



TECHNICAL DATA

MIRAGE® MODEL B-3 RESIDENTIAL CONCEALED PENDENT SPRINKLER

1. PRODUCT NAME

Viking Mirage® Model B-3 Residential Concealed Pendent Sprinkler

- Sprinkler Part Number 10784
- Cover Plate Assembly Base Part Number 10786

Available since 1999.

2. MANUFACTURER

The Viking Corporation
210 N. Industrial Park Road
Hastings, Michigan 49058 U.S.A.
Telephone: (616) 945-9501
(877) 384-5464
Fax: (616) 945-9599
e-mail: techsvcs@vikingcorp.com

3. PRODUCT DESCRIPTION

The Mirage® Model B-3 Residential Concealed Pendent Sprinkler is a small, high-sensitivity, solder link and lever spray sprinkler designed for installation on concealed pipe systems where the appearance of a smooth ceiling is desired. **The sprinkler is UL and C-UL listed for use in residential applications below smooth, flat, horizontal ceilings only with spacings up to 18' x 18' (5,5 m x 5,5 m).**

The sprinkler is hidden from view by a low-profile, small-diameter cover plate installed flush to the ceiling. The cover plate is available with a white painted finish. The two-piece design allows installation and testing of the sprinkler prior to installation of the cover plate. The "push-on", "pull-off" design of the cover plate assembly allows easy installation of the cover plate after the system has been tested and the ceiling finish applied, while also permitting up to 1/2" (12,7 mm) of vertical adjustment. It can be removed and reinstalled to permit temporary removal of ceiling panels without taking the sprinkler system out of service and removing the sprinkler. Inside the body of the Mirage® Model B-3 Residential Concealed Pendent Sprinkler, the deflector and sealing assembly are held in position by a fast-actuating heat-sensitive fusible link that meets the response criteria for fast-response sprinklers. During fire conditions, when the temperature around the sprinkler approaches its operating temperature, the cover plate detaches. Continued heating of the exposed sprinkler causes the fusible link to disengage, releasing the deflector and sealing assembly. Water flowing through the sprinkler orifice strikes the deflector, forming a uniform spray pattern over a specific area of coverage determined by the water supply pressure

Note: Units of measure in parentheses may be approximations

Form No. F_080399



Mirage® Model B-3 Residential
Concealed Pendent Sprinkler

at the sprinkler to extinguish or control the fire.

4. TECHNICAL DATA

LISTINGS AND APPROVALS

Refer to Table 1 on page 147 d.
Rated to 175 psi (1 207 kPa) water working pressure.

Factory tested pneumatically to 95 psi (655 kPa).

See Table 1 for minimum water supply requirements and maximum areas of coverage.

Spring: U.S.A. Patent No. 4,570,720
Requires a 2" (50,8 mm) diameter hole in ceiling.

See Table 1 for temperature rating.

Thread Size: Nominal 1/2" (15 mm) NPT
K-Factor: 4.1 U.S. (5,9 metric*)

*Metric K-Factor shown is for use when pressure is measured in kPa. When pressure is measured in BAR, multiply the metric K-Factor shown by 10.0.

Available cover plate vertical adjustment: 1/2" (12,7 mm) +/- 1/4" (6,4 mm).

SPRINKLER MATERIALS

Body: Brass Casting UNS-C84400
Deflector: Copper UNS-C19500
Deflector Pins: Stainless Steel UNS-S30300

Body Cap: Brass UNS-C26000
Lever Bar: Copper Alloy UNS-C72500
Fusible Link Assembly: Beryllium Nickel
Fusible Link Levers: Stainless Steel UNS-S31600

Seal: Teflon® Tape
Spring: Nickel Alloy
Screw: Brass UNS-C36000

COVER PLATE ASSEMBLY MATERIALS

Cover Plate Assembly: Brass UNS-C26000

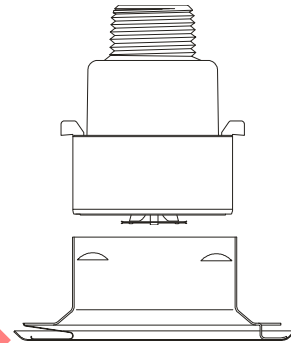
Spring: Beryllium Nickel
Solder: Eutectic

COVER FINISHES

Painted¹ White (No. 1004)²

¹ Painted finish consists of Polyester Baked Enamel.

Sprinkler: P/N 10784



Cover Plate Assembly: P/N 10786

² Sherwin-Williams® Color Answers™ Interior Color Number. Other colors available on request. See Sherwin-Williams® Color Answers™ Interior Color Selection color numbers.

