



Commercial Flat Concealed Sprinkler, Pendent, K 5.6

Quick & Standard Response, Standard coverage

Model: RD106

General Description

The Model RD106 Commercial Flat Concealed Sprinklers are automatic sprinklers of the compressed fusible solder type. The Cover Plate Assembly hides the Deflector, Heat Responsive Element etc., which is concealed above the ceiling. The cover plate has a flat profile, and its diameter is 68mm (2-5/8 inch). The push-on or thread-on, thread-off design of the concealed cover plate assembly allows for easy installation of the cover plate.

Therefore, the Model RD106 should be your first choice when aesthetics is the major consideration for ultimate appeal and unbeatable performance is desired.

They are to be installed as per NFPA 13 guidelines.

The Model RD106 has a K80 (5.6) K-factor.

For extended installation flexibility, the Model RD106 provides 12.8mm (1/2 inch) vertical adjustment. This adjustment in installation decreases the need for precise cutting of the pipe that drops to the sprinkler and allows for a perfect fit with a range of pipe lengths.

The heat sensitivity and water distribution design of Model RD106 allows for an increased chance of occupants to escape or evacuate in case of a fire.



Technical Data

Approvals	UL Listed - Quick Response FM Approved - Standard Response
Sprinkler Identification Number (SIN)	RD106
Max. Working Pressure	12.1 bar (175 psi)
Min. Working Pressure	0.5 bar (7 psi) - Requirement of UL Listing, FM Approval and NFPA 13 standards.
Discharge Coefficient	K80 (K5.6)
Temperature Rating	Sprinkler: 72°C/162°F, Cover Plate: 60°C/140°F Sprinkler: 96°C/205°F, Cover Plate: 60°C/140°F Sprinkler: 96°C/205°F, Cover Plate: 72°C/162°F
Colour Code	Sprinkler 72°C (162°F) Uncolored, 96°C (205°F) White Cover Plate 60°C (140°F) No Mark, 72°C (162°F) White-Coloured Mark
Vertical Adjustment	12.8 mm (1/2")
Finishes	White, Ivory, Beige, Brown, Black, Nickel, Wood Grain or Custom painted

