Reliable®

Sprinkler Installation Warnings!!

Read carefully prior to handling and installing sprinklers!

警告! Attention! Warnung! Avvertimento! Aviso! ¡Advertencia! Vaning! Ostrzeżenie!

Important! Reliable fire sprinklers must be handled, stored, and installed in accordance with the guidelines in Caution Sheet 310 and this bulletin. Failure to follow these instructions may result in unintended operation or nonoperation of the fire protection system.

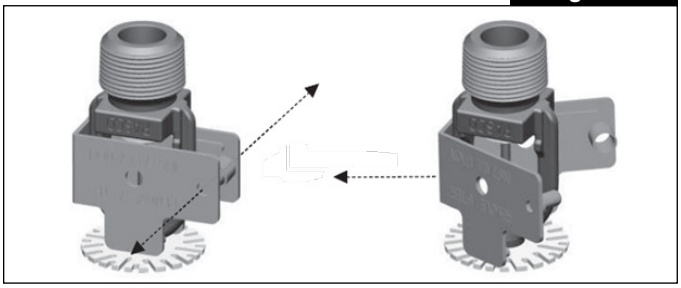
FAILURE TO FOLLOW THESE WARNINGS CAN CAUSE DAMAGE TO SPRINKLERS RESULTING IN LEAKAGE, UNINTENDED OPERATION, OR NON-OPERATION DURING A FIRE EVENT.

ALWAYS FOLLOW THE DESIGN AND INSTALLATION REQUIREMENTS IN THE RELIABLE TECHNICAL BULLETIN APPLICABLE TO EACH SPRINKLER. IN ADDITION, SPRINKLERS MUST BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE LATEST PUBLISHED STANDARDS OF THE NATIONAL FIRE PROTECTION ASSOCIATION, AS WELL AS THE REQUIREMENTS OF ANY APPLICABLE GOVERNMENTAL CODES OR ORDINANCES, INSURERS, OR OTHER AUTHORITIES HAVING JURISDICTION. THESE WARNINGS SHALL REMAIN WITH THE FIRE PROTECTION SYSTEM INFORMATION WITHIN THE INSTALLED PREMISES AND A COPY SHALL BE GIVEN TO THE BUILDING OWNER AND ALL OCCUPANTS/TENANTS.

Important Precautions to Follow:

1. Store sprinklers in a cool, dry place. Storing sprinklers in unconditioned spaces, including vehicles, may expose sprinklers temperatures that weaken the sealing assembly causing unintended operation.
2. 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. Do not install sprinklers with liquid missing from the glass bulb.
3. Orange bulb protectors, where provided, must be removed when the sprinkler system is placed in service for fire protection. NFPA 13 permits the removal of bulb protectors on upright sprinklers and any sprinkler installed more than 10ft (3.0 m) above the floor at the time of installation, however, for maximum protection bulb protectors remain in place until such time as the system is placed into service. Removal of the protectors before this time may leave the bulb vulnerable to damage regardless of location. FAILURE to remove the bulb protectors will impair proper sprinkler performance.
4. When replacing sprinklers, always use a new Listed and Approved sprinkler of the same characteristics, including K-factor, thermal response, and water distribution.
5. Sprinklers that have been damaged in any way, exposed to fire conditions, or operated must be promptly replaced. When replacing sprinklers, always use a new Listed and Approved sprinkler of the same characteristics, including K-factor, thermal response, and water distribution.
6. Inspect glass bulb operating elements for damage prior to and during installation. This inspection should be done without removing the bulb protector by looking through the holes in and around the edges of the bulb protector.
7. Do not install glass bulb sprinklers with cracks in the glass bulb or with fluid missing from the glass bulb. When held horizontally the glass bulb should have a small air bubble. Replace any glass bulb sprinkler where the glass bulb is cracked, has fluid missing, or does not have an air bubble. Damaged glass bulbs may result in unintended operation or non-operation during a fire condition.

