Features

- Coverage for DD80 spans up to 70 ft (21 m) with one row of sprinklers
- Coverage for DD80 spans up to 100 ft (30.5 m) with three rows of sprinklers
- All models use a 212°F (100°C) temperature rated fusible-link operating element
- 150 square foot per sprinkler protection using GP56 and AH Series sprinklers

Product Description

Reliable Attic Sprinklers are cULus Listed Specific Application sprinklers. The sprinklers are available for protection of combustible and non-combustible light hazard concealed spaces with roof/ceiling slopes of 4:12 to 8:12. Reliable Attic Sprinklers are upright sprinklers listed for use on wet-pipe or dry-pipe sprinkler systems. All Reliable Attic sprinklers use a 212°F (100°C) temperature rated fusible-link operating element that is Listed for installation where the maximum ceiling temperature is up to 150°F (66°C). Table A provides a summary of available Reliable Attic sprinklers.

Application

Reliable Attic Sprinklers are listed for installation in accordance with this bulletin and NFPA 13, “Standard for the Installation of Fire Sprinklers.” The sprinklers are classified as Special Sprinklers by NFPA 13, and are intended for installation within combustible or noncombustible roof structures, including those with wooden trusses. Coverage area, spacing requirements, and design flow and pressure for each sprinkler are provided in tables B-I on the individual sprinkler data sheets in this bulletin. Example sprinkler layouts and hydraulic design criteria are provided in Figures 9 through 25. Please note that the example sprinkler layouts are intended as design aids only, and do not necessarily reflect all possible construction methods. In some cases, a combination of layouts may be required. The Authority Having Jurisdiction should be consulted for situations that are not specifically addressed within this bulletin.

Special Note Regarding Insulation

Noncombustible insulation, properly secured with wire netting to prevent sagging onto sprinklers may be used at the roof deck. Attic sprinklers have not been evaluated and are not listed for use with spray foam insulation.  

Attic Sprinkler Summary

<table>
<thead>
<tr>
<th>Sprinkler Model</th>
<th>K-Factor (gpm/psi(^{1/2}))</th>
<th>Thread Size NPT or ISO7-1</th>
<th>Max. Coverage Area (Measured on Floor) ft x ft (m x m)</th>
<th>Roof Slope</th>
<th>Design Criteria</th>
<th>Sprinkler Identification Number (SIN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DD56-6</td>
<td>5.6 (80)</td>
<td>½</td>
<td>6 x 40 (1.8 x 12)</td>
<td>4:12 to &lt;6:12</td>
<td>Table B</td>
<td>RA5624</td>
</tr>
<tr>
<td>DD56-27</td>
<td>5.6 (80)</td>
<td>½</td>
<td>6 x 40 (1.8 x 12)</td>
<td>6:12 to 8:12</td>
<td>Table C</td>
<td>RA5694</td>
</tr>
<tr>
<td>DD80-6</td>
<td>8.0 (115)</td>
<td>¾</td>
<td>6 x 66 or 5 x 70 (1.8 x 20 or 1.5 x 21)</td>
<td>4:12 to &lt;6:12</td>
<td>Table D</td>
<td>RA5622</td>
</tr>
<tr>
<td>DD80-27</td>
<td>8.0 (115)</td>
<td>¾</td>
<td>6 x 66 or 5 x 70 (1.8 x 20 or 1.5 x 21)</td>
<td>6:12 to 8:12</td>
<td>Table E</td>
<td>RA5692</td>
</tr>
<tr>
<td>DS56</td>
<td>5.6 (80)</td>
<td>½</td>
<td>6 x 40 (1.8 x 12)</td>
<td>4:12 to 8:12</td>
<td>Table F</td>
<td>RA5625</td>
</tr>
<tr>
<td>GP56</td>
<td>5.6 (80)</td>
<td>½</td>
<td>10 x 15 (3.0 x 4.6)</td>
<td>4:12 to 8:12</td>
<td>Table G</td>
<td>RA5695</td>
</tr>
<tr>
<td>AH42</td>
<td>4.2 (60)</td>
<td>½</td>
<td>10 x 15 (3.0 x 4.6)</td>
<td>4:12 to 8:12</td>
<td>Table H</td>
<td>RA5623</td>
</tr>
<tr>
<td>AH56</td>
<td>5.6 (80)</td>
<td>½</td>
<td>10 x 15 (3.0 x 4.6)</td>
<td>4:12 to 8:12</td>
<td>Table I</td>
<td>RA5626</td>
</tr>
</tbody>
</table>
**Model DD56-6 Specific Application Sprinkler**

**Technical Specifications**
- **Style:** Upright
- **Orientation:** Deflector horizontal
- **Threads:** 1/2" NPT or ISO 7-1R1/2
- **Nominal K-Factor:** 5.6 (80 metric)
- **Max. Working Pressure:** 175 psi (12 bar)
- **Sprinkler Temperature Rating:** 212°F (100°C)
- **Sensitivity:** Quick-response

**Hydraulic Design Criteria**
(See Table B and Figures 9 - 29)

**Finish**
Brass

**Sprinkler Wrench**
Model W2

**Listings and Approvals**
cULus Listed

**Hazard Classification**
Light Hazard

**System Types**
- Wet-pipe with steel or Listed CPVC pipe
- Dry-pipe with steel pipe

---

**Installation Criteria**

**Sprinkler Spacing**
- Minimum 4 ft (1.2 m), maximum 6 ft (1.8 m) between sprinklers along ridge
- Minimum 26 ft (7.9 m) down the roof slope toward eave to nearest sprinkler, measured parallel to the roof deck