ORDERING INSTRUCTIONS

Mirage® Model B-3 Residential Concealed Pendent Sprinkler and Cover Plate Assemblies must be ordered separately. Refer to:

- Sprinkler Base Part No. 10784, and
- Cover Plate Assembly Part No. 10786.

ACCESSORIES (order separately)

Sprinkler Cabinet: Part No. 01731A

Capacity: Six sprinklers

Concealed Sprinkler Wrenches*:

Part No. 08336W/B (Heavy Duty)

Available since 1993.

Part No. 10366W/B (Light Duty)**

Available since 1998.

* A 1/2" ratchet is required (not available from Viking).

** Ideal for sprinkler cabinets.

5. AVAILABILITY AND SERVICE

Viking sprinklers are available through a network of domestic, Canadian, and international distributors. See the Yellow Pages of the telephone directory for a local distributor (listed under "Sprinklers-Automatic-Fire") or contact Viking.

Viking Technical Data may be found on The Viking Corporation's Web site at <http://www.vikingcorp.com>.

The Web site may include a more recent edition of this Technical Data Page.

6. GUARANTEES

For details of warranty, refer to Viking's current list price schedule or contact The Viking Corporation directly.

7. 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

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TECHNICAL DATA

MIRAGE® MODEL B-3 RESIDENTIAL CONCEALED PENDENT SPRINKLER

installation standards. Deviation from the standards or any alteration to the sprinklers or cover plate assemblies after they leave 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 must be installed in accordance with the latest published standards of the National Fire Protection Association, Factory Mutual, Loss Prevention Council, Assemblée Plénier, Verband der Sachversicherer or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards whenever applicable. For conditions not specifically covered by the Standards, refer to the "Viking Residential Installation Guide". Final approval and acceptance of all residential sprinkler installations must be obtained from the Authority Having Jurisdiction. Residential sprinklers are generally considered special-service sprinklers for one- and two-family dwellings, mobile homes, and residential portions of other occupancies where allowed. The use of residential sprinklers may be limited due to occupancy and hazard. The minimum flow rate indicated must be provided at the sprinkler. Therefore, the system piping must be hydraulically calculated. Refer to the Authority Having Jurisdiction prior to installation.

B. Sprinklers must be handled with care. Mirage® Model B-3 Residential Concealed Pendent Sprinklers are protected with a plastic protective shell, which should remain in place over the sprinkler body during installation, testing, and any time the sprinkler is handled or shipped. The plastic protective shell must be removed prior to placing the system in service. See paragraph "I" below. Before installation, the sprinklers must be stored in a cool, dry place in their original shipping container. Never install sprinklers that have been dropped, damaged in any way, or exposed to temperatures in excess of maximum ambient temperature allowed. Such sprinklers should be destroyed immediately.

C. Corrosion-resistant sprinklers must be installed when subject to corrosive atmospheres. Mirage® Model B-3 Residential Concealed Pendent

Sprinklers are not intended for use in corrosive environments.

- D. Use care when locating sprinklers near fixtures that can generate heat. Do not install sprinklers where they will be exposed to temperatures that exceed the maximum recommended ambient temperature for the temperature rating used.
- E. Sprinklers must be protected from mechanical damage. Wet pipe systems must be provided with adequate heat.
- F. Before installation, be sure to have the appropriate sprinkler model and style, with the proper orifice size, temperature rating, and response characteristics. The sprinklers must be installed after the piping is in place to prevent mechanical damage. Install the sprinklers according to the following steps:

Step 1: Install all piping and cut the sprinkler drop nipple to position the 1/2" (15 mm) NPT outlet of the reducing coupling at the desired elevation. The drop nipple must be perpendicular to the ceiling and centered in a 2" (50 mm) diameter opening in the ceiling.

Step 2: With the sprinkler in the plastic protective shell, 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 inside the sprinkler inlet.

Step 3: Use one of the special wrenches designed for installing Mirage® Model B-3 Residential Concealed Pendent Sprinklers (see ACCESSORIES on page 147 a). With the sprinkler in the plastic protective shell, place the unit into the wrench.

Step 4: Turn the unit clockwise to thread the sprinkler into the 1/2" (15 mm) NPT outlet of the coupling. DO NOT use the fusible link to start or thread the sprinkler into a fitting.

- G. After installation, the entire system must be tested in accordance with the recognized installation standards. The test is applied after sprinkler installation to ensure that no damage has occurred to the sprinkler during shipping and installation, and to make sure the unit has been properly tightened. If a thread leak occurs, normally the unit must be removed, new pipe-joint compound or tape applied, and then reinstalled.

