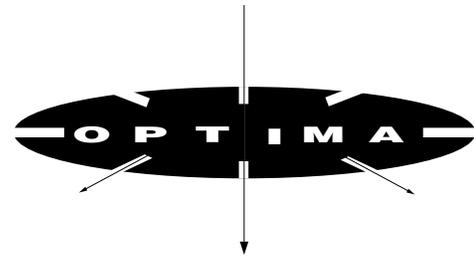


Attic Sprinklers™

Specific Application

- **Back to Back™**
- **Single Directional™**
- **HIP™**



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



Product Description

The Attic Sprinklers™ are the evolution of fire sprinklers for attics. The Attic Sprinklers™ provide the best fire protection in an attic while saving cost by using extended coverage spacing. The Attic Sprinklers™ have undergone the most extensive fire testing ever done for attics and are allowed for use under their specific application guidelines by U.L. and NFPA.

The Attic Sprinklers™ are the first sprinklers to be:

- Listed for extended coverage in combustible construction.
- Full-scale fire tested in both wet and dry system scenarios.
- Full-scale tested, for Listing in wood truss construction.
- Listed for specific pitches of roof slope.

The Attic Sprinklers™ provide the best level of protection and control cost by eliminating the need for additional sprinklers and the associated cost. There is just one branch line along the ridge for the entire building unless there is a need for single directional or hip sprinklers. In that case, there is still only one line in each area. For example, a system in a 60'-0" wide attic would use 5 branch lines to cover the main portion of the building and several off-set branch lines to cover the hip area. With the attic sprinklers, there is just one line down the ridge and one down each slope of the hip. This is approximately **80% less pipe** that needs to be installed. This saves the cost of the pipe, fittings, hangers, and associated labor for three branch lines. Also the volume of the system is reduced. This could reduce the size of the dry pipe valve or allow the 60 second requirement to be met without an accelerator.

The other cost reduction is in the new Listing of BlazeMaster CPVC for Attic spaces feeding the wet system sprinklers below the ceiling. Traditionally BlazeMaster CPVC has been used on the lower floors in the joist space above a ceiling that does not require sprinklers. The cost of using CPVC on those floors can now be translated to the upper floor even if sprinklers are required in the attic.

There are three (3) models of Attic Sprinklers™, Back to Back™ (dual directional), a Single Directional™ and a Hip™ sprinkler. The Back to Back™ and Single Directional™ sprinklers have three separate versions that are used for different roof pitches. The pitches can vary from a minimum of 4 in 12 to a maximum of 12 in 12.

The Back to Back™ (dual directional)

The Back to Back™ Attic Sprinkler™, named so because it performs like two sidewall sprinklers placed back to back with one operating element, throws a narrow but long pattern. The narrow spacing along the ridge serves two purposes. The response time is reduced by having the sprinklers no farther than 6'-0" apart and the spray

(continued on page 10)



Technical Data

Models: BB1-¹⁷/₃₂, BB2-¹⁷/₃₂, BB3-¹⁷/₃₂
BB1, BB2, BB3
SD1, SD2, SD3
HIP

Orifice Size: ¹/₂" (12.7 mm) or ¹⁷/₃₂" (13.5 mm)
(see chart)

K-Factor: ¹/₂" = 5.6 (80.08) Nominal
¹⁷/₃₂" = 7.8 (111.54) Nominal
(see chart)

¹/₂" or ¹⁷/₃₂" Orifice Automatic Sprinkler

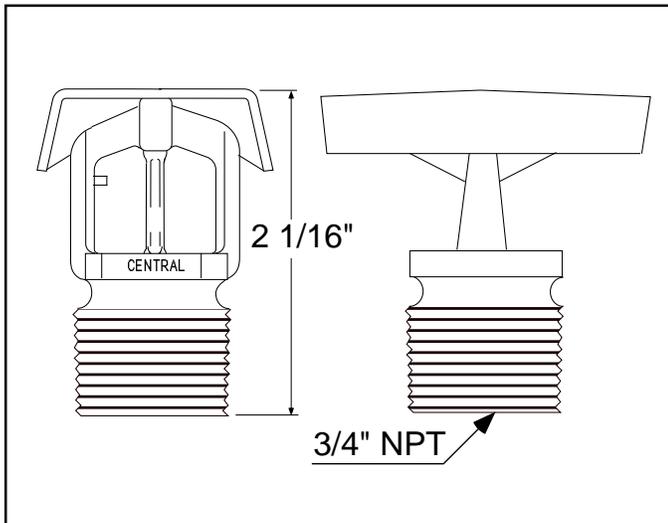
Response: Quick
Thread: ¹/₂" (12.7 mm) or ³/₄" (19.1 mm) N.P.T.
(see chart)
Temperature: 200°F Bulb or 212°F Link
(see chart)
Listing: U.L., U.L.C.
Maximum Working Pressure:
175 psi (12.07 bar)
Factory Hydro Test: 100% at 500 psi
(34.48 bar)

Model	K-Factor	Thread	Temp. °F	Orifice
BB1 ¹⁷ / ₃₂	7.8	³ / ₄ "	200° bulb	¹⁷ / ₃₂
BB2 ¹⁷ / ₃₂	7.8	³ / ₄ "	200° bulb	¹⁷ / ₃₂
BB3 ¹⁷ / ₃₂	7.8	³ / ₄ "	200° bulb	¹⁷ / ₃₂
BB1	5.6	¹ / ₂ "	212° link	¹ / ₂ "
BB2	5.6	¹ / ₂ "	212° link	¹ / ₂ "
BB3	5.6	¹ / ₂ "	212° link	¹ / ₂ "
SD1	5.6	¹ / ₂ "	212° link	¹ / ₂ "
SD2	5.6	¹ / ₂ "	212° link	¹ / ₂ "
SD3	5.6	¹ / ₂ "	212° link	¹ / ₂ "
HIP	5.6	¹ / ₂ "	200° bulb	¹ / ₂ "