Bulb Protector Removal **Figure 1**



Installation Torque **Table A**

Sprinkler Threads	Recommended Installation Torque (min. – max.)	
	ft-lb	N-m
½” NPT or ISO7-1R1/2	8-18	11-24
¾” NPT or ISO7-1R3/4	14-20	19-27
1” NPT or ISO7-1R1	22-30	30-40

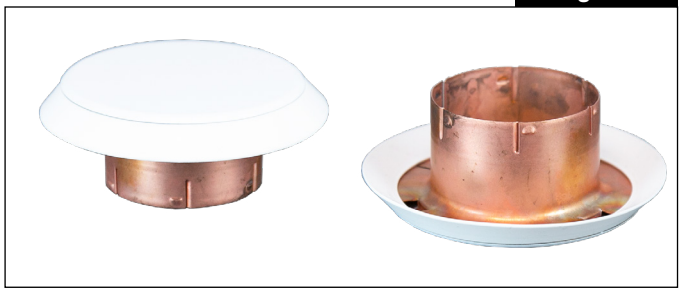
8. Handle sprinklers by the frame arms or cup. Never use the deflector or thermal element assembly (link, levers, or bulb) to start or thread the sprinkler into a fitting.
9. Always install sprinklers in the Listed and Approved orientation.
10. Never install sprinklers in a pendent position on a dry system unless they are listed and approved for that purpose.
11. The use of the specified RASCO sprinkler wrench identified in the sprinkler's Technical Bulletin is mandatory for installation and removal of the sprinkler. Any other wrench may damage the sprinkler and can result in leakage, unintended operation, or non-operation during a fire condition. The use of an extension on the wrench handle is strictly prohibited.
12. Do not over-tighten sprinklers into fittings. Recommended installation torque is provided in Table A. Over-tightening may damage a sprinkler's seal resulting in leakage or non-operation during a fire. Sprinkler installation wrenches that accept "square drive" tools may be used in conjunction with a calibrated torque wrench. If a torque measurement is required post-installation, a calibrated torque audit wrench may be required.
13. Locate sprinkler fittings within the allowable adjustment range for the sprinkler, escutcheon, and cover plate. Do not perform adjustment of the sprinkler's position by over-tightening or under-tightening the sprinkler in the fitting, which may cause leakage.
14. Never install a sprinkler after it has been dropped or damaged in any way. These sprinklers should be destroyed.
15. Never install sprinklers in the fittings until after the piping is installed to avoid damage to sprinklers during pipe installation.
16. When a threaded sprinkler is removed from a fitting or welded outlet, it shall not be reinstalled.
17. When installing sprinklers in plastic pipe, excess solvent cement used during pipe installation must not become an obstruction inside the sprinkler inlet. Install sprinklers into the sprinkler fittings only after all piping is in place and the solvent cement at each drop joint has cured at least 30 minutes. Remove all chips and debris prior to sprinkler installation.
18. Verify that the sprinkler and fitting have compatible threads prior to installation.
19. Tapered pipe threads, NPT or ISO7-1 (BSPT), must be sealed with either PTFE tape or pipe joint compound applied to the sprinkler threads only. Two or three turns of PTFE tape are normally sufficient to make a full seal.

Temperature Rating **Table B**

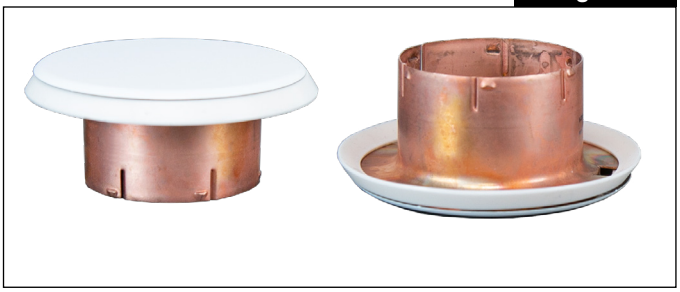
Max. Ceiling Temperature		Sprinkler Temperature Rating	
°F	°C	°F	°C
100	38	135-170	57-77
150	66	175-225	79-107
225	107	250-300	121-149
300	149	325-375	163-191
375	191	400-475	204-246
475	246	500-575	260-302
625	329	650	343