**Horizontal Distance from Face of Truss**
- Min: 6 inches (150 mm)

**Vertical Distance of Deflector Above Scissor Truss**
- Min: 18 inches (450 mm)

**Horizontal Distance from Center-line of Ridge**
- Max: 6 inches (150 mm)

**Vertical Distance of Top of Deflector Below Peak, Ridge, or Deck**
- Min: 17 inches (430 mm)
- Max: 21 inches (530 mm)

---

**Model DD56-6 Sprinkler Components and Dimensions**

**Material Specifications**
- **Thermal Sensor:** Nickel Alloy Solder Link
- **Levers:** Stainless Steel
- **Sprinkler Frame:** Brass Alloy
- **Button:** Copper Alloy
- **Button Clip:** Stainless Steel
- **Sealing Assembly:** Nickel Alloy with PTFE
- **Load Screw:** Nickel Alloy with PTFE
- **Deflector:** Bronze Alloy

---

**Model DD56-6 Minimum Required Flow and Residual Pressure**

<table>
<thead>
<tr>
<th>Ceiling Slope</th>
<th>Max. Coverage Area ft x ft (m x m)</th>
<th>Flow gpm (/l/min)</th>
<th>Pressure psi (bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:12 to less than 6:12</td>
<td>6 x 40&quot; (1.8 x 12)</td>
<td>25 (95)</td>
<td>19.9 (1.37)</td>
</tr>
</tbody>
</table>

* Long dimension of coverage area to be along the roof slope parallel to trusses. Length of coverage area is split equally to each side of the sprinkler at the ridge. Coverage area is measured parallel to the floor.
Model DD56-27 Specific Application Sprinkler

Technical Specifications
- **Style:** Upright
- **Orientation:** Deflector horizontal
- **Threads:** 1/2” NPT or ISO 7-1R1/2
- **Nominal K-Factor:** 5.6 (80 metric)
- **Max. Working Pressure:** 175 psi (12 bar)
- **Sprinkler Temperature Rating:** 212°F (100°C)
- **Sensitivity:** Quick-response

Hydraulic Design Criteria
(See Table C and Figures 9 - 29)

Finish
- Brass

Sprinkler Wrench
- Model W2

Listings and Approvals
- cULus Listed

Hazard Classification
- Light Hazard

System Types
- Wet-pipe with steel or Listed CPVC pipe
- Dry-pipe with steel pipe

Installation Criteria

**Sprinkler Spacing**
- Minimum 4 ft (1.2 m), maximum 6 ft (1.8m) between sprinklers along ridge
- Minimum 26 ft (7.9 m) down the roof slope toward eave to nearest sprinkler, measured parallel to the roof deck

**Horizontal Distance from Face of Truss**
- Min: 6 inches (150 mm)

**Vertical Distance of Deflector Above Scissor Truss**
- Min: 18 inches (450 mm)

**Horizontal Distance from Center-line of Ridge**
- Max: 6 inches (150 mm)

**Vertical Distance of Top of Deflector Below Peak, Ridge, or Deck**
- Min: 17 inches (430 mm)
- Max: 21 inches (530 mm)

Material Specifications
- **Thermal Sensor:** Nickel Alloy Solder Link
- **Levers:** Stainless Steel
- **Sprinkler Frame:** Brass Alloy
- **Button:** Copper Alloy
- **Button Clip:** Stainless Steel
- **Sealing Assembly:** Nickel Alloy with PTFE
- **Load Screw:** Bronze Alloy
- **Deflector:** Bronze Alloy

Model DD56-27 Minimum Required Flow and Residual Pressure

<table>
<thead>
<tr>
<th>Ceiling Slope</th>
<th>Max. Coverage Area ft x ft (m x m)</th>
<th>Flow gpm (l/min)</th>
<th>Pressure psi (bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:12 to 8:12m</td>
<td>6 x 40* (1.8 x 12)</td>
<td>25 (95)</td>
<td>19.9 (1.37)</td>
</tr>
</tbody>
</table>

* Long dimension of coverage area to be along the roof slope parallel to trusses. Length of coverage area is split equally to each side of the sprinkler at the ridge. Coverage area is measured parallel to the floor.
Model DD80-6 Specific Application Sprinkler

Technical Specifications
- **Style:** Upright
- **Orientation:** Deflector horizontal
- **Threads:** 3/4” NPT or ISO 7-1R3/4
- **Nominal K-Factor:** 8.0 (115 metric)
- **Max. Working Pressure:** 175 psi (12 bar)
- **Sprinkler Temperature Rating:** 212°F (100°C)
- **Sensitivity:** Quick-response

Hydraulic Design Criteria
(See Table D and Figures 9 - 29)

Finish
- Brass

Sprinkler Wrench
- Model W2

Listings and Approvals
- cULus Listed

Hazard Classification
- Light Hazard

System Types
- Wet-pipe with steel or Listed CPVC pipe
- Dry-pipe with steel pipe

Installation Criteria
- **Sprinkler Spacing**
  - Minimum 4 ft (1.2 m), maximum 6 ft (1.8 m) between sprinklers along ridge
  - Minimum 26 ft (7.9 m) down the roof slope toward eave to nearest sprinkler, measured parallel to the roof deck

- **Horizontal Distance from Face of Truss**
  - Min: 6 inches (150 mm)

- **Vertical Distance of Deflector Above Scissor Truss**
  - Min: 18 inches (450 mm)

- **Horizontal Distance from Center-line of Ridge**
  - Max: 6 inches (150 mm)

- **Vertical Distance of Top of Deflector Below Peak, Ridge, or Deck**
  - Min: 17 inches (430 mm)
  - Max: 21 inches (530 mm)

Material Specifications
- **Thermal Sensor:** Nickel Alloy Solder Link
- **Levers:** Stainless Steel
- **Sprinkler Frame:** Brass Alloy
- **Button:** Copper Alloy
- **Button Clip:** Stainless Steel
- **Sealing Assembly:** Nickel Alloy with PTFE
- **Load Screw:** Bronze Alloy
- **Deflector:** Bronze Alloy