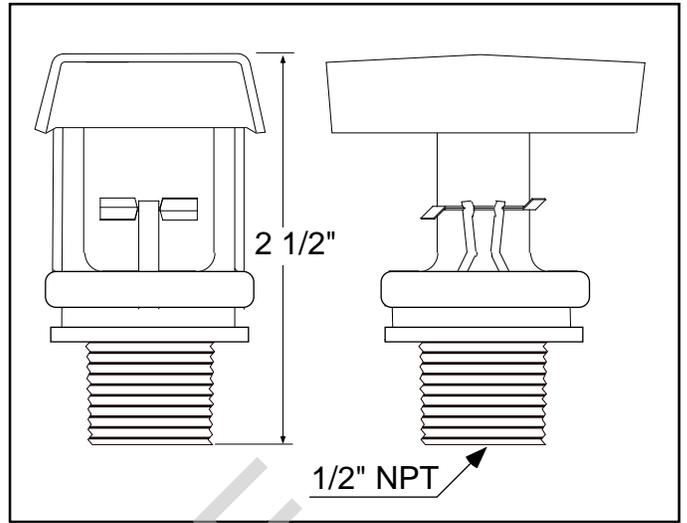
Standard Finish: brass
Length: 3" (76.2 mm) maximum*
Weight: 5 oz. (142 grams) maximum*
*See page 2 for exact dimensions.

Patent Pending

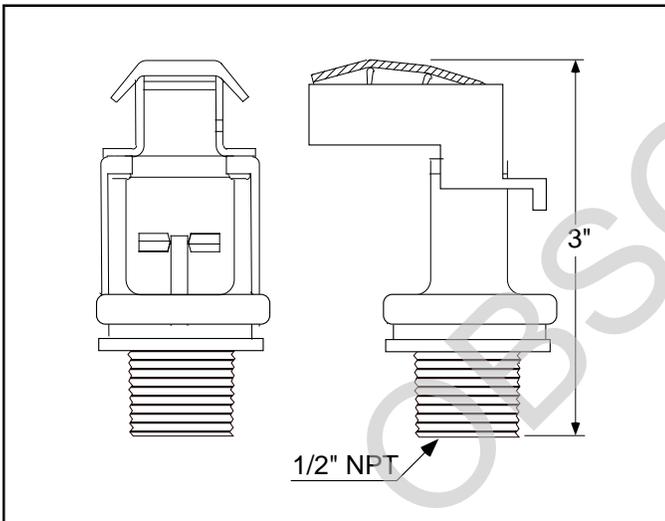
**Back to Back™
Dual Directional Attic Sprinkler™
BB1-17/32", BB2-17/32", BB3-17/32"**



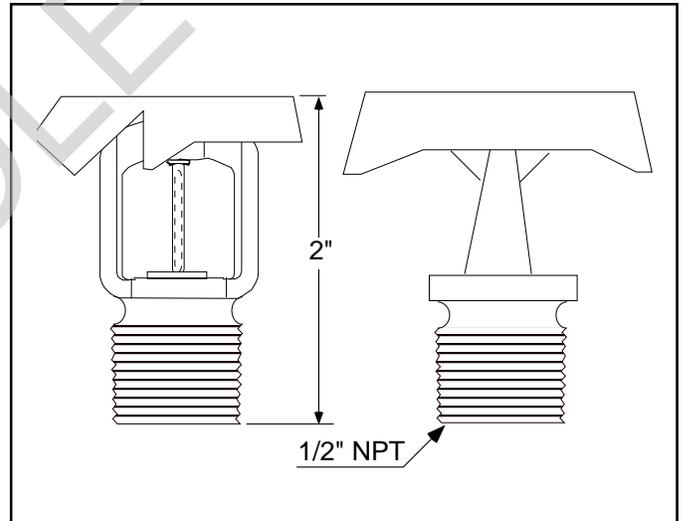
**Back to Back™
Dual Directional Attic Sprinkler™
BB1, BB2, BB3**



**Single Directional Attic Sprinkler™
SD1, SD2, SD3**



HIP™ Sprinkler



Use of U.L. Listed CPVC Piping

To use BlazeMaster CPVC in the attic to feed the wet system ceiling sprinklers on the floor below, there must be 6" of insulation covering the pipe extending 12" on each side away from the centerline of the pipe and the area above the CPVC must be protected by Attic Sprinklers™ (see figure 9). If the pipe is located inside the ceiling joist, the joist channel must be covered or filled with 6" of non-combustible insulation on top of the pipe and the area above must be protected by Attic Sprinklers™ (see figure 10).



Specific Application Guidelines

Area of Use:

Roof structures, **combustible and non-combustible** including wood joist and wood trussed attics **with** a ceiling below.

Hazard: Light hazard.

Maximum Roof Span:

60 feet for BB model sprinklers and 40 feet for SD model sprinklers and 28 feet for HIP™ sprinklers (see figures 1, 2 & 12). See table on page 4 for minimum sprinkler flows and pressures. Roof span may be up to 80'-0" by using additional standard spray sprinklers (see figure 13 & 14).

Minimum Distance Between Attic Sprinklers™:

4 feet as measured along branch line for BB^{17/32}", BB or SD (see fig. 3).
3 feet as measured along branch line for HIP (see figure 11).

Maximum Distance Between Attic Sprinklers™: 6 feet on center along the branch line (see figure 3).

Minimum Distance Between Standard and Attic Sprinklers™:

6 feet as measured along the peak/ridge direction (see figure 4) and 26 feet in the slope direction for BB^{17/32}", BB and HIP versions (see figure 6).

Deflector Installation Position Below Peak/Ridge:

22" maximum, 16" minimum (see figure 5).

Minimum Distance Away From Trusses:

Attic Sprinklers™ must be installed 6" away from the face of trusses (see figure 7).

Maximum Distance From the Center Line of Ridge: 6" (see figure 8).

Maximum Distance For HIP™ Sprinklers From the Center Line of the Hip: 6" (see figure 8).