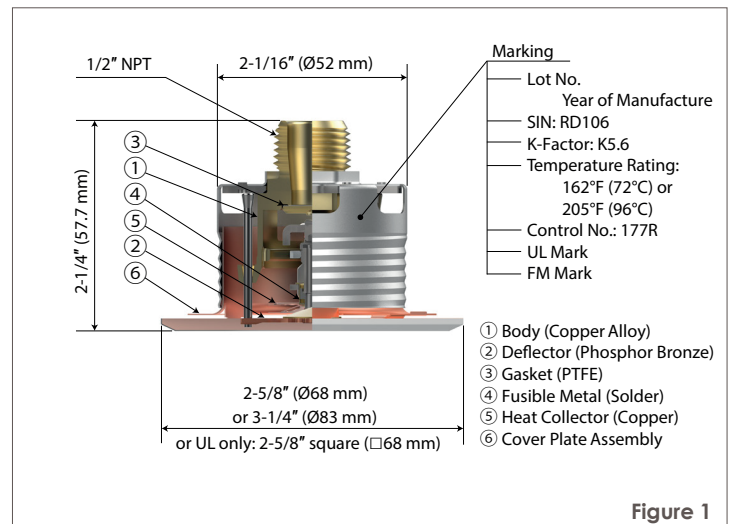


Figure 1

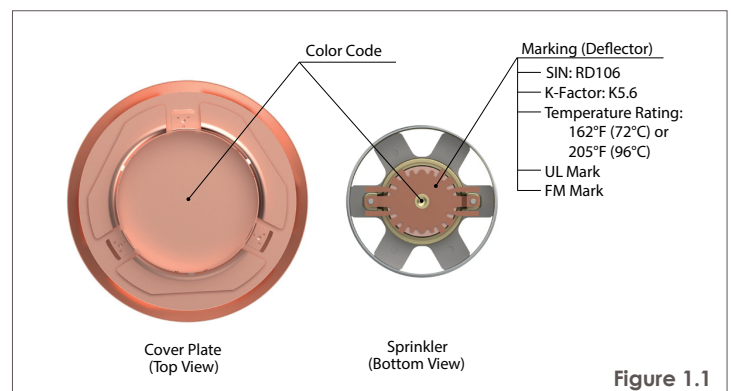


Figure 1.1



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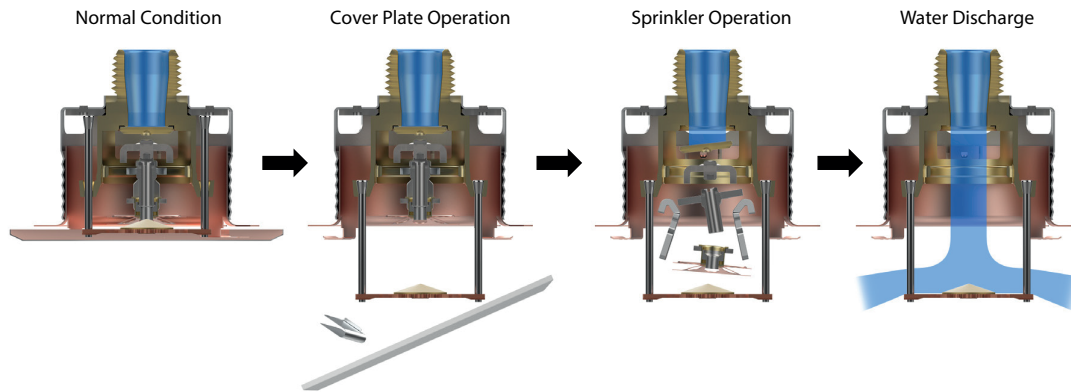


Figure 2

Warnings

The Model RD106 must be installed and maintained in accordance with the rules stated herein as well as in compliance with the applicable standards of the National Fire Protection Association regulations and the standards of any other authorities having jurisdiction.

In the event of this condition, consult the Authorities Having Jurisdiction for guidance and approval. Failure to do so may impair the integrity of these devices.

It is the responsibility of the installing contractor to provide a copy of this document to the owner or his representative, and in turn, it is the obligation of the owner to provide a copy of this document to a succeeding owner. The owner is responsible for maintaining their fire protection system and devices in proper operating condition. The installing contractor or sprinkler manufacturer should be contacted with any related questions.

Operation

In case of fire, the solder component that holds together the Cover Plate and the Retainer melts. Then the Cover Plate is released at once. As a result, the Deflector drops down to the intended position. Two Heat Collectors are exposed to fire, and when sufficient heat from the fire is reached, internal components of the sprinkler fall apart. This leads to the water flow to be distributed on the affected fire area. (Ref. Figure 2)

Design Criteria

The Model RD106 sprinklers are listed by UL as quick response for use in accordance with NFPA.

Also the Model RD106 is FM Approved as a Standard Response for Non-Corrosive Atmospheres. The herein stated rules for use and installation of the Model RD106 are provided by the manufacturer and must be strictly implemented for safe and full results.

Notes

- Fire Sprinkler Systems should only be designed and installed by individuals who are completely familiar with automatic sprinkler system design, installation procedures, and techniques.
- Several criteria may apply to the installation and usage of each sprinkler.

- Consequently, it is recommended that the sprinkler system designer review and develop a working understanding of the complete list of criteria prior to initiating the design of the sprinkler system.
- Questions concerning sprinkler installation and usage criteria, which are not covered by the following instructions, should be submitted to Rapidrop. Include sketches and technical details as appropriate.
- In some instances, the requirements of this document may concern specifications which are more stringent and which take precedence over those specified in NFPA 13 or by the authority having jurisdiction.
- The Model RD106 must not be used in applications where the air pressure above the ceiling is greater than that below.
- The spray from the sprinkler is distributed radially outward and downward from the sprinkler deflector. Consequently, the sprinklers must be located such that there will be no blind spaces shielded from spray by partitions, room dividers, overhangs or other parts of the dwelling structure.
- The number of sprinklers within each compartment (as defined by NFPA 13) must be kept as small as possible. Do NOT use more sprinklers than necessary to cover a particular space.
- Use only the Cover Plate provided with the Model RD106. The sprinkler must be secured in place by firmly fastening the sprinkler system piping to the structure. If the sprinkler is not properly secured in position, reaction forces resulting from sprinkler operation could alter its orientation and its water distribution pattern.