Model DD80-6 Sprinkler Components and Dimensions

Model DD80-6 Minimum Required Flow and Residual Pressure

<table>
<thead>
<tr>
<th>Ceiling Slope</th>
<th>Max. Coverage Area ft x ft (m x m)</th>
<th>Flow gpm (l/min)</th>
<th>Pressure psi (bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:12 to less than 6:12</td>
<td>6 x 40*  (1.8 x 12)</td>
<td>25 (95)</td>
<td>9.8 (0.68)</td>
</tr>
<tr>
<td></td>
<td>6 x 63*  (1.8 x 19)</td>
<td>38 (144)</td>
<td>22.6 (1.56)</td>
</tr>
<tr>
<td></td>
<td>6 x 66*  (1.8 x 20)</td>
<td>40 (151)</td>
<td>25 (1.72)</td>
</tr>
<tr>
<td></td>
<td>5 x 70*  (1.5 x 21)</td>
<td>38 (144)</td>
<td>22.6 (1.56)</td>
</tr>
</tbody>
</table>

* Long dimension of coverage area to be along the roof slope parallel to trusses. Length of coverage area is split equally to each side of the sprinkler at the ridge. Coverage area is measured parallel to the floor.
**Model DD80-27 Specific Application Sprinkler**

**Technical Specifications**
- **Style:** Upright
- **Orientation:** Deflector horizontal
- **Threads:** 3/4" NPT or ISO 7-1R3/4
- **Nominal K-Factor:** 8.0 (115 metric)
- **Max. Working Pressure:** 175 psi (12 bar)
- **Sprinkler Temperature Rating:** 212°F (100°C)
- **Sensitivity:** Quick-response

**Hydraulic Design Criteria**
(See Table E and Figures 9 - 29)

**Finish**
Brass

**Sprinkler Wrench**
Model W2

**Listings and Approvals**
cULus Listed

**Hazard Classification**
Light Hazard

**System Types**
- Wet-pipe with steel or Listed CPVC pipe
- Dry-pipe with steel pipe

**Installation Criteria**

**Sprinkler Spacing**
- Minimum 4 ft (1.2 m), maximum 6 ft (1.8m) between sprinklers along ridge
- Minimum 26 ft (7.9 m) down the roof slope toward eave to nearest sprinkler, measured parallel to the roof deck

**Horizontal Distance from Face of Truss**
- Min: 6 inches (150 mm)

**Vertical Distance of Deflector Above Scissor Truss**
- Min: 18 inches (450 mm)

**Horizontal Distance from Center-line of Ridge**
- Max: 6 inches (150 mm)

**Vertical Distance of Top of Deflector Below Peak, Ridge, or Deck**
- Min: 17 inches (430 mm)
- Max: 21 inches (530 mm)

**Material Specifications**
- **Thermal Sensor:** Nickel Alloy Solder Link
- **Levers:** Stainless Steel
- **Sprinkler Frame:** Brass Alloy
- **Button:** Copper Alloy
- **Button Clip:** Stainless Steel
- **Sealing Assembly:** Nickel Alloy with PTFE
- **Load Screw:** Bronze Alloy
- **Deflector:** Bronze Alloy

**Model DD80-27 Sprinkler Components and Dimensions**

**Model DD80-27 Minimum Required Flow and Residual Pressure**

<table>
<thead>
<tr>
<th>Ceiling Slope</th>
<th>Max. Coverage Area ft x ft (m x m)</th>
<th>Flow gpm (l/min)</th>
<th>Pressure psi (bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:12 to 8:12</td>
<td>6 x 40* (1.8 x 12)</td>
<td>28 (106)</td>
<td>12.3 (0.85)</td>
</tr>
<tr>
<td></td>
<td>6 x 63* (1.8 x 19)</td>
<td>38 (144)</td>
<td>22.6 (1.56)</td>
</tr>
<tr>
<td></td>
<td>6 x 66* (1.8 x 20)</td>
<td>40 (151)</td>
<td>25 (1.72)</td>
</tr>
<tr>
<td></td>
<td>5 x 70* (1.5 x 21)</td>
<td>38 (144)</td>
<td>22.6 (1.56)</td>
</tr>
</tbody>
</table>

*Long dimension of coverage area to be along the roof slope parallel to trusses. Length of coverage area is split equally to each side of the sprinkler at the ridge. Coverage area is measured parallel to the floor.*
Model DS56 Specific Application Sprinkler

**Technical Specifications**
- **Style:** Upright
- **Orientation:** Frame arms perpendicular to roof deck
- **Threads:** 1/2" NPT or ISO 7-1R1/2
- **Nominal K-Factor:** 5.6 (80 metric)
- **Max. Working Pressure:** 175 psi (12 bar)
- **Sprinkler Temperature Rating:** 212°F (100°C)
- **Sensitivity:** Quick-response

**Hydraulic Design Criteria**
(See Table F and Figures 9 - 29)

**Finish**
- Brass

**Sprinkler Wrench**
- Model DS56

**Listings and Approvals**
- cULus Listed

**Hazard Classification**
- Light Hazard

**System Types**
- Wet-pipe with steel or Listed CPVC pipe
- Dry-pipe with steel pipe

---

**Installation Criteria**

**Sprinkler Spacing**
- Minimum 4 ft (1.2 m), maximum 6 ft (1.8m) between sprinklers along ridge
- Minimum 26 ft (7.9 m) down the roof slope toward eave to nearest sprinkler, measured parallel to the roof deck

**Horizontal Distance from Face of Truss**
- Min: 6 inches (150 mm)

**Horizontal Distance from Draft Curtain or Wall (1)**
- Min: 30 inches (762 mm)
- Max: 42 inches (1067 mm)

**Vertical Distance of Top of Deflector Above Bottom of Draft Curtain**
- Min: 8 inches (200 mm)

**Vertical Distance of Deflector Above Scissor Truss**
- Min: 18 inches (450 mm)

**Distance from Top of Deflector to Roof Deck (measured perpendicular to roof deck)**
- Min: 9 inches (230 mm)
- Max: 13 inches (330 mm)

---

**Material Specifications**
- **Thermal Sensor:** Nickel Alloy Solder Link
- **Levers:** Brass Alloy
- **Frame Body:** Brass Alloy
- **Frame Arms:** Brass Alloy
- **Yoke:** Copper Alloy
- **Sealing Assembly:** Nickel Alloy with PTFE
- **Load Screw:** Bronze Alloy
- **Deflector:** Bronze Alloy