Use of U.L. Listed CPVC Piping:

To use BlazeMaster CPVC in the attic to feed the wet system ceiling sprinklers on the floor below, there must be 6" of insulation covering the pipe extending 12" on each side away from the centerline of the pipe and the area above the CPVC must be protected by Attic Sprinklers™ (see figure 9). If the pipe is located inside the ceiling joist, the joist channel must be covered or filled with 6" of non-combustible insulation on top of the pipe and the area above must be protected by Attic Sprinklers™ (see figure 10). Insulation is for fire protection purposes. It is not freeze protection. BlazeMaster™ CPVC must be installed in accordance with the BlazeMaster™ installation guide instructions with respect to heat sources.

System Type: Wet or Dry

Sprinkler Data: K-Factor, Orifice, Thread Size and Temperature see chart on page 1.

Hydraulic Requirements:

For hydraulic requirements see page 11.

To Determine the Correct Flow and Pressure: Determine the model span (measured flat) and the slope of the roof. Use this information with the chart on page 4. There is no interpolation of the flow and pressure shown. Round all cases to the next higher spacing. For example, a 45'-0" span with the BB^{17/32}" would be calculated at the 60'-0" span.

Obstructions:

See page 7 for guidelines.

Maximum Coverage Area: 400 square feet.

Spacing for Back to Back Attic Sprinklers™ is determined by twice the distance of the furthest throw measured along the slope, multiplied by the distance along the branchline (maximum distance along branch line is 6'-0" regardless of the length of the throw). **Note: The distance along the branchline may have to be reduced to less than the maximum of 6'-0" to remain under 400 sq. ft. maximum depending on the slope and the span. In no case can the span exceed 60'-0" without additional standard spray sprinklers.**

Spacing for the Single Directional™ Attic Sprinklers is the distance along the branchline multiplied by the distance of the throw down the slope. Regardless of the throw, the maximum distance along the branchline is 6'-0" the maximum throw, measured horizontally is 40'-0", and the maximum spacing per sprinkler is 400 square feet.

Spacing for the Hip™ sprinkler is the distance down the larger slope multiplied by two multiplied by the distance between the sprinklers as measured along the slope of the hip.

Attic Sprinkler™ Design Data

Sprinkler	Roof Span* (ft)**	Flow (gpm)	Pressure (psi)	K-Factor	Pitch
BB1- ¹⁷ / ₃₂	60 (or less)	38	23.7	7.8	4:12 to less than 7:12
BB2- ¹⁷ / ₃₂	60 (or less)	38	23.7	7.8	7:12 to less than 10:12
BB3- ¹⁷ / ₃₂	60 (or less)	40	26.3	7.8	10:12 to 12:12
BB1	60 (to more than 40)	38	46.0	5.6	4:12 to less than 7:12
BB2	60 (to more than 40)	38	46.0	5.6	7:12 to less than 10:12
BB3	60 (to more than 40)	38	46.0	5.6	10:12 to 12:12
BB1	40 (or less)	25	20.0	5.6	4:12 to less than 7:12
BB2	40 (or less)	25	20.0	5.6	7:12 to less than 10:12
BB3	40 (or less)	25	20.0	5.6	10:12 to 12:12
SD1	40 (to more than 30)	35	39.0	5.6	4:12 to less than 7:12
SD2	40 (to more than 30)	35	39.0	5.6	7:12 to less than 10:12
SD3	40 (to more than 30)	35	39.0	5.6	10:12 to 12:12
SD1	30 (to more than 10)	25	20.0	5.6	4:12 to less than 7:12
SD2	30 (to more than 10)	25	20.0	5.6	7:12 to less than 10:12
SD3	30 (to more than 10)	25	20.0	5.6	10:12 to 12:12
SD1	10 (or less)	19	11.5	5.6	4:12 to less than 7:12
SD2	10 (or less)	19	11.5	5.6	7:12 to less than 10:12
SD3	10 (or less)	19	11.5	5.6	10:12 to 12:12
HIP	**28 (to more than 20)	34	36.9	5.6	4:12 to less than 12:12
HIP	**20 (or less)	25	20.0	5.6	4:12 to 12:12

* This is the span as measured horizontal, not along the slope as shown in figure 1.

