Models (SIN) VK532 and VK534 K11.2

The Viking Corporation Extended Coverage/Ordinary Hazard (ECOH) ELO Upright and Pendent Standard Response

PRODUCT DESCRIPTION

Upright

Pendent

The Viking Corporation's Extended Coverage Ordinary Hazard Extra-Large Orifice (ECOH-ELO) sprinklers are thermo-sensitive glass bulb spray sprinklers equipped with an extra-large orifice and a special deflector. The pip cap and sealing assembly of the sprinkler are held in place by a 3 mm glass bulb.

The special deflector is designed to meet Ordinary-Hazard density requirements for specifically listed extended areas of coverage when the required minimum water supply is provided at the sprinkler. The sprinklers are listed as a standard response sprinkler.

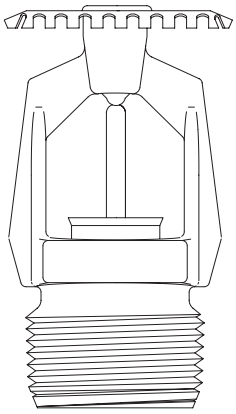
The extra-large orifice produces the flows required to meet Ordinary Hazard density requirements at lower pressures than standard orifice or large orifice sprinklers.

Viking ECOH-ELO sprinklers are available with finishes and temperature ratings to meet design requirements. The special Teflon* coatings and Poly finishes can be used in decorative applications where colors are desired. In addition, these finishes are corrosion resistant and provide protection against many corrosive environments.

During fire conditions, when the temperature around the sprinkler reaches its operating temperature, the heat-sensitive liquid in the glass bulb expands, causing the bulb to shatter, releasing the pip cap and sealing spring assembly. Water flowing through the sprinkler orifice strikes the sprinkler deflector, forming a uniform spray pattern to extinguish or control the fire.

Viking ECOH-ELO sprinklers may be ordered and/or used as open sprinklers (glass bulb and pip cap assembly removed) on deluge systems.

TECHNICAL SPECIFICATIONS



Model (SIN): VK532 – Upright; VK534 – Pendent

Style: ECOH Upright or Pendent

Nominal Orifice Size: ⅝" (16 mm)

K-Factor: 11.2 Imp. (16,1 S.I.^)

Nominal Thread Size: ¾" NPT

Max. Working Pressure: 175 psi (1200 kPa)

Factory Hydrostatic Test: 100% @ 500 psi (3450 kPa)

Min. Operating Pressure: See Approval Chart on page 2.

Temperature Rating: See chart on page 2.

MATERIAL SPECIFICATIONS

Deflector: VK532 – Copper per UNS C19599; VK534 – Brass per UNS C26000

Load Screw: Brass per UNS C36000

Frame: Brass casting per UNS C84400

Belleville Spring Sealing Assembly: Nickel Alloy, both sides coated with Teflon* tape.

Bulb: Glass, nominal 3 mm diameter

Pip Cap & Insert Assembly: Copper per UNS C11000 and Stainless Steel per UNS S30400

Teflon-Coated Sprinklers:

Belleville Spring: Exposed

Screw: Nickel plated

Pip Cap & Insert Assembly: Teflon coated

Sprinklers with Polyester Finishes:

Belleville Spring: Exposed

Screw: Nickel plated

ACCESSORIES

Sprinkler Wrenches:

❑ Standard wrench: P/N 05118CW/B, available since 1981.

❑ Wrench for coated and recessed sprinklers: P/N 11663W/B**

** A ½" ratchet is required (not available from Viking)

Sprinkler Cabinets:

❑ Six-head capacity: P/N 01724A, available since 1971.

❑ Twelve-head capacity: P/N 01725A, available since 1971.

Sprinkler Finishes:

❑ Brass

❑ Chrome-Enloy® (patent pending)

❑ Black Teflon

❑ White Polyester Finish

❑ Black Polyester Finish

^ For K-Factor when pressure is measured in Bar, multiply S.I. units by 10.0.

* Teflon is a registered trademark of Dupont Co.