Obstruction to Water Distribution

Locations of sprinklers must follow the obstruction rules of NFPA 13.

General Service Conditions

The Model RD106 must only be utilized in WET PIPE sprinkler systems per NFPA 13 or other rules of the authority having jurisdiction

Operational Sensitivity Criteria

For proper operational sensitivity, the Model RD106 must be installed beneath a solid ceiling having a smooth or textured surface.



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Heat Source Criteria

Refer to NFPA 13 for the requirements relating to the prevention of possible activation of the Heat Responsive Element of Model RD106, due to exposure to a heat sources other than an actual fire.

Available Sprinkler Temperature Ratings			
Sprinkler Temperature Classification	Sprinkler Nominal Temperature Rating	Cover Plate Nominal Temperature Rating	Maximum Ambient Ceiling Temperature
Ordinary	72°C (162°F)	60°C (140°F)	38°C (100°F)
Intermediate	96°C (205°F)	60°C (140°F)	66°C (150°F)*
Intermediate	96°C (205°F)	72°C (162°F)	66°C (150°F)

*For maximum ambient temperatures above 38°C up to 66°C, the 72°C cover plate should be used.

Precautionary Warnings for Corrosive Environments

The Model RD106 should not be installed where they may be subjected to a corrosive environment including the following:

1. Chlorine ion and Chloride environment

Stress corrosion cracking may be caused by exposure to environments with Chlorine ion and Chloride. Exposure to this environment may result in sprinklers operating under Non-Fire conditions or Not Operating when exposed to an actual fire.

2. Sprinkler system piping with Copper

Sprinkler systems should be constructed in compliance with the applicable standards and the requirements for the copper piping when copper piping is used in the sprinkler system. (Reference standards NFPA 13, ASTM B813, B828, and CDA (Copper Development Association) – Solder Joint.

All residual flux must be removed from the interior and exterior of copper piping by thoroughly flushing before installation of the Sprinkler Heads. Otherwise, residues of flux may cause corrosion and leakage in the sprinkler system.

- Do not rotate the Cap Removal Tool to the left with force when placing the two hook arms into place. The installed sprinkler may become loosened, which may cause water leakage.

Installing Procedure

Step 1

The installation requirements for the sprinkler are as follows: to be installed only in the pendent position with the waterway perpendicular to the ceiling. Install the sprinkler fitting so that the distance from the face of the fitting to the mounting surface will be nominally 50.8 mm (2 inch) as shown in Figure 3.

Step 2

With pipe thread sealant applied to the threads, hand tighten the sprinkler into the sprinkler fitting. Then tighten it with the Sprinkler Socket or Ratchet & Socket Combination (Ref. Figure 4). The teeth of the Socket must fit perfectly with the grooves on the Sprinkler for proper installation (Ref. Figure 4).

Step 3

If desired the Protective Cap may also be used to locate the centre of the clearance hole by gently pushing the ceiling material against the centre point of the Protective Cap. Before the installation of the ceiling, the sprinkler installation can be started with the 60mm (2 3/8 inch) diameter clearance hole (Ref. Figure 3). Use the "Tolerance Limit of Ceiling Level" indicator on the Protective Cap to check for proper installation height (Ref. Figure 3).

Step 4

Use the Cap Removal Tool to remove the Protective Cap (Ref. Figure 5), and then push or screw a Cover Plate Assembly on the Cup of the Sprinkler by hand until its flange just has contact with the ceiling (Ref. Figure 6 and Figure 7). Stop tightening the Cover Plate Assembly once the flange has contact with the ceiling. If the ceiling has been lifted from its normal position in the process of tightening the Cover Plate Assembly, readjust the cover plate assembly as necessary. If the flange of the Cover Plate Assembly cannot contact the ceiling sufficiently, readjust the sprinkler fitting as necessary. When properly installed, there is a nominal 1.6mm (1/16 inch) air gap between the lip of the Cover Plate and the ceiling, as shown in Figure 6.