---

Model DS56 Sprinkler Components and Dimensions

---

Model DS56 Minimum Required Flow and Residual Pressure

**Table F**

<table>
<thead>
<tr>
<th>Ceiling Slope</th>
<th>Max. Coverage Area ft x ft (m x m)</th>
<th>Flow gpm (l/min)</th>
<th>Pressure psi (bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:12 to 8:12</td>
<td>6 x 30&quot; (1.8 x 9.1)</td>
<td>23 (87)</td>
<td>16.9 (1.17)</td>
</tr>
<tr>
<td></td>
<td>6 x 40&quot; (1.8 x 12)</td>
<td>35 (132)</td>
<td>39.1 (2.70)</td>
</tr>
</tbody>
</table>

*Long dimension of coverage area to be along the roof slope parallel to trusses. Length of coverage area is in one direction from the sprinkler toward eave. Coverage area is measured parallel to the floor.
Model GP56 Specific Application Sprinkler

Technical Specifications
- **Style**: Upright
- **Orientation**: Top of deflector parallel to roof deck
- **Threads**: 1/2" NPT or ISO 7-1R1/2
- **Nominal K-Factor**: 5.6 (80 metric)
- **Max. Working Pressure**: 175 psi (12 bar)
- **Sprinkler Temperature Rating**: 212°F (100°C)
- **Sensitivity**: Quick-response

Hydraulic Design Criteria
(See Table G and Figure 9 - 29)

Finish
- Brass

Sprinkler Wrench
- Model W2

Listings and Approvals
- cULus Listed

Hazard Classification
- Light Hazard

System Types
- Wet-pipe with steel or Listed CPVC pipe
- Dry-pipe with steel pipe

Installation Criteria

Sprinkler Spacing
- Minimum 6 ft (1.8 m), maximum 10 ft (3.0 m) between sprinklers across roof slope.
- Minimum 6 ft (1.8 m) up roof slope to nearest sprinkler, minimum 10 ft (3.0 m) down slope to nearest sprinkler, measured parallel to roof deck.

Distance from Top of Deflector to Roof Deck
(measured perpendicular to roof deck)
- Min: 9 inches (230 mm)
- Max: 13 inches (330 mm)

Material Specifications
- **Thermal Sensor**: Nickel Alloy Solder Link
- **Levers**: Stainless Steel
- **Sprinkler Frame**: Brass Alloy
- **Button**: Copper Alloy
- **Button Clip**: Stainless Steel
- **Sealing Assembly**: Nickel Alloy with PTFE
- **Load Screw**: Nickel Alloy with PTFE
- **Deflector**: Bronze Alloy

Model GP56 Sprinkler Components and Dimensions

Model GP56 Minimum Required Flow and Residual Pressure

<table>
<thead>
<tr>
<th>Ceiling Slope</th>
<th>Max. Coverage Area (ft x ft)</th>
<th>Flow (gpm/l/min)</th>
<th>Pressure (psi/bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:12 to 8:12</td>
<td>10 x 15° (3.0 x 4.6)</td>
<td>17</td>
<td>9.2</td>
</tr>
</tbody>
</table>

*Long dimension of coverage area to be along the roof slope parallel to trusses. Coverage is 3 ft. (0.9m) toward the peak and 12 ft. (3.7m) toward the eave from the sprinkler. Coverage area to be measured parallel to the floor.
Model AH42 Specific Application Sprinkler

Technical Specifications

<table>
<thead>
<tr>
<th>Style</th>
<th>Upright</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation</td>
<td>Top of deflector parallel to roof deck</td>
</tr>
<tr>
<td>Threads</td>
<td>1/2&quot; NPT or ISO 7-1R1/2</td>
</tr>
<tr>
<td>Nominal K-Factor</td>
<td>4.2 (60 metric)</td>
</tr>
<tr>
<td>Max. Working Pressure</td>
<td>175 psi (12 bar)</td>
</tr>
<tr>
<td>Sprinkler Temperature Rating</td>
<td>212°F (100°C)</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>Quick-response</td>
</tr>
</tbody>
</table>

Hydraulic Design Criteria

(See Table H)

Finish

Brass

Sprinkler Wrench

Model W2

Listings and Approvals

cULus Listed\(^{(1)}\)

Hazard Classification

Light Hazard

System Types

Wet-pipe with steel or Listed CPVC pipe
Dry-pipe with steel pipe\(^{(2)}\)

Installation Criteria

Sprinkler Spacing

Minimum 5 ft (1.5 m), maximum 10 ft (3.0 m) between sprinklers across roof slope.
Minimum 12 ft (3.7 m) down slope to nearest sprinkler, measured parallel to roof deck.

Note: A minimum 2 ft (0.61 m) lateral offset is required between AH sprinklers when viewed looking up the roof slope.

Distance from Top of Deflector to Bottom of Truss Top Chord (measured perpendicular to roof deck)

Min: 1 inches (25 mm)
Max: 3 inches (76 mm)

Frame Arm Orientation

Frame arms are to be oriented parallel to the eave at the bottom of the protected space.

Finish

Brass

Sprinkler Wrench

Model W2

Material Specifications

Thermal Sensor: Nickel Alloy Solder Link
Levers: Stainless Steel
Sprinkler Frame: Brass Alloy
Button: Copper Alloy
Button Clip: Stainless Steel
Sealing Assembly: Nickel Alloy with PTFE
Load Screw: Bronze Alloy
Deflector: CHROME PLATED Bronze Alloy

Listings and Approvals

cULus Listed\(^{(1)}\)

Hazard Classification

Light Hazard

System Types

Wet-pipe with steel or Listed CPVC pipe
Dry-pipe with steel pipe\(^{(2)}\)

Note:

(1) Listed for the protection of sloped combustible and noncombustible concealed spaces, including hip roofs with traditionally framed or step down truss construction.