** The HIP sprinkler spacing is measured as shown in figure 12.

*** For BB and HIP sprinklers in attics greater than 60' and equal or less than 80' see Figures 13 & 14.

Figure 1

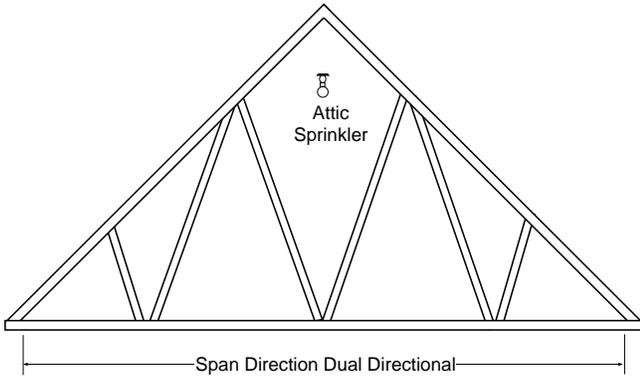


Figure 2

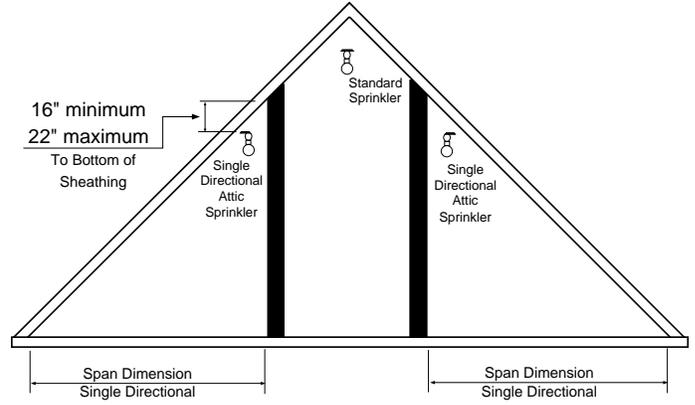


Figure 3

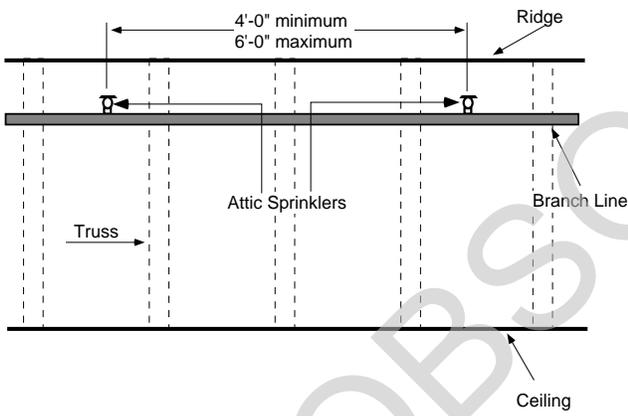


Figure 4

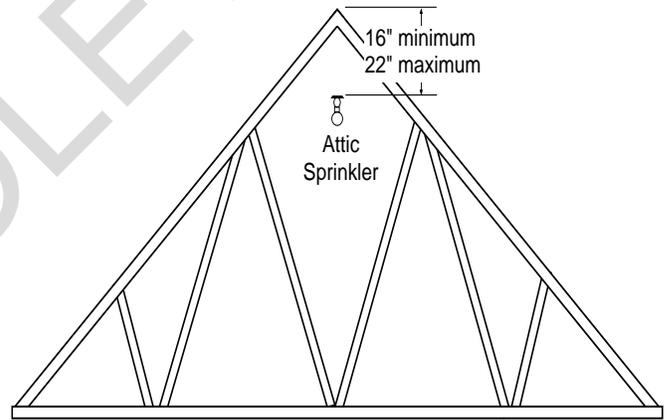


Figure 5

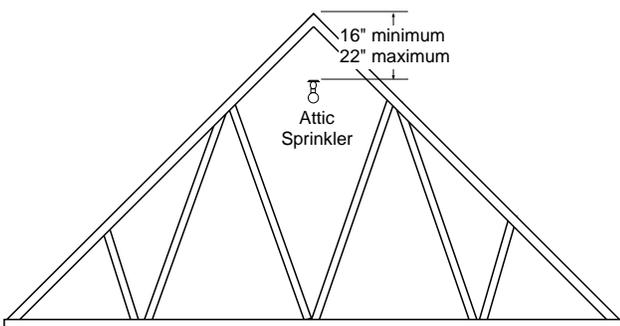


Figure 6

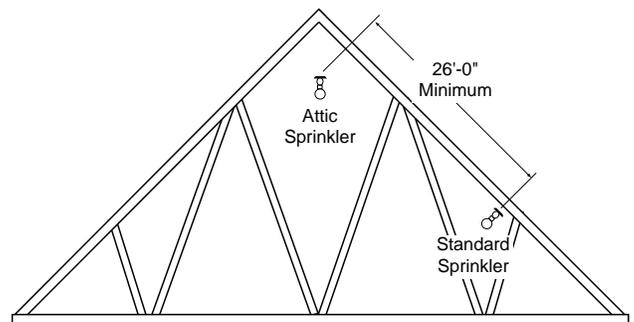


Figure 7

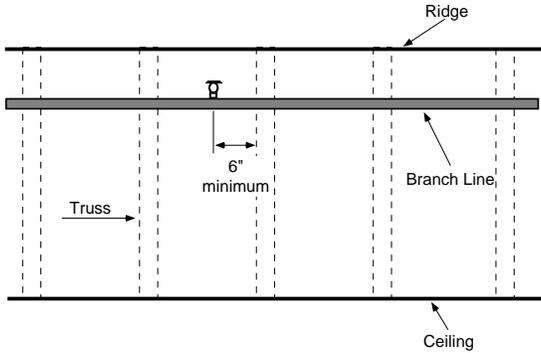


Figure 8

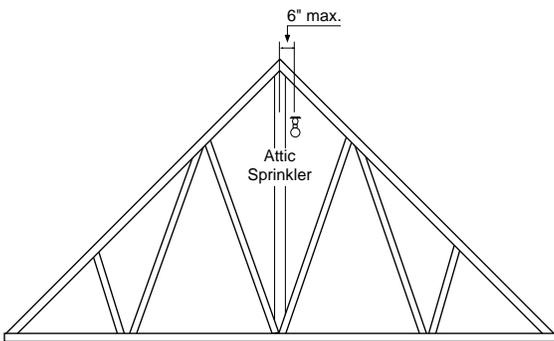
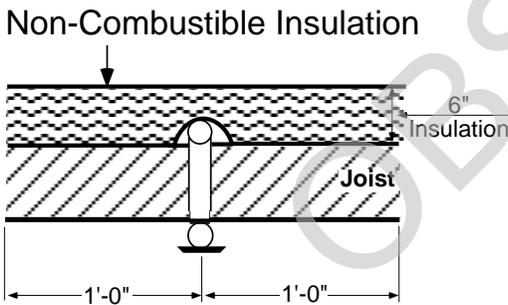
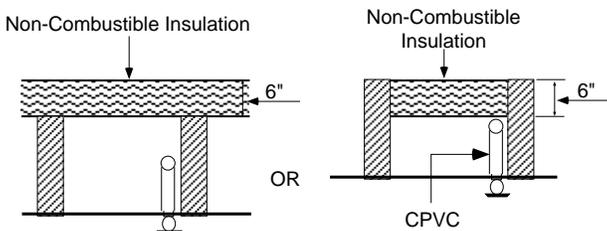


Figure 9



Insulation of piping is for fire protection, not freeze protection.