Installation

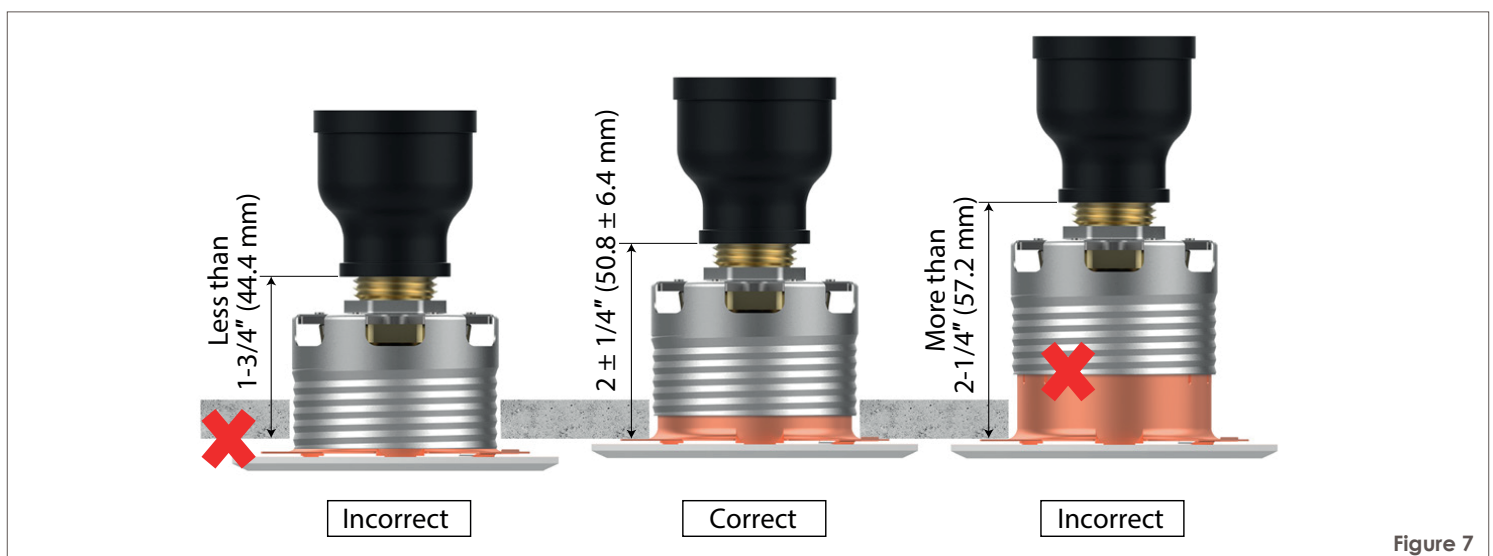
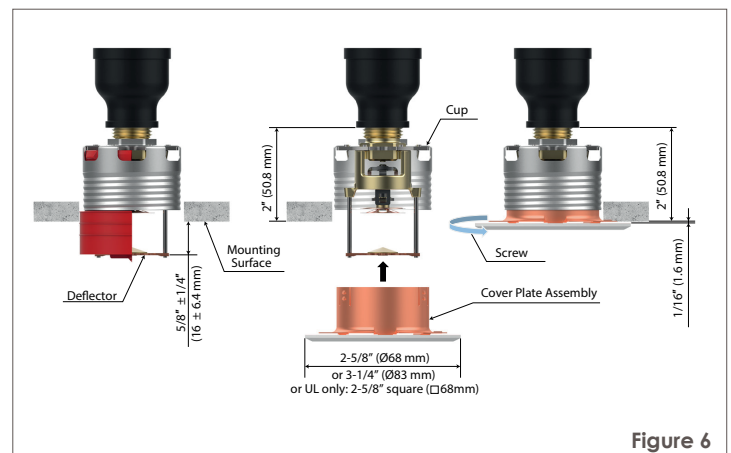
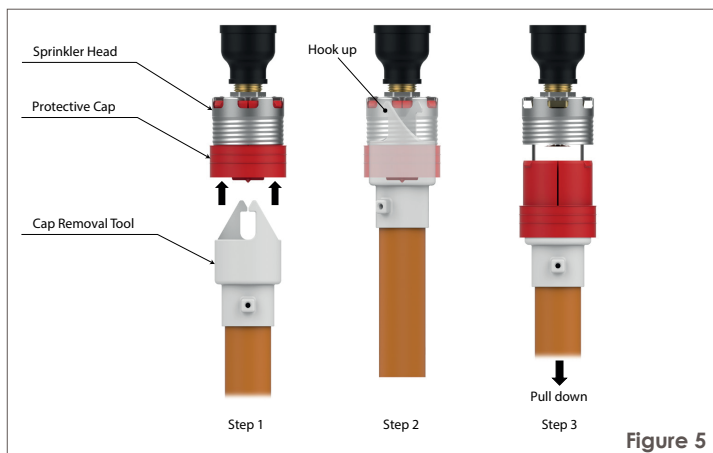