20. Sprinkler will not operate properly with bulb protectors or protective caps in place.
21. Use care in handling sprinklers, escutcheons, and cover plates as metal threads and edges may be sharp.
22. Recessed and concealed sprinklers must only be installed with the Reliable escutcheon or cover plate approved with the sprinkler. Reliable recessed escutcheons and cover plates are labeled with the Sprinkler Identification Number (SINs) of sprinklers with which they are approved. The recessed escutcheon or cover plate is part of the approved sprinkler assembly and must be installed for proper operation of the sprinkler.
23. Escutcheons and cover plates must be attached to sprinklers using the method specified in the sprinkler technical bulletin (push-on or thread-on). Never attach escutcheons or cover plates using any form of adhesive, including caulk.
24. Reliable offers two types of Model G5 gasketed cover plates: SR, for use with compatible standard-response sprinkler assemblies, and QR, for use with compatible quick-response sprinkler assemblies. SR and QR gasketed cover plates are distinguishable by their overall outer diameter. SR gasketed cover plates (Fig. 2) are 4 in. (100 mm) outer diameter in the uninstalled condition. QR gasketed cover plates (Fig. 3) are 3-1/2 in. (90 mm) outer diameter in the uninstalled condition. Always verify that the SINs marked on the cover plate match the SIN of the sprinkler on which it is being installed. The gaskets are factory-installed onto the copper cover plate body (NOT the finished plate body). Gasketed cover plates are sold as a factory-assembled unit and should not be disassembled or modified in the field.

Model G5 SR Gasketed Cover Plates **Figure 2**



Model G5 QR Gasketed Cover Plates **Figure 3**



Dry Sprinkler Min. Exposed Barrel Length **Table C**

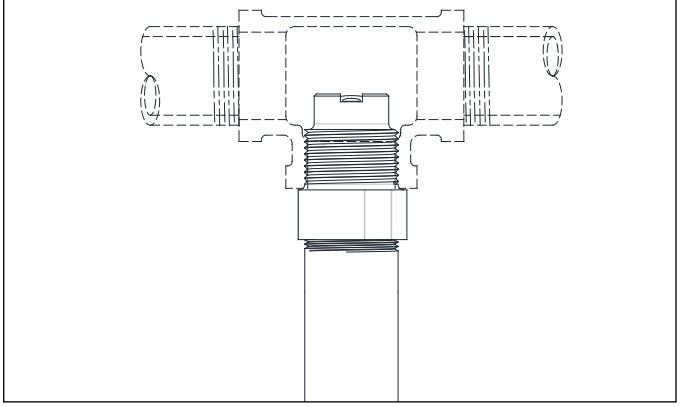
Ambient Temperature Exposed to Discharge End of Sprinkler[a]	Min. Temperature Maintained at Exposed Barrel		
	40°F (4°C)	50°F (10°C)	60°F (16°C)
	Min. Exposed Barrel Length[b] (Face of Tee to Inside Face of Wall)		
	inch (mm)	inch (mm)	inch (mm)
40°F (4°C)	0	0	0
30°F (-1°C)	0	0	0
20°F (-7°C)	4 (100)	0	0
10°F (-12°C)	8 (200)	1 (25)	0
0°F (-18°C)	12 (300)	3 (75)	0
-10°F (-23°C)	14 (350)	4 (100)	1 (25)
-20°F (-29°C)	14 (350)	6 (150)	3 (75)
-30°F (-34°C)	16 (400)	8 (200)	4 (100)
-40°F (-40°C)	18 (450)	8 (200)	4 (100)
-50°F (-46°C)	20 (500)	10 (250)	6 (150)
-60°F (-51°C)	20 (500)	10 (250)	6 (150)