(2) NFPA13 requires the use of corrosion resistant or internally galvanized steel piping when using sprinklers with a K-Factor of 4.2.

Model AH42 Sprinkler Components and Dimensions

Model AH42 Minimum Required Flow and Residual Pressure

<table>
<thead>
<tr>
<th>Ceiling Slope</th>
<th>Max. Coverage Area ft x ft (m x m)</th>
<th>Flow gpm (l/min)</th>
<th>Pressure psi (bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:12 to 8:12</td>
<td>10 x 15&quot; (3.0 x 4.6)</td>
<td>15 (57)</td>
<td>12.8 (0.88)</td>
</tr>
</tbody>
</table>

*Long dimension of coverage area to be along the roof slope. Coverage is 6'-0"(1.8m) toward the peak and 9'-0"(2.7m) toward the eave from the sprinkler. Coverage area to be measured parallel to the floor.

Note: The first row of AH sprinklers may be a maximum of 9'-0" from the eave; however, the first row must always be on the eave side of the girder truss (see Figures 24 and 25).
Model AH56 Specific Application Sprinkler

Technical Specifications
- **Style:** Upright
- **Orientation:** Top of deflector parallel to roof deck
- **Threads:** 1/2" NPT or ISO 7-1R 1/2
- **Nominal K-Factor:** 5.6 (80 metric)
- **Max. Working Pressure:** 175 psi (12 bar)
- **Sprinkler Temperature Rating:** 212°F (100°C)
- **Sensitivity:** Quick-response

Hydraulic Design Criteria
(See Table I)

Finish
- Brass

Sprinkler Wrench
- Model W2

Listings and Approvals
- cULus Listed*

Hazard Classification
- Light Hazard

System Types
- Wet-pipe with steel or Listed CPVC pipe
- Dry-pipe with steel pipe

Installation Criteria

**Sprinkler Spacing**
- Minimum 6 ft (1.8 m), maximum 10 ft (3.0 m) between sprinklers across roof slope.
- Minimum 12 ft (3.7 m) down slope to nearest sprinkler, measured parallel to roof deck.

**Note:** A minimum 2 ft (0.61 m) lateral offset is required between AH sprinklers when viewed looking up the roof slope.

**Distance from Top of Deflector to Bottom of Truss Top Chord (measured perpendicular to roof deck)**
- Min: 1 inches (25 mm)
- Max: 3 inches (76 mm)

**Frame Arm Orientation**
- Frame arms are to be oriented parallel to the eave at the bottom of the protected space.

Material Specifications
- **Thermal Sensor:** Nickel Alloy Solder Link
- **Levers:** Stainless Steel
- **Sprinkler Frame:** Brass Alloy
- **Button:** Copper Alloy
- **Button Clip:** Stainless Steel
- **Sealing Assembly:** Nickel Alloy with PTFE
- **Load Screw:** Bronze Alloy
- **Deflector:** Bronze Alloy

*Note: Listed for the protection of sloped combustible and noncombustible concealed spaces, including hip roofs with traditionally framed or step down truss construction.

### Model AH56 Minimum Required Flow and Residual Pressure

<table>
<thead>
<tr>
<th>Ceiling Slope</th>
<th>Max. Coverage Area ft x ft (m x m)</th>
<th>Flow gpm (/min)</th>
<th>Pressure psi (bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:12 to 8:12</td>
<td>10 x 15’ (3.0 x 4.6)</td>
<td>15 (57)</td>
<td>7.2 (0.50)</td>
</tr>
</tbody>
</table>

*Long dimension of coverage area to be along the roof slope. Coverage is 6’-0” (1.8m) toward the peak and 9’-0” (2.7m) toward the eave from the sprinkler. Coverage area to be measured parallel to the floor.

**Note:** The first row of AH sprinklers may be a maximum of 9’-0” from the eave; however, the first row must always be on the eave side of the girder truss (see Figures 24 and 25).
Model DD Series Sprinkler – Example Layout (Not to Scale)

Figure 9

Model DS56 Sprinkler – Example Layout (Not to Scale)

Figure 10

Calculation Requirements:
- Wet System: Most demanding five (5) DD Series Sprinklers
- Dry System: Most demanding seven (7) DD Series Sprinklers

Calculation Requirements:
- Wet System: Most demanding five (5) DS56 Sprinklers
- Dry System: Most demanding nine (9) DS56 Sprinklers
Model DD Series Sprinklers at Ridge with Model DS56 Sprinklers Beyond Obstruction
Example Layout (Not to Scale)

Model DS56 Sprinklers at Ridge with Model DS56 Sprinklers Beyond Obstruction
Example Layout (Not to Scale)
Model DD Series Sprinklers at Ridge with Model GP56 or AH Series Sprinklers Beyond Obstruction

Example Layout (Not to Scale)  

Figure 13

Calculation Requirements:

Wet System—Most demanding five (5) DD Series Sprinklers and two (2) GP56 or AH Series Sprinklers
Dry System—Most demanding seven (7) DD Series Sprinklers and two (2) GP56 or AH Series Sprinklers

---

Model DS56 Sprinklers at Ridge with Model GP56 or AH Series Sprinklers Beyond Obstruction

Example Layout (Not to Scale)  

Figure 14

Calculation Requirements:

Wet System—Most demanding five (5) DS56 Sprinklers and two (2) GP56 or AH Series Sprinklers
Dry System—Most demanding seven (7) DS56 Sprinklers and two (2) GP56 or AH Series Sprinklers
Model DD Series Sprinklers at Ridge with Model GP56 or AH Series Sprinklers in Dormers
Example Layout (Not to Scale)

Calculation Requirements Where Attic and Dormer Spaces are NOT Separated:

Wet System-Most demanding five (5) ridge sprinklers and two (2) GP56 sprinklers when there are four (4) sprinkler or less in dormer. When more than four (4) GP56 sprinklers in dormer, separately calculate (a) five (5) ridge sprinklers and (b) all Model GP56 sprinklers in dormer (up to a maximum 1500 square foot area) and use the greater of the two demands.

