

K17-231™

Specific Application
 25'-0" (7.6 m) Building with
 20'-0" (6.1 m) Storage
 No In-rack Sprinkler Required

Manufactured by: Central Sprinkler Company
 451 North Cannon Avenue, Lansdale, Pennsylvania 19446



Product Description

The Central Model K17-231™ Automatic Sprinkler has been tested and listed for storage occupancies. Full-scale fire testing of high challenge fires in storage occupancies using low required operating pressures was conducted and was successful.

The fire tests results show pressures as low as 7 psi (0.5 bar) can be used with the Central K17-231™. This results in very low pressure requirements that can save cost by reducing branch line sizes, increasing the spacing, eliminating booster pumps, and upgrading existing densities.

The Model K17-231™ is used with the area density curves of NFPA 231 and 231C. It is essentially a Standard Spray Sprinkler with a 17.5 (252.4 metric) K-Factor. The larger K-Factor allows the pressure to be reduced when compared to ELO, LO, or standard orifice sprinklers. This reduction in pressure results in cost savings on the overall system.

The K17-231™ differs from the ULTRA™ K-17™ by its brass deflector, the markings on the deflector, and the K-Factor.

Approval Guide

Standard	U.L.	FM*
NFPA 13	Yes	Yes
NFPA 231	Yes	Yes
NFPA 231C	Yes	Yes
NFPA 231D	Yes	Yes

*Upright Only



Technical Data

Model: K17-231™
 Style: Upright, Pendent
 Orifice Size: .775 (19.7 mm)
 K-Factor: 17.5 (252.4 metric)
 Thread: 3/4" (20 mm) N.P.T.
 Temp. Rating

Glass Bulb

155°F/68°C - Red (FM only)
 200°F/93°C - Green
 286°F/141°C - Blue

Approvals: UL, cUL, FM*

*Upright Only

Maximum Working Pressure:

175 psi (12.1 bar)

Factory Hydro Test: 100% at 500 psi (34.5 bar)

Standard Finish: brass

Patent: Pending



Design Data

The Model K17-231™ Sprinkler is Listed for standard sprinkler placement as specified in NFPA 13, 231, 231C, and 231D.

The K17-231™ is not Listed for use as a "large drop" sprinkler nor as an "ESFR" sprinkler.

The following parameters must be incorporated into the design of automatic sprinkler systems utilizing Model K17-231™ Sprinklers for NFPA applications:

1. Minimum sprinkler spacing is 6 feet (1.8 m).
2. Maximum coverage area is 100 sq. ft. (9.3 m²)
3. Automatic sprinkler systems must be hydraulically calculated.
4. To use the Specific Application Listing, the design must follow the Specific Application Guidelines on page 2.



Standard
 Spray
 Automatic
 Sprinkler

NOTE: The K17-231™ is a standard spray sprinkler for use with the area/density curves of the NFPA standards and a specific application sprinkler for reduced area. The following guidelines are only for reduced area applications. These guidelines do not apply if you are not using the K17-231™ for reduced area specific application. For standard applications, see the K17-231™ data sheet.

K17-231™ Specific Application Guidelines

<p><u>Type of Storage:</u> Single, double, multiple-row and portable rack storage and solid piled or palletized storage.</p> <p><u>Commodity:</u> Class I-IV, encapsulated or non-encapsulated. Group A and B plastics - cartoned, expanded or unexpanded as well as exposed, unexpanded.</p> <p><u>Maximum Storage Height:</u> 20' (6.1 m)</p> <p><u>Clearance:</u> 36" (914.4 mm) minimum from deflector to top of storage.</p> <p><u>Max. Ceiling Height in Area of Storage:</u> 25' (7.6 m)</p> <p><u>Construction Type:</u> All types - deflector distances per NFPA 13.</p> <p><u>System Type:</u> Wet or dry</p> <p><u>Sprinkler Data:</u> K-Factor 17.5 (252.4 metric) Orifice .775 (19.7 mm) Thread Size 3/4" (20 mm)</p>	<p><u>Temperature Rating:</u> 200°F/93°C.</p> <p><u>Hydraulic Design Criteria:</u> End head flow to be determined based on the spacing of the sprinkler, per NFPA spacing criteria for standard spray sprinklers (see section 4-2.2.1), multiplied by the density of .6 gpm per sq. ft. (24.4 lpm/m²). This flow is then used in the formula: pressure = (flow/K-factor)² to determine the minimum end head pressure. At least 7 psi (0.5 bar) must be used, even if the calculated pressure is less.</p> <p><u>Design Area:</u> For wet systems 2000 square feet (186 m²) and for dry systems use the 30% increase for a total of 2600 square feet (241.8 m²).</p> <p><u>Spacing:</u> NFPA criteria for standard spray sprinklers. Maximum spacing is 100 square feet (9.3 m²). Minimum spacing is 6' (1.8 m) apart unless separated by baffles.</p> <p><u>Obstructions:</u> NFPA criteria for standard spray sprinklers.</p>
--	--

Note: For projects requiring Factory Mutual Guidelines, consult the Factory Mutual Loss Prevention Data Sheets. Some of their requirements are different.