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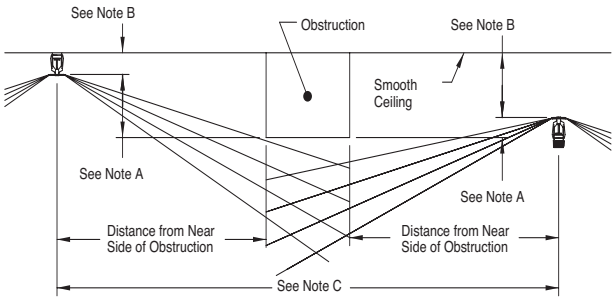
APPROVALS/LISTINGS

KEY A1X ← Temperature, Finish, Escutcheon (if applicable)

Max. Sprinkler Spacing L × W[2]	Maximum Area per Sprinkler	Minimum Water Supply Requirements		Listings and Approvals [1]			
		Ordinary Hazard Group One[3] Flow/Pressure	Ordinary Hazard Group Two[3] Flow/Pressure	Pendent SIN VK534		Upright SIN VK532	
				cULus[4]	NYC[5]	cULus[4]	NYC[5]
12 ft. × 12 ft. 3,7 m × 3,7 m	144 ft² 13,4m²	30 gpm @ 7.2 psi 113,6 lpm @ 49,5 kPa	30 gpm @ 7.2 psi 113,6 lpm @ 49,5 kPa	A1X, B1Y	A1X, B1Y	A1	A1
14 ft. × 14 ft. 4,3 m × 4,3 m	196 ft² 18,2 m	30 gpm @ 7.2 psi 113,6 lpm @ 49,5 kPa	39 gpm @ 12.1 psi 147,7 lpm @ 83,7 kPa	A1X, B1Y	A1X, B1Y	A1	A1
16 ft. × 16 ft. 4,9 m × 4,9 m	256 ft 23,8 m	38 gpm @ 11.5 psi 143,9 lpm @ 79,4 kPa	51 gpm @ 20.7 psi 193,1 lpm @ 143,0 kPa	A1X, B1Y	A1X, B1Y	A1	A1
18 ft. × 18 ft. 5,5 m × 5,5 m	324 ft 30,1 m	49 gpm @ 19.1 psi 185,5 lpm @ 132,0 kPa	65 gpm @ 33.7 psi 246,1 lpm @ 232,2 kPa	A1X, B1Y	A1X, B1Y	A1	A1
20 ft. × 20 ft. 6,1 m × 6,1 m	400 ft 37,2 m	60 gpm @ 28.7 psi 227,1 lpm @ 197,9 kPa	80 gpm @ 51.0 psi 302,8 lpm @ 351,8 kPa	A1X, B1Y	A1X, B1Y	A1	A1



Obstruction Guidelines (cULus Listing Requirements)

Note A: Maximum allowable distance for location of deflector above bottom of obstruction varies with distance from side of obstruction. See OBSTRUCTION TABLE.

Note B: Refer to "Installation Standards." Do not exceed distance allowed for type of construction.

Note C: Minimum spacing between ECOH sprinklers: 8'-0" (2,438 m).

Viking ECOH-ELO Pendent and Upright sprinklers are cULus Listed for use in unobstructed construction and non-combustible obstructed construction* consisting of solid steel and/or concrete beams as defined in the latest edition of NFPA 13. Ceiling slope not to exceed 2" per foot (166 mm per meter).

*Web members of open web trusses must not exceed 1" (25,4 mm) diameter.

Obstruction Table (cULus Listings)	
Distance from sprinkler to side of obstruction	**Maximum Allowable Distance for Location of Deflector Above Bottom of Obstruction**
Less than 1'-6" Less than 0,46 m	0" 0 mm
1'-6" to less than 3'-0" 0,46 m to less than 0,91 m	1" 25,4 mm
3'-0" to less than 4'-0" 0,91 m to less than 1,22 m	3" 76,2 mm
4'-0" to less than 4'-6" 1,22 m to less than 1,38 m	5" 127 mm
4'-6" to less than 6'-0" 1,38 m to less than 1,83 m	7" 177 mm
6'-0" to less than 6'-6" 1,83 m to less than 1,98 m	9" 228 mm
6'-6" to less than 7'-0" 1,98 m to less than 2,14 m	11" 279 mm
7'-0" or greater 2,14 m or greater	14" 355 mm