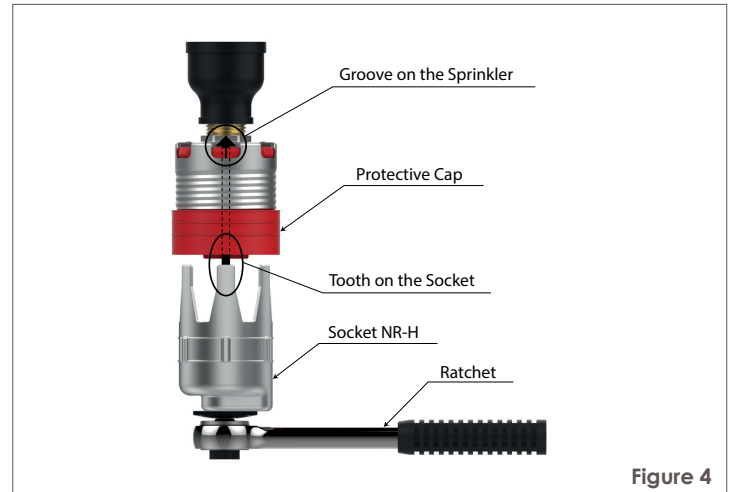
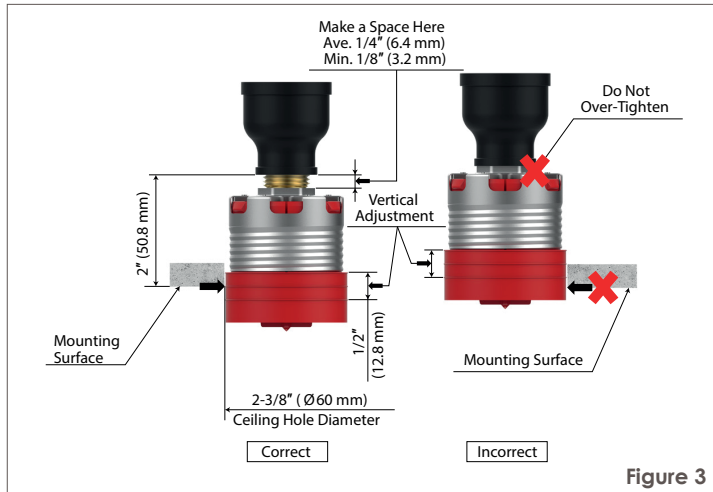
The Model RD106 must be installed in accordance with the following instructions.