Dry System-Most demanding seven (7) ridge sprinklers and two (2) GP56 sprinklers when there are four (4) sprinkler or less in dormer. When more than four (4) GP56 sprinklers in dormer separately calculate (a) seven (7) ridge sprinklers and (b) all Model GP56 sprinklers in dormer (up to a maximum 1500 square foot area), and use the greater of the two demands.

*Note: Where attic and dormer spaces are separate, compartmentalized areas, the combined ridge sprinkler and dormer sprinkler calculation is not required.
Calculation Requirements When Attic and Dormer Spaces are NOT Separated:

Wet System—Most demanding five (5) ridge sprinklers and two (2) standard spray sprinklers when there are four (4) sprinklers or less in dormer. When more than four (4) sprinklers in dormer, separately calculate the most demanding remote area, including all sprinkler types, per NFPA 13, and use the greater of the two demands. 30% remote area increase for elapsed ceiling is required, and remote area reduction for use of quick response standard spray sprinklers may be applicable.

Dry System—Most demanding seven (7) ridge sprinklers and two (2) standard spray sprinklers when there are four (4) sprinklers or less in dormer. When more than four (4) sprinklers in dormer, separately calculate the most demanding remote area, including all sprinkler types, per NFPA 13, and use the greater of the two demands. 30% remote area increase for elapsed ceiling and 35% remote area increase for dry system is required.

*Note: Where spaces are separate, compartmentalized areas, calculate the ridge sprinklers per figures 9 or 10, and the dormers per NFPA 13, and use the greater of the two demands.
Model DD Series Sprinklers at Ridge with Model DD Series Sprinklers in Dormers

Example Layout (Not to Scale) Figure 17

Note: if necessary, a baffle may be added between the Model DD sprinklers and the Model GP56 sprinklers to prevent cold solder.

Model DD Series Sprinklers at Ridge with Model GP56 or AH Series Sprinklers at Eave

Example Layout (Not to Scale) Figure 18

Note: if necessary, a baffle may be added between the Model DD sprinklers and the Model GP56 sprinklers to prevent cold solder.

*Note: Where attic and dormer spaces are separate, compartmentalized areas, refer to Figures 7 or 6.
Model DS56 Sprinklers at Ridge with Model GP56 or AH Series Sprinklers at Eave

Example Layout (Not to Scale) Figure 19

Note: if necessary, a baffle may be added between the Model DS sprinklers and the Model GP56 or AH Series sprinklers to prevent cold solder.

Model DD Series Sprinklers at Ridge with DS56 Sprinklers at Hip or Ell

Example Layout (Not to Scale) Figure 20

Calculation Requirements:
- Wet System: Most demanding five (5) DS56 Sprinklers and two (2) GP56 or AH Series Sprinklers
- Dry System: Most demanding seven (7) DS56 Sprinklers and two (2) GP56 or AH Series Sprinklers

Calculation Requirements:
- Wet System: Most demanding five (5) Model DD Series and/or DS56 sprinklers
- Dry System: Most demanding nine (9) Model DD Series and/or DS56 sprinklers, of which only a maximum of seven (7) must be Model DD Series (ridge) sprinklers
Model DS56 Sprinklers at Ridge with DS56 Sprinklers at Hip or Ell
Example Layout (Not to Scale)

Calculation Requirements:
Wet System: Most demanding five (5) Model DS56 sprinklers
Dry System: Most demanding nine (9) Model DS56 sprinklers

Model DD Series Sprinklers at Ridge with Standard Spray Sprinklers at Hip or Ell
Example Layout (Not to Scale)

Calculation Requirements When Attic and Hip or Ell Spaces are NOT Separated:
Wet System: Most demanding five (5) ridge sprinklers and two (2) standard spray sprinklers when there are four (4) sprinklers or less in the hip or ell. When more than four (4) sprinklers in hip or ell, separately calculate the most demanding remote area, including all sprinkler types, per NFPA 13, and use the greater of the two demands. 30% remote area increase for sloped ceiling is required, and remote area reduction for use of quick response standard spray sprinklers may be applicable.

Dry System: Most demanding seven (7) ridge sprinklers and two (2) standard spray sprinklers when there are four (4) sprinklers or less in the hip or ell. When more than four (4) sprinklers in hip or ell, separately calculate the most demanding remote area, including all sprinkler types, per NFPA 13, and use the greater of the two demands. 30% remote area increase for sloped ceiling and 30% remote area increase for dry system is required.
Calculation Requirements When Attic and Hip or Ell Spaces are NOT Separated:

Wet System—Most demanding five (5) ridge sprinklers and two (2) standard spray sprinklers when there are four (4) sprinklers or less in the hip or ell. When more than four (4) sprinklers in hip or ell, separately calculate the most demanding remote area, including all sprinkler types, per NFPA 13, and use the greater of the two demands. 30% remote area increase for sloped ceiling is required, and remote area reduction for use of quick response standard spray sprinklers may be applicable.

Dry System—Most demanding seven (7) ridge sprinklers and two (2) standard spray sprinklers when there are four (4) sprinklers or less in the hip or ell. When more than four (4) sprinklers in hip or ell, separately calculate the most demanding remote area, including all sprinkler types, per NFPA 13, and use the greater of the two demands. 30% remote area increase for sloped ceiling is required, and remote area reduction for use of quick response standard spray sprinklers may be applicable.
Model DD Series Sprinklers at Ridge and Model AH Sprinklers at Hip and Eave

Example Layout (Not to Scale) Figure 24

Note: Minimum 2'-0" lateral offset required between sprinklers when viewed up the roof slope.

Note: First row of AH sprinklers may be a maximum of 3'-0" from eave; however, must be on eave side of glider truss.

Calculation Requirements:

Wet System—Most demanding five (5) Model DD Series ridge sprinklers and two (2) AH sprinklers when there are four (4) AH sprinklers or less. When more than four (4) AH sprinklers, separately calculate (a) five (5) Model DD Series ridge sprinklers and two (2) AH sprinklers, and (b) all AH sprinklers (up to a maximum 1500 square foot area) and use the greater of the two demands.