FM Approval Criteria			Upright SIN VK532
			FM
12 ft. × 12 ft. 3,7 m × 3,7 m	144 ft² 13,4 m²	Viking ECOH-ELO Upright Sprinklers are FM Approved for installation in accordance with the latest applicable FM Loss Prevention Data Sheets and Technical Advisory Bulletins: • For limited use in buildings of specific ceiling/roof construction and for the protection of certain specific ordinary hazard occupancies (non-storage and/or non-flammable or non-combustible liquid). FM Loss Prevention Data Sheets contain guidelines relating to , but not limited to: minimum water supply requirements, hydraulic design, ceiling slope and obstructions, minimum and maximum allowable spacing, and deflector distance below the ceiling.	A2
14 ft. × 14 ft. 4,3 m × 4,3 m	196 ft² 18,2 m		A2
16 ft. × 16 ft. 4,9 m × 4,9 m	256 ft 23,8 m		A2

Approved Temperatures °F/°C		Approved Finishes	Approved Escutcheons
A	155, 175, 200, 286 68, 79, 93, 141	1 - Brass, Chrome-Enloy, White Poly Finish[7], Black Polyester[7], and Black Teflon[7]	X - Standard surface-mounted escutcheons or the Microfast® Model F-1 Adjustable Escutcheon[6]
B	155, 175, 200 68, 79, 93	2 - Brass, Chrome-Enloy, and White Poly Finish	Y - Standard surface-mounted escutcheons or the Microfast Model F-1 Adjustable Escutcheon[6], or recessed with the Micromatic® Model E-1 Recessed Escutcheon

[1] This chart shows listings and approvals available at time of printing. Check with the manufacturer for any additional approvals.

[2] To determine "Minimum Water Supply Requirement" for areas of coverage where length and width of actual sprinkler spacing are not equal, select the "Maximum Sprinkler Spacing" from the chart that is equal to or greater than the larger of the actual spacing (Length or width) dimensions used. Example: When using 10'-6" × 13'-0" sprinkler spacing, provide the "Minimum Water Supply Requirement" listed in the chart for 14'-0" × 14'-0" spacing. For areas of coverage smaller than shown, use the "Minimum Water Supply Requirement" in the appropriate hazard group for the next larger area listed. The distance from sprinklers to walls shall not exceed one-half the "Maxiumum Sprinkler Spacing" listed for the "minimum Water Supply Requirement" used.

[3] Minimum Water Supplies cULus Listed with "Maximum Areas of Coverage" shown are designed to provide the following design densities: 0.15 gpm/ft² for Ordinary-Hazard Group One densities; 0.2 gpm/ft² for Ordinary-Hazard Group Two densities.

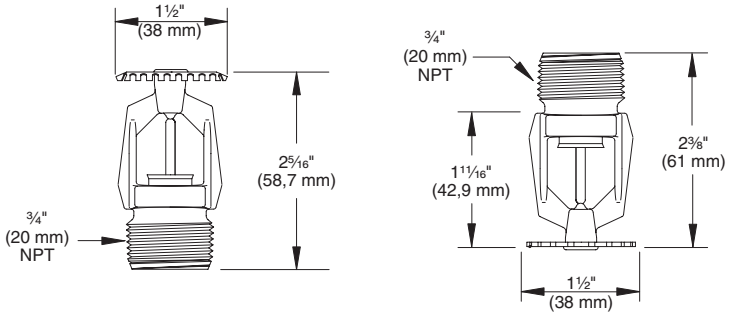
[4] cULus Listed for use in the U.S. and Canada for hydraulically-calculated systems designed with a minimum remote area of 1,500 ft² (139,35 m²) or five sprinklers, whichever is greater. Viking ECOH-ELO Pendent and Upright Sprinklers are cULus Listed for use in unobstructed construction and non-combustible obstructed construction* consisting of solid steel and/or concrete beams as defined in the latest edition of NFPA 13. Ceiling slope not to exceed 2" per foot (166 mm per meter). * Web members of open web trusses must not exceed 1" (25,4 mm) diameter.

[5] Accepted for use, City of New York Department of Buildings, MEA 89-92 Vol. IX.

[6] The Microfast Model F-1 Adjustable Escutcheon is considered a surface-mounted escutcheon because it does not allow the fusible element of the sprinkler to be recessed behind the face of the wall or ceiling.

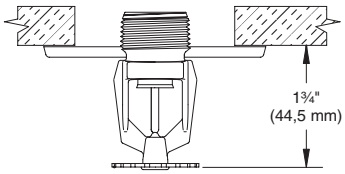
[7] cULus Listed as corrosion resistant.