Figure 10



Design Guidelines

To design a project with attic sprinklers use these steps as a guideline:

- Determine if single, dual directional or hip sprinkler is needed.
- Determine the roof slope is between 4:12 to 12:12. If more than one slope is being used on a project, select the correct sprinkler for each area.
- Follow the guidelines for each type of sprinkler as follows:

For Back to Back™ (dual directional)

- Determine the throw needed (see spacing requirements on page 3). If over 20'-0" up to 60'-0" is required, use the 17/32" orifice back to back™ dual directional to reduce the pressure required, or if pressure is not a concern, use the 1/2" to minimize over discharge.
- If less than 20'-0" is required, use the 1/2" orifice back to back™ dual directional to minimize pressure and flow requirements.
- Determine the distance along the slope. If the distance is not equal, use the longer side. Multiply the longer side by two to determine the spacing down the slope. 400 divided by this will determine the maximum spacing along the ridge. The maximum is 6'-0". For example, a 12:12 slope at the maximum span of 60 feet will produce a slope length of approximately 42.5 feet. That number multiplied by two produces a 85' throw. 400 square feet maximum divided by an 85' throw only allows a 4'-8" spacing along the ridge. Using the maximum spacing, space the sprinklers along the ridge.
- Avoid obstructions as shown on page 7. If necessary, add standard sprinklers to maintain coverage around obstructions.
- Calculate the sprinkler system in accordance with the appropriate flow and pressure information on page 3. There is no interpolation of the flows and pressures shown on the chart.

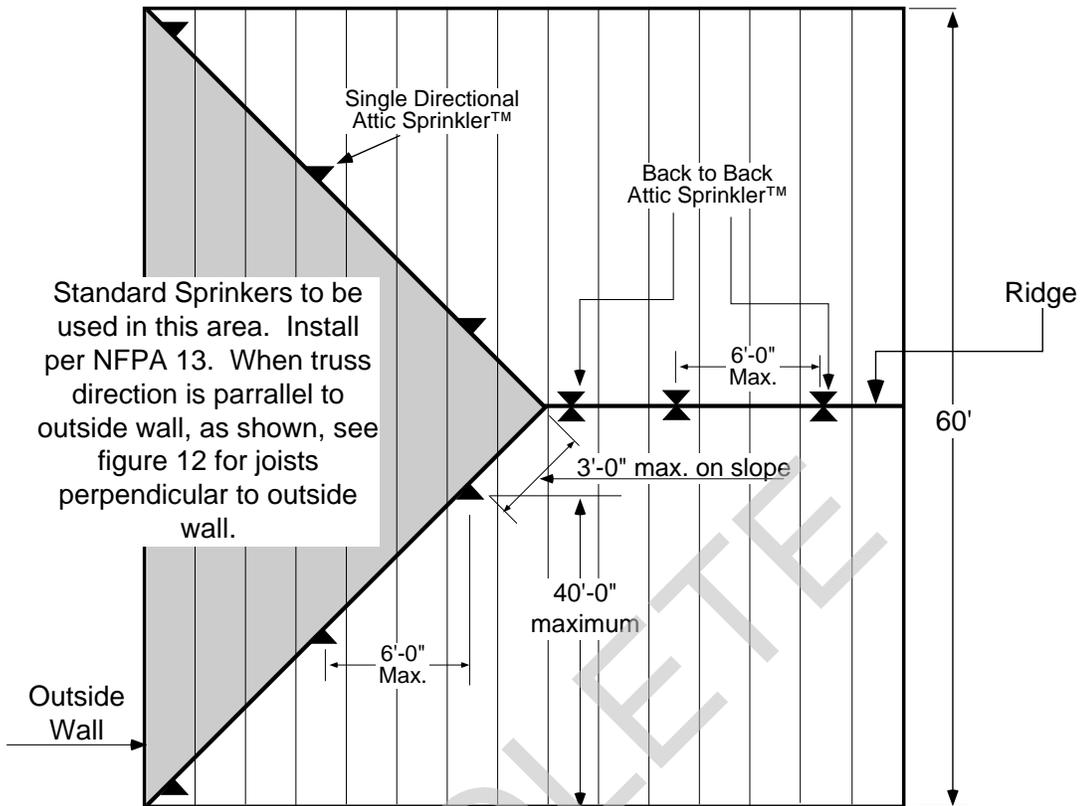
For Single Directional™

- Determine the throw needed.
- As the 400 square feet is not a factor with the Single Directional™, the maximum spacing is 6'-0" and the minimum is 4'-0" (see figures 2 & 11). (The reason 400 square feet is not an issue with the single directional™ is because at its maximum spacing, 6'-0" on center/covering 40'-0" flat/a 12:12 slope/and the throw being 56.5 feet, the 400 square foot maximum would not be exceeded.)
- Avoid obstructions as shown on page 7. If necessary, add standard sprinklers to maintain coverage around obstructions.
- Calculate the sprinkler system in accordance with the appropriate flow and pressure information on page 3. There is no interpolation of the flows and pressures shown on the chart.

For HIP™ Sprinkler (see figure 11)

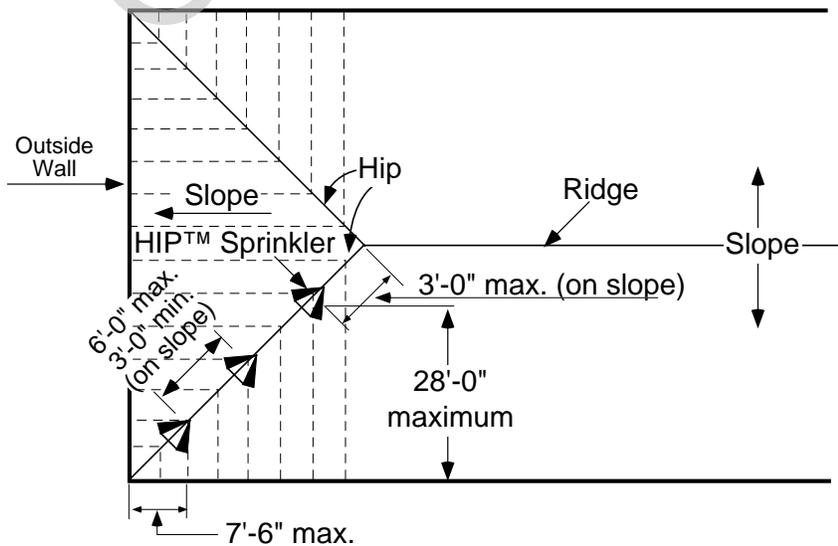
- Verify framing direction is perpendicular to outside wall (see figures 11 & 12). If not, cover that area with standard sprinklers.
- From the intersection of the top of the hip and the ridge the maximum distance down the slope of the hip is 3'-0". Start the layout with the first sprinkler as close to that point as possible, but no further, while staying 6" away from the face of the trusses. Remember the slope of the hip is not equal to the slope of the roof from the ridge to the outside wall. Continue to space sprinklers down the hip at a maximum of 6'-0" on center as measured along the slope of the hip. When the bottom of the hip is encountered, the last sprinkler must be within 7'-6" of the outside wall as measured flat (plan view). If this pipe is "cut to fit" remember to take into account the different slopes the hip and the roof as well as distances measured along the slope verses horizontal in plan view.
- Avoid obstructions as shown on page 7. If necessary, add standard sprinklers to maintain coverage around obstructions.

