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	See NFPA 13
Minimum Area of Coverage	See NFPA 13
Maximum Slope Ceiling	See NFPA 13
Maximum Spacing	See NFPA 13
Minimum Spacing	See NFPA 13
Deflector Distance from Walls	See NFPA 13
Deflector to Top of Storage	See NFPA 13
Deflector to Ceiling Distance	6"- 14" (150-350mm)
Maximum Ceiling Height	48ft (14.6m)
Maximum Storage Height	43ft (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	See NFPA 13
Minimum Aisle Width	8ft (2.4m)
Hose Stream Allowance and Duration	See NFPA 13

**Model HL22 ESFR Sprinkler Specification**

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/approved 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 PTFE coated Belleville spring washer and brass cap assembly containing no plastic parts. ESFR sprinklers shall have a nominal K-factor of 22.4 with [1" NPT threaded] [ISO7-1R1 threaded] [Victaulic® IGS™ Style V9 Coupling]. 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).

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



**Reliable Automatic Sprinkler Co., Inc.**

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Revision lines indicate updated or new data.

EG. Printed in U.S.A. 02/20 P/N 9999970287