Figure 1
K17-231™ Upright Sprinkler

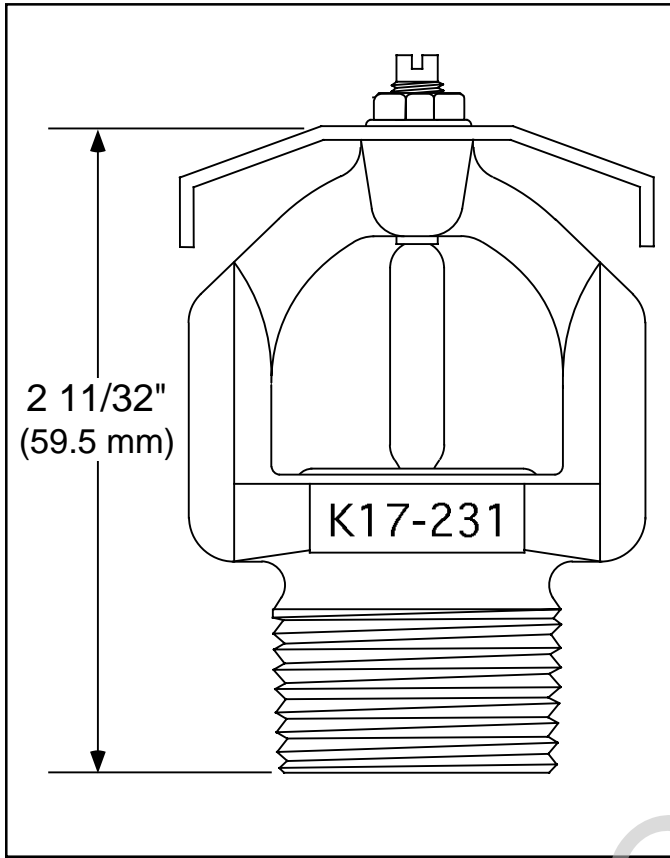
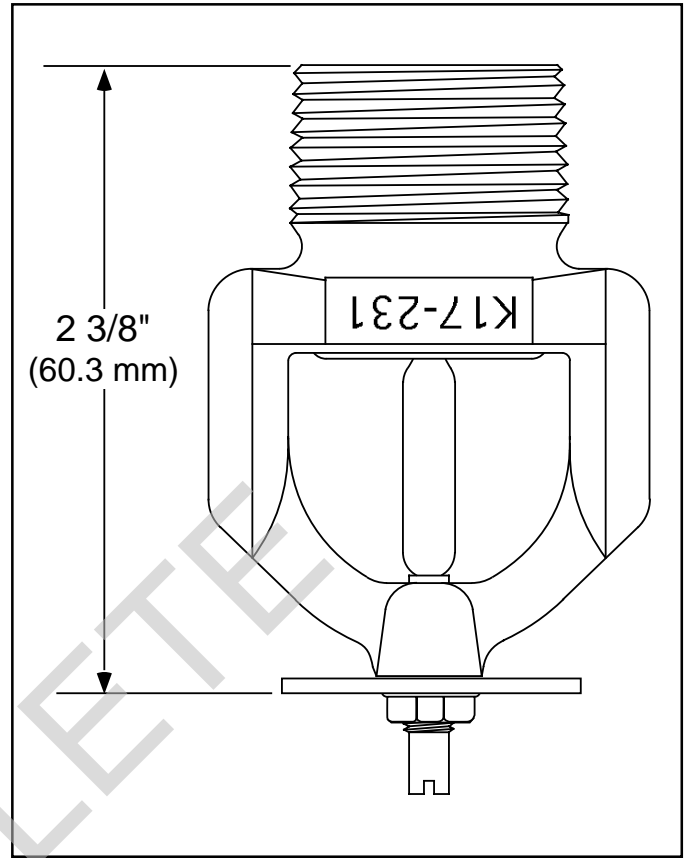


Figure 2
K17-231™ Pendent Sprinkler



Installation

All Central Model K17-231™ sprinklers must be installed according to current NFPA Standards. Deviations from these requirements and standards or any alteration to the sprinkler itself will void any warranty made by Central Sprinkler Company. In addition, installation must also meet local government provisions, codes, and standards as applicable.