Figure 11
HIP Installation if Framed Parallel to Outside Wall



Be sure that single directional sprinklers are installed vertical as the deflector compensates for the slope.

Figure 12
HIP Installation if Framed Perpendicular to Outside Wall



Obstructions

Obstructions to Attic Sprinklers™ differ from standard sprinklers and the following criteria shall be used.

There can be up to a 6" obstruction, measured vertically, as long as it is 36", measured vertically, below the Attic Sprinkler. If the obstruction is closer or larger, there must be a sprinkler on the other side of the obstruction. See figure A & B. This does not limit the top cord of the trusses or the depth of the rafter, but rather obstructions that run across the trusses or rafters.

Figure A

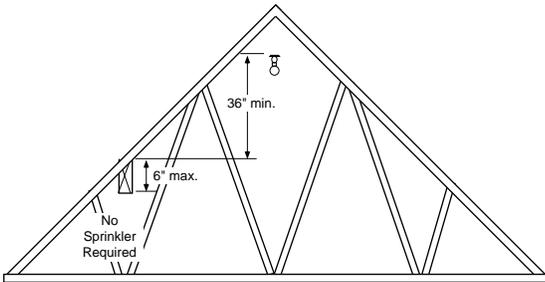
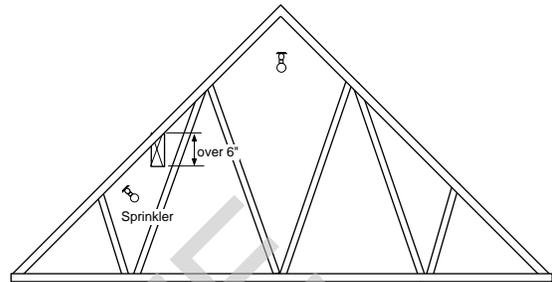


Figure B



If the obstruction is below the sprinkler, there must be 6" clearance over the top of the obstruction to allow water to pass both over and under the obstruction. The 6" is measured perpendicular to the slope from the bottom of the joist. If there is not 6" clearance, a sprinkler must be added on the opposite side of the obstruction.

Figure C

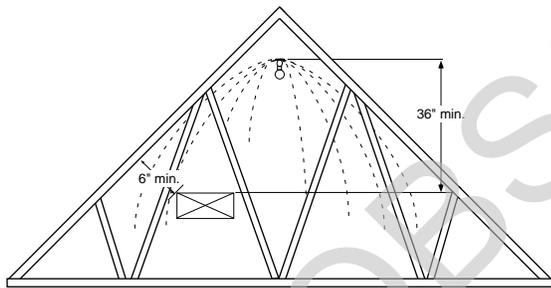


Figure D

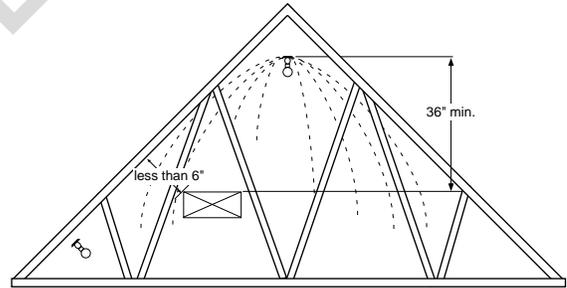


Figure E

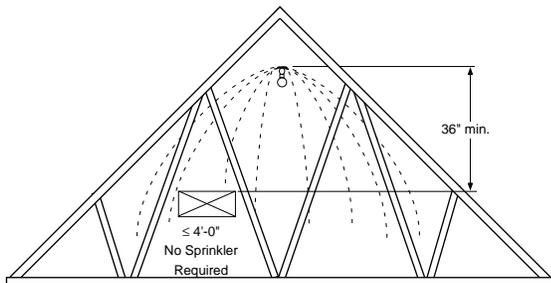
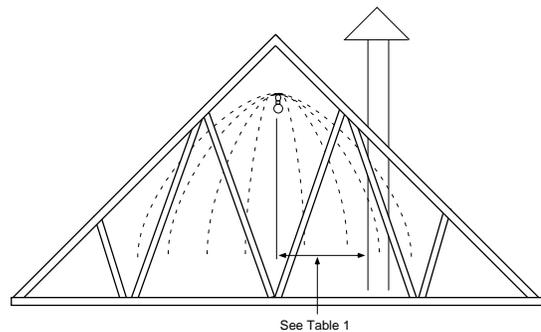


Figure F



Ducts, as per NFPA 13, require a sprinkler under them if they are over 4'-0" wide. If they are not, then no sprinkler underneath is required.

For Vertical Obstruction, See Table 1 on Page 9. The maximum dimension of the obstruction is the width of the obstruction and the horizontal distance away from the obstruction is measured flat.

Table 1* — Spacing for Vertical Obstructions

Maximum Dimension of Obstruction	Minimum Horizontal Distance to Obstruction
1/2"-1"	6"
>1"-4"	12"
>4"-8"	24"
>8"-10"	5'
>10"-20"	10'
>20"-30"	15'
>30"-40"	20'
>40"-48"	25'
>48"	sprinkler required beyond

* When minimum horizontal distance is less than Table 1, an additional sprinkler is required beyond the obstruction.