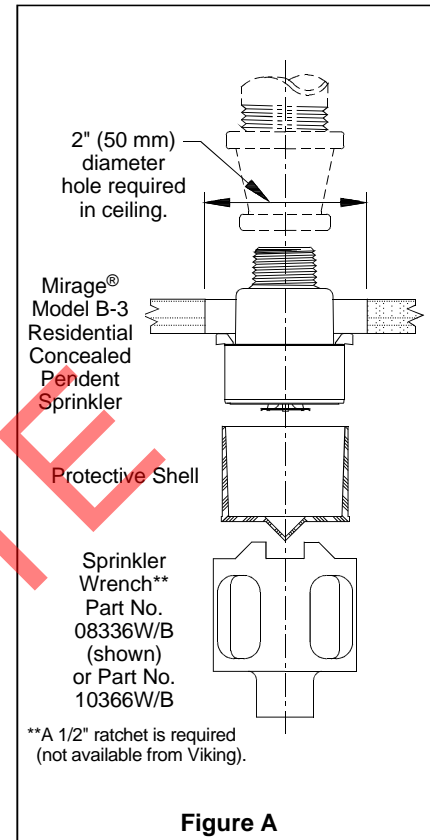


Figure A

This is due to the fact that when the joint seal is damaged, the sealing compound or tape is washed out of the joint.

- H. After testing, repairing of all leaks, and installation and painting of the ceiling, the cover plate assembly can be installed:
1. Remove the cover from the protective box, taking care not to damage the cover plate assembly.
 2. Remove the plastic protective shell from the sprinkler. (NOTE: It is recommended to retain at least one protective shell in the spare sprinkler cabinet. The internal diameter of the special installation wrench is designed for use with the sprinkler contained in a protective shell.)
 3. From below the ceiling, gently place the base of the cover plate assembly over the body of the sprinkler protruding through the 2" (50 mm) diameter opening in the ceiling.
 4. Push the cover plate assembly onto the sprinkler until the unfinished brass flange of the cover plate base touches the ceiling.

VIKING®

TECHNICAL DATA

MIRAGE® MODEL B-3 RESIDENTIAL CONCEALED PENDENT SPRINKLER

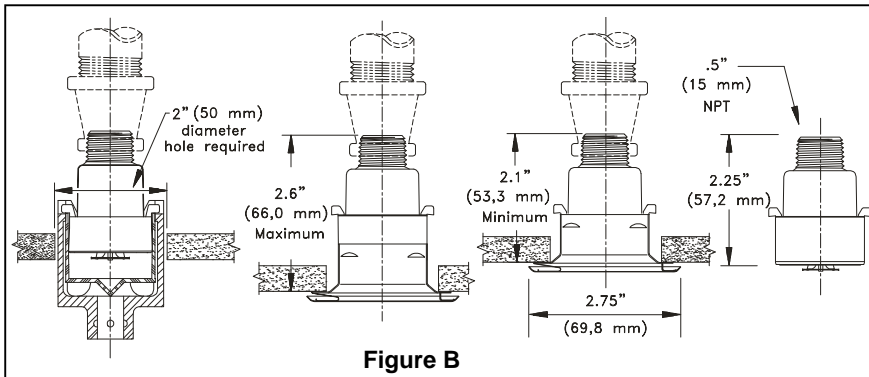


Figure B

The maximum adjustment available is 1/2" (12,7 mm). DO NOT MODIFY THE UNIT. If necessary, re-cut the sprinkler drop nipple as required.

- I. **DISASSEMBLY:** The "pull-off" design of the cover plate assembly allows the cover plate assembly to be removed and reinstalled to permit temporary removal of ceiling panels without taking the sprinkler system out of service and removing the sprinkler. To remove the cover plate assembly:
1. From below the ceiling, grasp the cover plate and pull it off.
- If it is necessary to remove the entire sprinkler, the system must be removed from service. See Maintenance instructions and follow all warnings and instructions.
- J. **RE-ASSEMBLY:** The "push-on" feature of the cover plate assembly allows easy installation of the cover plate.
1. From below the ceiling, gently place the base of the cover plate assembly over the body of the sprinkler.
 2. Push the cover plate assembly onto the sprinkler until the unfinished brass flange of the cover plate base touches the ceiling.

8. 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 Na-

tional Fire Protection Association's pamphlet that describes the care and maintenance of sprinkler systems. In addition, the Authority Having Jurisdiction may have additional maintenance, testing, and inspection requirements that must be followed.