Notes

- Do not use any sprinklers which have been subjected to potential mechanical damage. Do not use any sprinklers which show deformation or cracking in either the Sprinkler or the Protective Cap.
- Prior to installation, sprinklers should be maintained in the original cartons and packaging until used to minimize the potential for damage to sprinklers that could cause improper operation or non-operation.
- The Protective Cap must remain on the sprinkler during installation. After the installation is completed, the Protective Cap must be removed to place the sprinkler in service.
- Use a torque of 9.5 to 19.0Nm (7 to 14 ft.lbs) to achieve a 1/2 inch NPT sprinkler joint. If you exceed the recommended maximum torque, this could result in damage to the sprinkler inlet, which may lead to leakage from the sprinkler.
- In case of insufficient adjustment in Cover Plate installation, do not try to overly tighten, screw the sprinkler too loosely or make any modification to the cover plate assembly. Readjust the sprinkler fitting for a better fit.



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Care and Maintenance

The following instructions must be implemented for the maintenance and service of the Model RD106

Notes

- Wet pipe sprinkler systems must be maintained at a minimum temperature of 4°C/40°F to prevent freezing and bursting of the pipe and/or sprinklers.
- Automatic sprinklers are not to be tested with a heat source. Operation of the heat responsive element can result.
- Absence of a Cover Plate Assembly may delay the response time of the sprinkler in case of fire.
- Install the cover plate assembly properly, as shown in Figure 6. Improper installation of the cover plate assembly may cause improper operation or non-operation.
- If the ceiling is to be repainted after the installation of the Sprinkler, care must be exercised to ensure that the new paint does not seal off any of the air gap.
- Factory painted Cover Plates must not be repainted. They should be replaced, if necessary, by factory painted cover plates.
- Non-factory applied paint may adversely delay or prevent sprinkler operation in case of a fire.
- Do not pull the Cover Plate. Separation may result.
- In preparation for maintenance of the fire protection system, permission to close the main control valve must be obtained from the proper authorities and all affected by this action parties must be informed before the maintenance session can commence.
- Leaking or corroded sprinklers must be replaced.
- Automatic Sprinklers must be kept in a cool and dry place.
- Do NOT enclose any sprinklers within drapes, curtains, or valances.
- Do NOT hang anything from the sprinklers.
- Do NOT clean the sprinklers with soap and water, detergents, ammonia, cleaning fluids, or other chemicals. Remove dust, lint, cobwebs, cocoons, insects, and larvae by gently brushing with a feather duster or gently vacuuming with a soft bristle (i.e., dusting) brush attachment.
- Exercise suitable safety precautions in the use and storage of highly flammable materials. The rapid rate of fire development and spread of these materials can reduce the ability of the sprinkler system to aid in the control of a fire involving such hazards.
- Automatic sprinklers must never be physically altered, such as painted, plated, or coated, once shipped from the factory. If the sprinklers have been in any way modified, they must be replaced.
- Great caution must be applied to prevent damage to the sprinklers at all stages - before, during, and after installation. Damaged units because of dropping, hitting, over-tightening, must be replaced.

- When remodeling, such as by adding false beams or light fixtures or changing the location of compartment walls, first verify that the new construction will not violate the installation requirements of the applicable standards of NFPA. Alter the new construction and/or the sprinkler system to suit the requirements of this document and the applicable NFPA regulations.
- The owner is responsible for the maintenance of the sprinkler system, including inspection and testing of its compliance with this document, as well as the standards of the National Fire Protection Association (e.g., NFPA 25), and the regulations of any other authorities having jurisdiction. The owner should direct any questions regarding the above rules and regulations to the installing contractors or the sprinkler manufacturer. It is recommended that automatic sprinkler systems be inspected, tested, and maintained by a qualified Inspection Service in accordance with NFPA 25.

Order Procedure

When placing an order, please contact a local distributor with the following information (Model Name, Specify, Temperature and Finish).

Sprinkler Model:

RD106, Quick & Standard Response, Standard Coverage, Flat Concealed Sprinkler, Pendent,
72°C/162°F
96°C/205°F

Cover Plate Assembly:

(Order Separately from Sprinkler)

60°C/140°F Cover Plate (for 72°C/162°F or 96°C/205°F Sprinkler Head)

72°C/162°F Cover Plate (for 96°C/205°F Sprinkler Head)

Finish:

White, Ivory, Beige, Brown, Black, Nickel, Wood Grain or Custom painted

Tools for Installation of Model: RD106

Socket for Model RD106

Ratchet & Socket for Model RD106

Protective Cap Removal Tool for Model RD106