Figure 13
BB™ and HIP™ Sprinklers for Attics Greater Than 60' and Equal or Less Than 80'

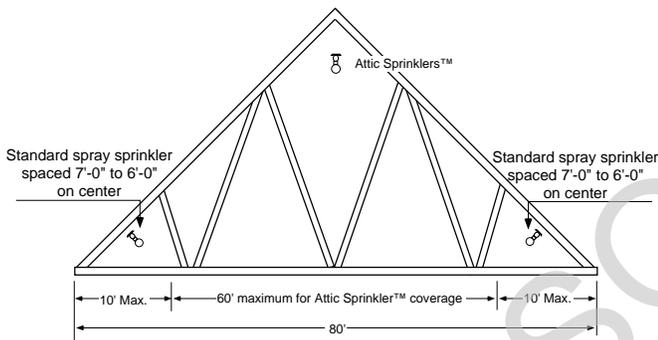


Figure 14

If the attic has noncombustible insulation on the ceiling below the attic sprinklers, the area of coverage is measured from the top of the insulation.

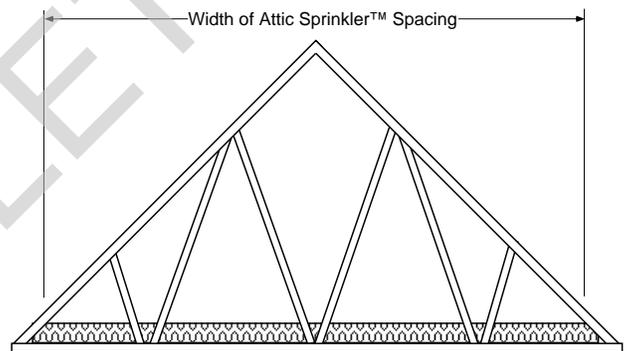
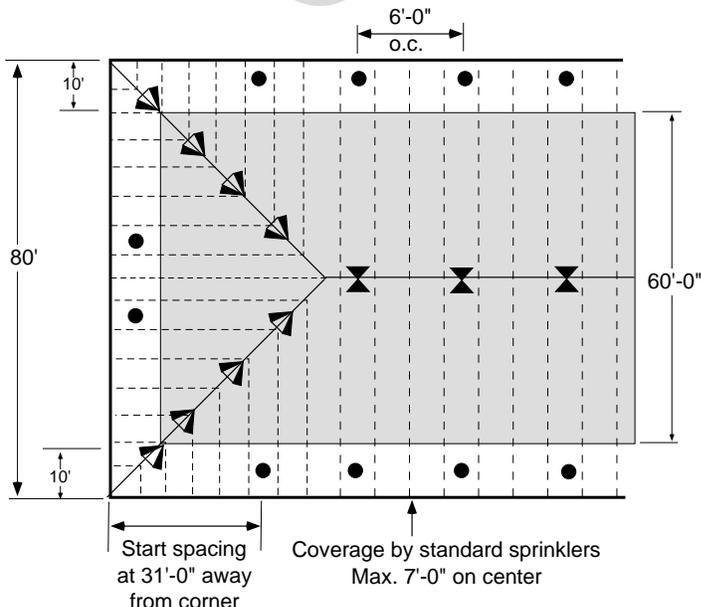


Figure 15 — BB™ and HIP™ Sprinklers Plan View Perimeter Protection

Plan View Perimeter Protection



Attic sprinklers in buildings over 60'-0" up to 80'-0" wide

Attic sprinklers in conjunction with standard sprinklers can be used to protect attics over 60'-0" up to 80'-0" wide. Attics over 80'-0" wide must use standard sprinklers throughout as attic sprinklers have not completed testing in this scenario. To use attic sprinklers in these attics, space attic sprinklers to protect the center portion of the building, add standard sprinklers around the perimeter at a maximum of 7'-0" and a minimum of 6'-0" on center. The HIP™ sprinklers can continue down the hip. Start spacing standard sprinklers 31'-0" away from the corner.

(continued from page 1)

can be concentrated in the throw direction to obtain a pattern that will cover up to 30'-0" each side when measured horizontally. The three different styles account for different roof slopes and the two different orifice sizes allow lower flows and pressures for smaller spacing. The Back to Back™ requires only one line to be run down the ridge of the attic to cover both sides. Be sure that it is installed vertically, not angled with the slope, and the correct model is used to compensate for the slope.

The Single Directional™

The Single Directional™ is much like a conventional vertical sidewall. However, the pattern is a narrow, long throw like the Back to Back™. The Single Directional™ is basically half a Back to Back Attic Sprinkler™. The use is primarily for attics that have shear walls running to the roof sheathing. These situations require a pattern in only one direction. Another use is when the framing direction is parallel with the outside wall in the hip area (see figure 11). In this case, the Single Directional™ would be used on one side of the slope and standard sprinklers would be used to protect the other side. Be sure that it is installed vertically, not angled with the slope, and the correct model is used to compensate for the slope.

The HIP™ Sprinkler

The HIP™ Sprinkler covers the area of the hip in the attic. This is a slightly different concept than the Back to Back™ or Single Directional™. The HIP™ Sprinkler is located along the slope down the hip, and throws a 90° pattern toward the outside eaves. This allows the water to "corner" the fire and control it even at far distances. It does not throw much water directly up or down the hip but rather it throws most of the pattern out to each side (90°) down the slope of the roof and therefore can be spaced 6'-0" to 3'-0" on center down the slope without the danger of cold solder. To use the

HIP™ Sprinkler, the framing must be perpendicular to the outside wall (see figure 12) and the maximum throw cannot be over 28'-0" measured flat. It, unlike the Back to Back™ and Single Directional™, is run with the deflector parallel with the slope and there is only one model with flows and pressures for two different spacings.

Operation: The Attic Sprinklers™ employ either a glass bulb or link activating mechanism. The glass bulb capsule mechanism contains a heat-sensitive liquid that expands upon application of heat. At the rated temperature, the frangible capsule ruptures, thereby releasing the orifice seal. The link version has a thermal element which heat fuses, resulting in a rapid expulsion of both the activating mechanism and the sealing cap. The sprinklers will then discharge water in a pre-designed spray pattern to control or extinguish the fire.