- A. The 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 atmospheres, water supplies, and activity around the device.
- B. Sprinklers or cover plate assemblies that have been field painted or mechanically damaged must be replaced immediately. Sprinklers showing signs of corrosion shall be tested and/or replaced immediately as required. Residential sprinklers that are 20 years old shall be tested and/or replaced as required. Sprinklers and cover plate assemblies that have operated cannot be reassembled or re-used, but must be replaced. When replacement is necessary, use only new sprinklers and cover plate assemblies.
- C. The sprinkler discharge pattern is critical for proper fire protection. 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 Authorities Having Jurisdiction. 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. Remove the cover plate assembly.
 - a. From below the ceiling, grasp the cover plate and gently pull it off.
3. Place a plastic protective shell (from the spare sprinkler cabinet) over the sprinkler to be removed. The internal diameter of the special Mirage® Model B-3 Residential Sprinkler installation wrenches are designed for use with the sprinkler contained in the shell.
4. Using the special sprinkler wrench, turn the unit counterclockwise to remove the old sprinkler from the fitting in which it is installed.
5. Install the new unit. Care must be taken to ensure that the replacement sprinkler is the proper model and style, with the appropriate orifice size, temperature rating, and response characteristics. A fully stocked spare sprinkler cabinet should be provided for this purpose. Follow instructions provided in paragraph 7. **INSTALLATION.**
6. Place the system back in service and secure all valves. Check the sprinklers and repair any 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 Authority Having Jurisdiction for minimum replacement requirements.

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Sprinkler Temperature Classification	Nominal Temperature Rating	Maximum Ambient Temperature ¹ Allowed at Ceiling	Maximum Recommended Ambient Temperature ² Allowed at Ceiling	Required Cover Plate Assembly Temperature Rating
Ordinary	140 °F (60 °C)	115 °F (46 °C)	100 °F (38 °C)	135 °F (57 °C)
NPT Thread Size		Nominal K-factor		Overall Length
Inch	mm	U.S.	metric ³	Inch
1/2	15	4.1	5,9	2.25
				mm
				57,2
Sprinkler Part No.⁴				
10784				

Approval Chart Mirage® Model B-3 Residential Concealed Pendent Sprinkler						KEY Temperature Finish A1X ← Escutcheon (if applicable)
Maximum Areas of Coverage ⁵	Minimum Water Supply Requirements			Listings ^{6,7}		
	Single Sprinkler	Two or More Sprinklers		UL	C-UL ⁸	FM
12' x 12' (3,7 m x 3,7 m)	15 gpm @ 13.4 psi (56,8 L/min @ 92,4 kPa)	12 gpm @ 8.6 psi (45,4 L/min @ 59,3 kPa)		A1	A1	–
14' x 14' (4,3 m x 4,3 m)	16 gpm @ 15.2 psi (60,6 L/min @ 104,8 kPa)	12 gpm @ 8.6 psi (45,4 L/min @ 59,3 kPa)		A1	A1	–
16' x 16' (4,9 m x 4,9 m)	16 gpm @ 15.2 psi (60,6 L/min @ 104,8 kPa)	16 gpm @ 15.2 psi (60,6 L/min @ 104,8 kPa)		A1	A1	–
18' x 18' (5,5 m x 5,5 m)	20 gpm @ 23.8 psi (75,7 L/min @ 164,1 kPa)	19 gpm @ 21.5 psi (71,9 L/min @ 148,2 kPa)		A1	A1	--
Temperature Rating			Cover Plate Finish			
A - 140 °F (60 °C)			1 - White Paint ⁹			
Footnotes						
¹ Based on National Fire Prevention and Control Administration Contract No. 7-34860. ² Based on NFPA-13. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards. ³ Metric K-factor shown is for use when pressure is measured in kPa. When pressure is measured in BAR, multiply the metric K-factor shown by 10.0. ⁴ Base part number is shown. For complete part number, refer to Viking's current price list. ⁵ For areas of coverage smaller than those shown, use the "Minimum Water Supply Requirement" for the next larger listing under "Maximum Areas of Coverage" for the sprinkler used. The distance from sprinklers to walls shall not exceed one-half the sprinkler spacing indicated for the "Minimum Water Supply Requirement" used. ⁶ This chart shows the listings and approvals available at the time of printing. Other approvals may be in process. Check with the manufacturer for any additional approvals. ⁷ Listings are for residential occupancies with smooth, flat, horizontal ceilings only. ⁸ Listed by Underwriters Laboratories, Inc. for use in Canada. ⁹ Other paint colors are available on request with the same UL and C-UL Listings as the standard white paint finish.						
Table 1						