DIMENSIONS

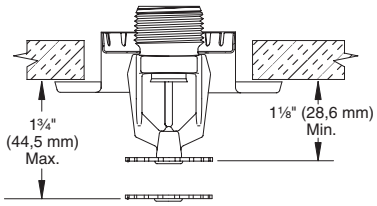


(Drawing not to scale)

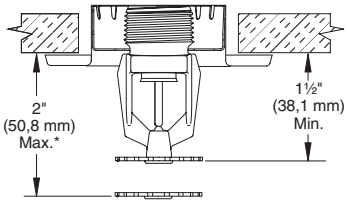
Ceiling Opening Size:
2⁵⁄₁₆" (58,7 mm) minimum
2½" (63,5 mm) maximum



Installed with a standard
⅛" (3,1 mm) surface-mounted
escutcheon



Installed with a Micromatic
Model E-1
Recessed Escutcheon



Installed with a Microfast
Model F-1
Adjustable Escutcheon

*Note: At maximum, adapter is exposed
½" (12,7 mm) from face of ceiling

(Drawing not to scale)

RATINGS

Sprinkler Temperature Classification[3]	Temperature – °F/°C		Bulb Color[2]
	Nominal Sprinkler Temperature Rating (Fusing Point)	Maximum Ambient Ceiling Temperature[1]	
Ordinary	155 68	100 38	Red
Intermediate	175 79	150 65	Yellow
Intermediate	200 93	150 65	Green
High	286 141	225 107	Blue

Sprinkler Finishes: Brass, Chrome-Enloy, Black Teflon, White Polyester finish, and Black Polyester finish

Corrosion Resistant Coatings[2]: Black Teflon, White Poly finish, and Black Polyester

[1] Based on NFPA-13. Other limits apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards.

[2] Temperature rating is stamped on the deflector.

[3] The corrosion-resistant coatings have passed the standard corrosion test required by the approving agencies. These tests cannot and do not represent all possible corrosive environments. Prior to installation, verify through the end-user that the coatings are compatible with or suitable for the proposed environment. The coatings indicated are applied to the exposed exterior surfaces only and therefore cannot be used as open sprinklers. NOTE: The spring is exposed on the Teflon coated sprinklers and the sprinklers with Poly finishes.

INSTALLATION GUIDELINES

Sprinkler Care and Handling

A. Sprinklers must be protected from mechanical damage. Sprinklers must be handled with care. They must be stored in a cool, dry place in their original shipping container. Never install sprinklers that have been dropped, damaged, or exposed to temperatures in excess of the maximum ambient temperature allowed. Never install any glass-bulb sprinkler if the bulb is cracked or if there is a loss of liquid from the bulb. If a glass bulb lacks the appropriate amount of fluid, it should be set aside and returned to Viking (or an authorized Viking distributor) for analysis as soon as possible. If the sprinkler is not returned to Viking, it should be destroyed immediately.

B. Corrosion-resistant sprinklers must be installed when subject to corrosive atmospheres. When installing corrosion-resistant sprinklers, take care not to damage the corrosion-resistant coating. Use only the special wrench designed for installing coated Viking sprinklers. (Any other wrench may damage the coating.)

C. Use care when locating sprinklers near fixtures that can generate heat. Do not install sprinklers where they could be exposed to temperatures that exceed the maximum recommended ambient temperature for the temperature rating (see Ratings Chart).

D. Do not install ECOH-ELO sprinklers in areas subject to mechanical damage.

E. Wet-pipe systems must be provided with adequate heat. Sprinklers supplied from dry systems in areas subject to freezing must be listed dry sprinklers, or upright or horizontal sidewall sprinklers installed so that water is not trapped. For dry systems, pendent sprinklers and sidewall sprinklers installed on return bends are permitted, where the sprinklers, return bend, and branch line piping are in an area maintained at or above 40°F (4°C). When installing ECOH-ELO sprinklers on dry systems, refer to the Installation Guides and the AHJ.

Installation:

Warning: Viking sprinklers are manufactured and tested to meet the rigid requirements of the approving agency. The sprinklers are designed to be installed in accordance with recognized installation standards. Deviation from the standards or any alteration to the sprinkler after it leaves the factory including, but not limited to: painting, plating, coating, or modification, may render the sprinkler inoperative and will automatically nullify the approval and any guarantee made by The Viking Corporation.

A. Sprinklers are to be installed in accordance with the latest published NFPA standards, current applicable FM Global Loss Prevention Data Sheets and Technical Advisory Bulletins, LPC, Assemblee Pleniere, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards whenever applicable. The use of extended coverage ordinary hazard extra-large orifice sprinklers may be limited due to occupancy and hazard. Refer to the AHJ prior to installation.