Dry System—Most demanding seven (7) Model DD Series ridge sprinklers and two (2) AH sprinklers when there are four (4) AH sprinklers or less. When more than four (4) AH sprinklers, separately calculate (a) seven (7) Model DD Series ridge sprinklers and two (2) AH sprinklers, and (b) all AH sprinklers (up to a maximum 1500 square foot area) and use the greater of the two demands.

Note A: A single quick-response standard spray upright sprinkler installed in accordance with NFPA 13 may be used for the protection of small areas outside the coverage areas of the specific application attic sprinklers. Demand for the single sprinkler shall be added to the calculations listed above if it falls within the 1500 sf wet system or 1950 sf dry system design area. CPVC piping on wet pipe systems is permitted for supplying individual quick-response standard spray upright sprinklers installed in this manner.
Calculation Requirements:

Wet System—Most demanding five (5) Model DS-56 Series ridge sprinklers and two (2) AH sprinklers when there are four (4) AH sprinklers or less. When more than four (4) AH sprinklers, separately calculate (a) five (5) Model DS-56 Series ridge sprinklers and two (2) AH sprinklers; and (b) all AH sprinklers (up to a maximum 1500 square foot area) and use the greater of the two demands.

Dry System—Most demanding seven (7) Model DS-56 Series ridge sprinklers and two (2) AH sprinklers when there are four (4) AH sprinklers or less. When more than four (4) AH sprinklers, separately calculate (a) seven (7) Model DS-56 Series ridge sprinklers and two (2) AH sprinklers; and (b) all AH sprinklers (up to a maximum 1950 square foot area) and use the greater of the two demands.

Note A: A single quick-response standard spray upright sprinkler installed in accordance with NFPA 13 may be used for the protection of small areas outside the coverage areas of the specific application attic sprinklers. Demand for the single sprinkler shall be added to the calculations listed above if it falls within the 1500 sf wet system or 1950 sf dry system design area. CPVC piping on wet pipe systems is permitted for supplying individual quick-response standard spray upright sprinklers installed in this manner.
**Obstruction Criteria**

<table>
<thead>
<tr>
<th>Model DD Series sprinkler</th>
<th>Model DS56 sprinkler</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min. gap above obstruction</td>
<td>Min. gap above obstruction</td>
</tr>
<tr>
<td>3-1/2&quot; (90 mm)</td>
<td>3-1/2&quot; (90 mm)</td>
</tr>
<tr>
<td>Obstruction height</td>
<td>Obstruction height</td>
</tr>
<tr>
<td>6' (150 mm) max.</td>
<td>6' (150 mm) max.</td>
</tr>
</tbody>
</table>

Additional sprinklers **not required** due to obstruction 6” (150 mm) or less in height with a minimum 3-1/2” (90 mm) gap provided between the top of the obstruction and the roof deck.

Additional sprinklers **required** beyond obstruction greater than 6” (150 mm) in height or where a minimum 3-1/2” (90 mm) gap is not provided between the top of the obstruction and the roof deck.

**Model DD Series sprinkler**

Horizontal obstruction

- Min. 6” (150 mm) from horizontal obstruction to bottom of rafter

Additional sprinklers **not required** beyond horizontal obstruction more than 6” from bottom of rafter.

**Model DS56 sprinkler**

Horizontal obstruction

Greater than 4'-0" (1.2 m) width

Additional sprinklers **required** below horizontal obstruction greater than 4'-0" (1.2 m) in width.

**Obstruction width, W**

<table>
<thead>
<tr>
<th>Minimum distance between sprinkler and obstruction, D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1” or less (25 mm or less)</td>
</tr>
<tr>
<td>1&quot; to 4&quot; (25 to 100 mm)</td>
</tr>
<tr>
<td>4&quot; to 8&quot; (100 to 200 mm)</td>
</tr>
<tr>
<td>8&quot; to 10&quot; (200 to 250 mm)</td>
</tr>
<tr>
<td>10&quot; to 20&quot; (250 to 500 mm)</td>
</tr>
<tr>
<td>20&quot; to 30&quot; (500 to 750 mm)</td>
</tr>
<tr>
<td>30&quot; to 40&quot; (750 to 1000 mm)</td>
</tr>
<tr>
<td>40&quot; to 48&quot; (1000 to 1200 mm)</td>
</tr>
</tbody>
</table>

Provide sprinklers beyond vertical obstructions **not** meeting the criteria above.
Obstruction Criteria (Continued)

Additional sprinklers not required beyond enclosed space more than 3'-0" (900 mm) from roof deck

Intermediate level sprinklers required beyond enclosed space less than 3'-0" (900 mm) to 1'-0" (300 mm) from roof deck

Additional sprinklers required beyond enclosed space less than 1'-0" (300 mm) from roof deck

Note: For Model AH Series sprinklers, the requirements of NFPA 13 [2016] section 8.8.5 “Obstructions to Sprinkler Discharge (Extended Coverage Upright and Pendent Sprinklers)” shall apply.
Installation

Install Reliable Attic Sprinklers only in the orientation indicated in Figure 28. Figure 29 provides additional select installation criteria for each sprinkler model.

**Model DD Series**

Install Model DD Series sprinklers with the **deflector parallel to the floor** and arrows on deflector pointing down the roof slope in both directions.

**Model DS56**

Install Model DS56 sprinklers with the **frame arms perpendicular to the roof deck (parallel with lower eave)** and the arrow on the deflector pointing down the roof slope.

**Model GP56 and AH Series**

Install Model GP56 sprinklers with the **deflector parallel to the roof deck** and the arrow on the deflector pointing down the roof slope. Install Model AH Series sprinklers with the deflector parallel to the roof, and frame arms parallel with the lower eave of the protected space.