The system piping must be properly sized to insure the minimum required flow rate at the sprinkler. Check for the proper model, style, orifice size, and temperature rating prior to installation. Install sprinklers after the piping is in place to avoid mechanical damage; replace any damaged units.

Wet pipe systems must be protected from freezing.

Upon completion of the installation, the system must be tested per recognized standards.

In the event of a thread leak, remove the unit, apply new pipe joint compound or tape, and reinstall.

Installation Sequence

Step 1. The unit must be installed in the upright or pendent position.

Step 2. Use only a non-hardening pipe joint compound or Teflon* tape. Apply only to the male threads.

*Teflon is a trademark of the DuPont Corp.

Step 3. Hand tighten the sprinkler into the fitting. Use a wrench to tighten the unit into the fitting. A leak-tight joint requires only 7 to 14 ft.-lbs. (9.5 to 19.0 Nm) of torque; a tangential force of 14 to 28 lbs. (62.3 to 124.5 N) delivered through a 6" (150 mm) handle will deliver adequate torque. Torque levels over 21 ft.-lbs. (28.6 Nm) may distort the orifice seal, resulting in leakage.

The sprinkler shall, per NFPA, be oriented so the frame arms are parallel with the branch line pipe.



Care & Maintenance

Sprinklers must be handled carefully. They should not be transported or stored where ambient temperature may exceed 100°F/38°C. For best results, store them in a dry, cool location in the original shipping package.

Do not install sprinklers that have been dropped or visibly damaged, such as a crack in a glass bulb or a loss of liquid from the bulb. Sprinklers should never be painted, coated, plated, or altered in any other way from manufactured condition or they may not function properly. Any sprinklers altered in such manner must be replaced.

The owner is responsible for the proper operating condition of all fire protection devices and accessories. The NFPA Standard 25 entitled, "Inspection Testing and Maintenance of Water-Based Fire Protection Systems", contains guidelines and minimum maintenance requirements. Furthermore, the local *Authority Having Jurisdiction* may have additional regulations and requirements for maintenance, testing, and inspection that must be obeyed.

It is advisable to have sprinkler systems inspected regularly by a qualified inspection service. Length of time between such inspections can vary due to accessibility, ambient atmosphere, water supply, and site activity.

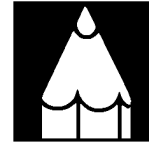
Do not attempt to reassemble or otherwise reuse a sprinkler that has operated. Replace any sprinkler exhibiting corrosion or damage; always use new sprinklers of the same type and temperature rating as replacements.

Do not attempt to replace sprinklers without first removing the fire protection system from service. Be certain to secure permission from all *Authorities Having Jurisdiction*, and notify all personnel who may be affected during system shutdown. A fire watch during maintenance periods is a recommended precaution.

To remove the system from service mode, first refer to the system operating guide and valve instruction. Drain the water and relieve pressure in the pipes. Remove the existing unit and install the replacement, using only the special sprinkler wrench. Be certain to match model, style, orifice, and temperature rating.

A fire protection system that has been shut off after an activation should be returned to service immediately. Inspect the entire system for damage and replace or repair as necessary. Sprinklers that did not operate but were subjected to corrosive elements of combustion or excessive temperatures should be inspected, and replaced if need be. The *Authority Having Jurisdiction* will detail minimum replacement requirements and regulations.

Guarantee: Central Sprinkler Company will repair and/or replace any products found to be defective in material or workmanship within a period of one year from the date of shipment. Please refer to the current Price List for further details of the warranty.



Ordering Information

Ordering Information: When placing an order, indicate the full product name.

Please specify the quantity, model, style, orifice size, temperature rating, and type of finish or coating.

Availability and Service: Central sprinklers, valves, accessories, and other products are available throughout the U.S. and Canada, and internationally, through a network of Central Sprinkler distribution centers. You may write directly to Central Sprinkler Company, or call (215) 362-0700 for the distributor nearest you.

Patents: Patents are pending.

Conversion Table:

1 inch = 25.400 mm
1 foot = 0.3048 m
1 pound = 0.4536 kg
1 foot pound = 1.36 Nm
1 psi = 6.895 kpa
= 0.0689 bar
= 0.0703 kg/cm ²
1 U.S. gallon = 3.785 dm ³
= 3.785 liters

Conversions are approximate.



Central Sprinkler Company

451 North Cannon Avenue, Lansdale, PA 19446
PHONE (215) 362-0700
FAX (215) 362-5385