Installation

All Central Attic Sprinklers™ must be installed according to these guidelines and 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 position.

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

Step 3. Hand tighten the sprinkler into the fitting. Use a Central ELO Sprinkler Wrench, to tighten the unit into the fitting. A leak-tight joint requires only 7 to 14 ft.-lbs. of torque; a tangential force of 14 to 28 lbs. delivered through a 6" handle will deliver adequate torque. Torque levels over 21 ft.-lbs. may distort the orifice seal, resulting in leakage.

All Attic Sprinklers™ shall be oriented so the frame arms are parallel with the branch line pipe.

The HIP, BB1-¹⁷/₃₂, BB2-¹⁷/₃₂ and BB3-¹⁷/₃₂, all use the combination wrench (part #1106). The BB1, BB2, BB3, SD1, SD2, and SD3 use an open end adjustable wrench.

For all models except hip, install in the upright position with the frame arms vertical. The deflector takes into account the slope. The hip sprinkler is installed with the deflector parallel with the slope of the hip.

*Teflon is a trademark of the DuPont Corp.

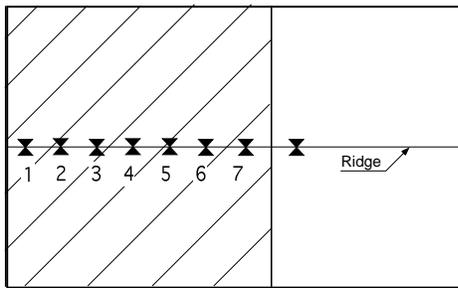
Hydraulic Calculations

Attic sprinklers must be calculated in conformance with these guidelines. In all cases, the design area shall include the most hydraulic demanding sprinklers. More than one set of calculations may be required to prove different situations.

1. Attics Protected Entirely with Back to Back Attic Sprinklers - For wet systems, calculate the most demanding 5 sprinklers. For dry systems, calculated the most demanding 7 sprinklers (see Fig. 16).
2. Attics Protected Entirely with a Mixture of Back to Back and HIP Attic Sprinklers - For wet systems, calculate the most demanding 5 sprinklers. For dry systems, calculate the most demanding 9 sprinklers with a maximum of 7 to be back to back sprinklers (see Fig. 17).

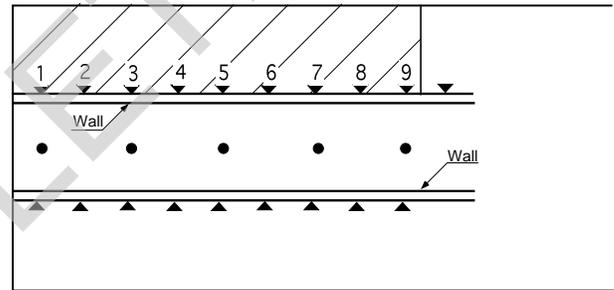
3. Attics Protected with Single Directional Attic Sprinklers - For wet systems, calculate the most demanding 5 sprinklers. For dry systems, calculate the most demanding 9 single directional attic sprinklers or standard sprinklers, whichever is more demanding (see Fig. 18).
4. Attics Having HIP Roofs with the HIP Joists Parallel to Outside Wall - The design area requirements of NFPA 13 shall apply to all sprinkler types (see Fig. 11).
5. Attics having a Width Greater than 60 ft., but in no Case Greater than 80 ft. - For attics having HIP roofs with joists parallel to outside wall, the requirements in Item 4 above apply. For other attics, the requirements in Items 1 or 2 above shall be used plus two additional standard type sprinklers installed along the eave included in the calculation (see Fig. 19).

Figure 16
Back to Back Calculation Example
(Dry System Shown)



Example: Calculate the 7 most demanding back to back sprinklers along the ridge.

Figure 18
Single Directional Example
(Dry System Shown)



Example: Calculate the 9 most demanding single directional attic sprinklers.

Figure 17
Mixed Attic Sprinkler Example
(Dry System Shown)

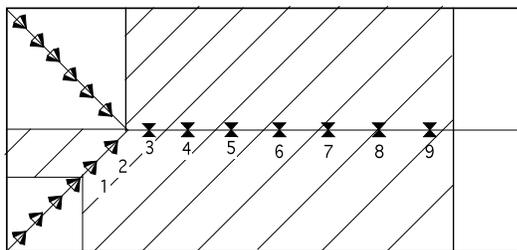
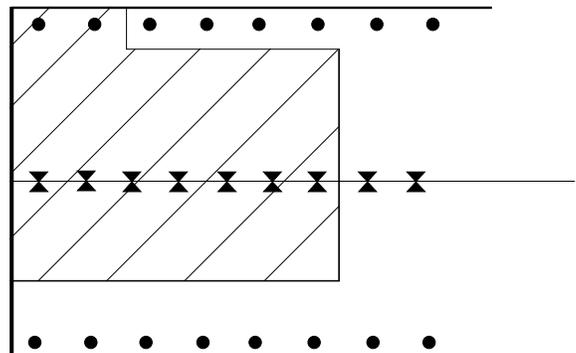


Figure 19
Attics Greater Than 60 Ft.
(Dry System Shown)



Example: When mixing back to back and standard sprinklers at the eave, calculate the 7 most demanding back to back sprinklers for dry systems or 5 most demanding for wet systems, plus the most demanding 2 additional standard sprinklers at the eave.



Care & Maintenance

Sprinklers must be handled carefully. They should not be transported or stored where ambient temperature may exceed 150°F/65.5°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. 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.

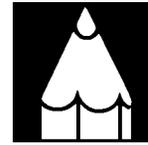
Do not attempt to replace sprinklers without first removing the fire protection system from service. Be certain to secure permission from all *Authorities Having Jurisdiction*, and notify all personnel who may be affected during system shutdown. A fire watch during maintenance periods is a recommended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

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.

OPTIMA™ is a registered trademark of Central Sprinkler Company.



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