25. Install escutcheons and cover plates by hand; Model RFC and G5 cover plates may also be installed using Reliable P/N 92306902, silicone disc, installed on a flange. Do not press in the center of cover plates. Do not hit or strike escutcheons and cover plates.
26. Never attach wiring, ropes or fixtures to a sprinkler or sprinkler piping.
27. Locate sprinklers to avoid mechanical injury. Mechanical damage to sprinklers can result in leakage or unintended operation.
28. Only use guards that are specifically listed or approved with the sprinkler on which they are installed. Listed guards are tested to limit damage to sprinkler under specific test conditions. Mechanical damage can occur to sprinklers even with a guard in place.
29. Always follow the requirements of NFPA 13 and other applicable installation standards for temperature rating.
30. Never install, transport, or store sprinklers in locations where the surrounding temperature exceeds the Maximum Ceiling Temperature in Table B, based on the Sprinkler Temperature Rating. Subjecting sprinklers to surrounding temperatures more than the Maximum Ceiling Temperature in Table B will damage the sprinkler and may result in unintended operation.
31. Under skylights use sprinklers with a temperature rating that is the greater of: (1) 200°F (93°C) and (2) the appropriate Sprinkler Temperature Rating based on the Maximum Ceiling Temperature in accordance with Table B.
32. Never install sprinklers in locations where the surrounding temperature exceeds the Maximum Ceiling Temperature in Table B, based on the Sprinkler Temperature Rating. Exceeding the Maximum Ceiling Temperature in Table B will damage the sprinkler and may result in unintended operation.
33. Never apply paint or any other coating to sprinklers or concealed sprinkler cover plates. Sprinklers and cover plates with paint or other coatings, other than factory applied, must be replaced. Removal of paint or other coatings is not permitted.
34. Verify the compatibility of any substance added to the sprinkler system with the sprinklers.
35. Verify the compatibility of sprinkler materials and coatings with the surrounding environment prior to installation and after any changes in use, occupancy, and/or the surrounding environment. Reliable offers sprinklers with materials of construction and coatings for a variety of applications, but may not have appropriate sprinklers for all environments. NFPA 13 provides a list of locations where corrosion resistant sprinklers should be considered, which does not include all locations where environments corrosive to sprinklers may exist.
36. Listed or Approved Corrosion Resistant Sprinklers have been subject to laboratory tests for exposure to select corrosive environments; such testing is not representative of all potential corrosive environments. Listings and Approvals for corrosion-resistant sprinklers are based on testing the operation of the sprinkler when subject to specific corrosive environments, but do not investigate aesthetics.
37. Replace any sprinklers that show signs of any of the following:
    (a) Leakage
    (b) Corrosion
    (c) Physical damage
    (d) Loss of fluid in glass bulb
    (e) Loading (e.g., grease, dust, organic material)
    (f) Paint or coating, other than applied by the manufacturer

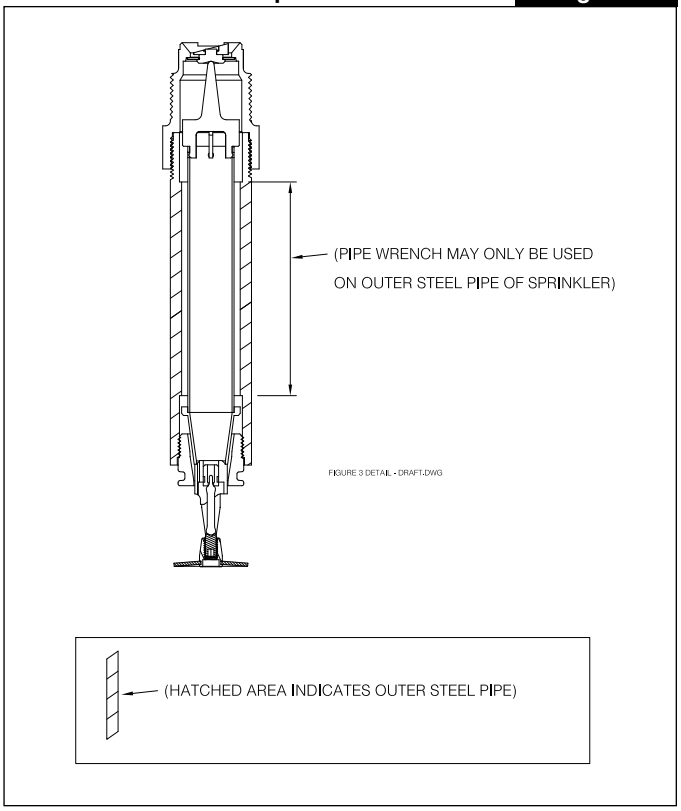
Additional Precautions for Dry Sprinklers:

38. Precautions identified above for all sprinklers, including, but not limited to, Recommended Installation Torque, also apply to Dry Sprinklers, except where alternative precautions are specifically identified in this section.
39. Dry Sprinklers installed on wet-pipe sprinkler systems must not be less than the length determined based on Table C.
    (a) For ambient temperatures exposed to the discharge end of the sprinkler that occur between the values listed, use the next cooler temperature.
    (b) The min. exposed barrel length is based on a properly sealed penetration with a maximum wind velocity on the exposed sprinkler of 30 MPH (48kM/h). Longer exposed barrel lengths will be required to avoid freezing of the wet piping where higher wind velocity is expected.
40. Dry Sprinklers installed on dry-pipe sprinkler systems must only be installed in the side outlet of an ANSI B 16.3 class 150 (malleable or ductile) or ANSI B16.4 class 125 (cast) iron pipe tee.
41. Dry Sprinklers installed on wet-pipe sprinkler systems must only be installed in the following fittings:
    (a) The side outlet of an ANSI B 16.3 class 150 (malleable or ductile) or ANSI B16.4 class 125 (cast) iron pipe tee
    (b) The run outlet of an ANSI B 16.3 class 150 (malleable or ductile) or ANSI B16.4 class 125 (cast) iron pipe tee, with the side outlet plugged.
    (c) Spears Manufacturing Company Brass Thread Insert Style or Special Reinforced Plastic Thread Style Listed adapter or tee (gasket sealed outlets shall not be used)
    (d) Any Listed CPVC sprinkler adapter or tee only upon verification that the CPVC adapter or tee does not interfere with the sprinkler's inlet (gasket sealed outlets shall not be used).
42. Dry Sprinklers must not be installed into couplings, elbows, welded outlets, gasket sealed outlets, or mechanical tees.
43. Installation of Dry Sprinklers is not recommended in copper pipe systems, as this may reduce the life expectancy of the sprinkler.
44. In all dry-pipe system installations, Dry Sprinklers must be installed with protrusion into the fitting in accordance with Fig. 4.
45. Short "PL" inlet Dry Sprinklers must only be installed on wet-pipe sprinkler systems.
46. The clearance space around a Dry Sprinkler penetrating through a wall or ceiling must be sealed to prevent air movement through the wall or ceiling. Failure to properly seal the penetration through a wall or ceiling can result in condensation and ice formation on the Dry Sprinkler which may lead to leakage, inadvertent operation, delayed operation, or non-operation.
47. Sprinkler piping that is located in areas subject to temperatures less than 40°F (4°C) must be sloped to drain in accordance with NFPA 13. Failure to promptly and properly drain sprinkler piping in areas subject to temperatures less than 40°F (4°C) can result in the formation of ice in the sprinkler system which may damage sprinkler system components, including Dry Sprinklers. Damage to sprinkler systems from ice formation can result in leakage, inadvertent sprinkler operation, or impaired performance during a fire event.
48. As an alternative to use of the approved sprinkler installation wrench and where access to the outer tube of the sprinkler is available, the Dry Sprinkler may be installed using a pipe wrench. The pipe wrench shall only be permitted to interface with the steel outertube portion of the sprinkler, as identified on Fig. 5. Do NOT wrench any other portion of the sprinkler assembly. A pipe wrench can install the sprinkler into the fitting with a large amount of torque; consideration should be given to the need for future removal of the sprinkler because the installation torque will have to be matched or exceeded to remove the sprinkler. Refer to Table A for Recommended Installation Torque.

Dry Sprinkler Protrusion into Fitting **Figure 4**



Alternate Installation: Pipe Wrench **Figure 5**



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