B. The sprinkler must be installed after the piping is in place to prevent mechanical damage. Before installation, be sure to have the appropriate sprinkler model and style, with the correct orifice size, temperature rating, and response characteristics. Keep sprinklers with protective bulb shields contained within the shields during installation and testing, and any time the sprinkler is shipped or handled.

   1. Install escutcheon (if used), which is designed to thread onto the external threads of the sprinkler.
   2. Apply a small amount of pipe-joint compound or tape to the external threads of the sprinkler only, taking care not to allow a build-up of compound in the sprinkler inlet. NOTE: Sprinklers with protective bulb shields must be contained within the shields before applying pipe-joint compound or tape.
   3. Install the sprinkler on the piping using the special sprinkler wrench only. Take care not to overtighten or damage the sprinkler operating parts. DO NOT use the deflector to start or thread the sprinkler into a fitting.

C. After installation, the entire sprinkler system must be tested. The test must be conducted to comply with the installation standards. Make sure the sprinkler is properly tightened. If a thread leak occurs, normally the sprinkler must be removed, new pipe-joint compound or tape applied, and then reinstalled. This is due to the fact that when the joint seal is damaged, the sealing compound or tape is washed out of the joint. Air testing (do not exceed 40 psi [276 kPa]) the sprinkler piping prior to testing with water may be considered in areas where leakage during testing must be prevented. Refer to the installation standards and the AHJ.

D. Remove plastic protective sprinkler bulb shields AFTER the wall or ceiling finish work is completed where the sprinkler is installed and there no longer is a potential for mechanical damage to the sprinkler operating elements. To remove the bulb shields, simply pull the ends of the shields apart where they are snapped together. SPRINKLER BULB SHIELDS MUST BE REMOVED FROM SPRINKLERS BEFORE PLACING THE SYSTEM IN SERVICE!

Maintenance:

NOTICE: The owner is responsible for maintaining the fire-protection system and devices in proper operating condition. For minimum maintenance and inspection requirements, refer to the NFPA standard that describes care and maintenance of sprinkler systems. In addition, the AHJ may have additional maintenance, testing, and inspection requirements that must be followed.

A. Sprinklers must be inspected on a regular basis for corrosion, mechanical damage, obstructions, paint, etc. The frequency of the inspections may vary due to corrosive atomspheres, water supplies, and activity around the device.

B. Sprinklers that have been painted or mechanically damaged must be replaced immediately. Sprinklers showing signs of corrosion shall be tested and/or replaced immediately as required. Installation standards require sprinklers to be tested and, if necessary, replaced immediately after a specified term of service. Refer to the installation standards (e.g., NFPA 25) and the AHJ for the specified period of time after which testing and/or replacement is required. Sprinklers that have operated can-

not be reassembled or re-used, but must be replaced. When replacing sprinklers, use only new sprinklers.

C. The sprinkler discharge pattern is critical for proper fire protection. Therefore, nothing should be hung from, attached to, or otherwise obstruct the discharge pattern. All obstructions must be immediately removed or, if necessary, additional sprinklers installed.

D. When replacing existing sprinklers, the system must be removed from service. Refer to the appropriate system description and/or valve instructions. Prior to removing the system from service, notify all AHJs. Consideration should be given to employment of a fire patrol in the affected area.

1. Remove the system from service, drain all water, and relieve all pressure on the piping.
2. Using the special sprinkler wrench, remove the old sprinkler and install the new unit. Care must be taken to ensure that the replacement sprinkler is the proper model and style, with the correct orifice size, temperature rating, and response characteristics. A fully stocked spare sprinkler cabinet should be provided for this purpose.
3. Place the system back in service and secure all valves. Check for and repair all leaks.

E. Sprinkler systems that have been subjected to a fire must be returned to service as soon as possible. The entire system must be inspected for damage and repaired or replaced as necessary. Sprinklers that have been exposed to corrosive products of combustion or high ambient temperatures, but have not operated, should be replaced. Refer to the AHJ for minimum replacement requirements.

ORDERING INFORMATION

Please specify the following when ordering:

- ❑ Sprinkler Model (SIN) Number
- ❑ Style
- ❑ Temperature Rating
- ❑ Finish
- ❑ Quantity
- ❑ Wrench Model Number

WARRANTY

This product is warranted only by The Viking Corporation. For further details contact Victaulic.