**Model DD Series**

Max. 6” (150 mm) horizontally from center of sprinkler to ridge

17" (430 mm) min. to 21" (530 mm) max. top of deflector below peak, ridge, or deck

**Model DS56**

Min. 30" (762 mm) to max. 42" (1067 mm) horizontally from draft curtain or wall to deflector

Min. 8" (200 mm) to max. 13" (330 mm) top of deflector to roof deck

**Model GP56**

Min. 9" (230 mm) to max. 13" (330 mm) top of deflector to roof deck

**Model AH42/AH56**

Min. 1" (25 mm) to max. 3" (76 mm) top of deflector to bottom of truss top chord
Note: Where Reliable Attic Sprinklers are installed on wet-pipe sprinkler systems with CPVC pipe, the CPVC pipe must be protected in accordance with the pipe manufacturer’s installation instruction as well as the requirements in Figure 30.

Installation Requirements for Use of Reliable Attic Sprinklers with Listed CPVC Pipe

Maintain at least 18” (450 mm) between CPVC pipe and heat producing or releasing devices.

Install sprinklers on CPVC pipe only in the following configurations: (1) directly mounted to a fitting on the branch line pipe, (2) on an angled sprig where the horizontal distance between the sprinkler and the branch line does not exceed 6” (150 mm), (3) on an armoire sprig where the horizontal distance between the sprinkler and the branch line does not exceed 6” (150 mm), or (4) on a vertical sprig.

Locate a sprinkler within 1'-0” (300 mm) horizontally of CPVC risers.

Branch lines over joists must be protected with a minimum 6” (150 mm) thickness of noncombustible insulation (e.g., fiberglass). A maximum of 3'-0” (900 mm) of an angled sprig may extend above the insulation to supply Model GP56 and AH Series sprinklers.

Branch lines over joists must be protected with a minimum 6” (150 mm) thickness of noncombustible insulation (e.g., fiberglass). A maximum of 10'-0” (3 m) of a vertical sprig may extend above the insulation to supply Model GP56 sprinklers.

Branch lines between joists must be protected with a minimum 6” (150 mm) thickness of noncombustible insulation (e.g., fiberglass) either within the joist bay or on top of the joists. A maximum of 3'-0” (900 mm) of an angled sprig may extend above the insulation to supply Model GP56 and AH Series sprinklers.

Branch lines between joists must be protected with a minimum 6” (150 mm) thickness of noncombustible insulation (e.g., fiberglass) either within the joist bay or on top of the joists. A maximum of 3'-0” (900 mm) of an angled sprig may extend above the insulation to supply Model GP56 and AH Series sprinklers.
Branch lines between joists must be protected with a minimum 6" (150 mm) thickness of noncombustible insulation (e.g., fiberglass) either within the joist bay or on top of the joists. A maximum of 10'-0" (3 m) of a vertical sprig may extend above the insulation to supply Model GP56 sprinklers.

Branch lines over joists must be protected with a minimum 6" (150 mm) thickness of noncombustible insulation (e.g., fiberglass). A vertical sprig of any length may extend above the insulation to supply Model AH Series sprinklers.

Caution:
1. Insulation required by Figures 30 and 31 is for fire protection purposes and not for freeze protection.
2. Follow installation requirements of the CPVC pipe manufacturer and listing, including verifying compatibility of any insulation or other materials used with CPVC pipe.
3. Sprig ups to Model GP56 and AH Series sprinklers must be properly secured and supported in accordance with NFPA 13 requirements.
Installation

Model DD Series, Model GP56, and Model AH Series sprinklers are installed with the W2 wrench. The Model DS56 wrench is used to install Model DS56 sprinklers. The use of any other wrench to install Reliable Attic sprinklers is not permitted and may damage the sprinkler. Place the specified wrench over the sprinkler until the wrench engages the wrench flats. Do not wrench any other part of the sprinkler assembly. Tighten the sprinkler into the fitting after applying a PTFE based thread sealant to the sprinkler’s threads. Recommended installation torque is specified in Table J.

<table>
<thead>
<tr>
<th>Sprinkler Threads</th>
<th>Recommended Installation Torque (min. – max.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ft-lb</td>
</tr>
<tr>
<td>½” NPT or ISO7-1R1/2</td>
<td>8-18</td>
</tr>
<tr>
<td>¾” NPT or ISO7-1R3/4</td>
<td>14-20</td>
</tr>
</tbody>
</table>

Do not exceed the maximum recommended torque. Exceeding the maximum recommended torque may cause leakage or impairment of the sprinkler. Use care when placing or removing the wrench from the sprinkler to avoid damage to the sprinkler.

Maintenance

Reliable Attic sprinklers should be inspected and the sprinkler system maintained in accordance with NFPA 25, as well as the requirements of any Authorities Having Jurisdiction.

Prior to installation, sprinklers should remain in the original cartons and packaging until used. This will minimize the potential for damage to sprinklers that could cause improper operation or non-operation.

Do not clean sprinklers with soap and water, ammonia liquid or any other cleaning fluids. Remove dust by gentle vacuuming without touching the sprinkler.

Replace any sprinkler which has been painted (other than factory applied). Replace any sprinkler which has been damaged. A stock of spare sprinklers should be maintained to allow quick replacement of damaged or operated sprinklers.

Failure to properly maintain sprinklers may result in inadvertent operation or non-operation during a fire event.

Listing & Approval Agency

Underwriters Laboratories, Inc. and UL Canada (cULus)
Listing Category: Sprinklers, Automatic and Open
Guide Number: VNIV, VNIV7

Guarantee

For the Reliable Automatic Sprinkler Co., Inc. guarantee, terms, and conditions, visit www.reliablesprinkler.com.

Ordering Information

Specify the following when ordering.

Sprinkler
- Model (DD56-6, DD56-27, DD80-6, DD80-27, DS56, GP56, AH42, AH56)
- Threads (NPT or ISO 7-1)

Sprinkler Wrench
- Model W2 (for Model DD Series, Model GP56, and Model AH Series sprinklers)
- Model DS56 (for Model DS56 sprinklers)