Features

• cULus Listed Residential Sprinklers
• Available in pendent and horizontal sidewall orientations
• Decorative recessed escutcheons available

Product Description

Model KRes Series sprinklers are residential pendent and horizontal sidewall sprinklers with a fusible link operating element. A variety of K-Factors and recessed finish options are available as detailed in this Bulletin.

The KRes Series sprinklers are specially engineered for fast thermal response to meet the requirements of UL 1626. They are intended for installation in accordance with NFPA 13, 13R, and 13D.

Application

The Model KRes Series sprinklers cULus Listed Residential sprinklers are intended for use in accordance with NFPA 13, NFPA 13R, or NFPA 13D. The Model KRes residential sprinklers are cULus Listed for use in residential occupancies and residential portions of any occupancy, where permitted by NFPA 13, NFPA 13R, or NFPA 13D. For NFPA 13R and NFPA 13D applications, the design flow and pressure shall not be less than the minimum flow and pressure specified in the Listed Design Criteria tables in this Bulletin. For NFPA 13 applications, the design density shall be a minimum of 0.1 gpm/sf (4.1 mm/min), but in no case shall the flow and pressure be less than the minimum flow and pressure specified in the Listed Design Criteria tables in this bulletin. Model KRes Series sprinklers are listed for use in wet systems only.

Residential Sprinkler Summary

<table>
<thead>
<tr>
<th>Sprinkler Model</th>
<th>Sprinkler Identification Number (SIN)</th>
<th>Orientation</th>
<th>K-Factor gpm/psig (lpm/bar)</th>
<th>Thread Size NPT or ISO7-1</th>
<th>Installation Options</th>
<th>Max. Coverage Area ft x ft (m x m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KRes30</td>
<td>R3591</td>
<td>Pendent</td>
<td>3.0 (43)</td>
<td>1/2</td>
<td>Pendent or Recessed</td>
<td>16 x 16 (4.9 x 4.9)</td>
</tr>
<tr>
<td>KRes49</td>
<td>R3596</td>
<td>Pendent</td>
<td>4.9 (71)</td>
<td>1/2</td>
<td>Pendent or Recessed</td>
<td>20 x 20 (6.1 x 6.1)</td>
</tr>
<tr>
<td>KRes58</td>
<td>R3593</td>
<td>Pendent</td>
<td>5.8 (84)</td>
<td>1/2</td>
<td>Pendent or Recessed</td>
<td>20 x 20 (6.1 x 6.1)</td>
</tr>
<tr>
<td>KRes44 HSW</td>
<td>RA3591</td>
<td>Horizontal Sidewall</td>
<td>4.4 (63)</td>
<td>1/2</td>
<td>Sidewall or Recessed</td>
<td>16 x 20 (4.9 x 6.1)</td>
</tr>
<tr>
<td>KRes58 HSW</td>
<td>RA3503</td>
<td>Horizontal Sidewall</td>
<td>5.8 (84)</td>
<td>1/2</td>
<td>Sidewall or Recessed</td>
<td>16 x 20 (4.9 x 6.1)</td>
</tr>
<tr>
<td>KRes58 HSWX</td>
<td>RA3593</td>
<td>Horizontal Sidewall</td>
<td>5.8 (84)</td>
<td>1/2</td>
<td>Sidewall or Recessed</td>
<td>14 x 26 (4.3 x 7.9)</td>
</tr>
</tbody>
</table>
Model KRes30 Sprinkler Hydraulic Design Criteria

<table>
<thead>
<tr>
<th>Max. Coverage Area ft. x ft (m x m)</th>
<th>Flow GPM (L/min)</th>
<th>Pressure PSI (bar)</th>
<th>Deflector to Ceiling Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 x 12 (3,6 x 3,6)</td>
<td>8 (30,3)</td>
<td>7 (0,48)</td>
<td>General 1 to 4 inches (25 to 100mm)</td>
</tr>
<tr>
<td>14 x 14 (4,3 x 4,3)</td>
<td>10 (37,8)</td>
<td>11 (0,76)</td>
<td>F2 Escutcheon 1-1/4 to 1-3/4 inches (31.7 to 44.4 mm)</td>
</tr>
<tr>
<td>16 x 16 (4,9 x 4,9)</td>
<td>13 (49)</td>
<td>18.8 (1,3)</td>
<td></td>
</tr>
</tbody>
</table>
Model KRes49 Sprinkler Drop

Figure 2

Dimensions

F2 Recessed Escutcheon Installation

Model KRes49 Sprinkler Hydraulic Design Criteria

<table>
<thead>
<tr>
<th>Max. Coverage Area ft. x ft. (m x m)</th>
<th>Ordinary Temp. Rating (165°F/74°C)</th>
<th>Intermediate Temp. Rating (212°F/100°C)</th>
<th>Deflector to Ceiling Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Flow GPM (L/min)</td>
<td>Pressure PSI (bar)</td>
<td>Flow GPM (L/min)</td>
</tr>
<tr>
<td>12 x 12 (3.6 x 3.6)</td>
<td>13 (49)</td>
<td>7 (0.48)</td>
<td>13 (49)</td>
</tr>
<tr>
<td>14 x 14 (4.3 x 4.3)</td>
<td>13 (49)</td>
<td>7 (0.48)</td>
<td>13 (49)</td>
</tr>
<tr>
<td>16 x 16 (4.9 x 4.9)</td>
<td>13 (49)</td>
<td>7 (0.48)</td>
<td>15 (56.8)</td>
</tr>
<tr>
<td>18 x 18 (5.5 x 5.5)</td>
<td>19 (72)</td>
<td>15 (1.0)</td>
<td>19 (72)</td>
</tr>
<tr>
<td>20 x 20 (6.1 x 6.1)</td>
<td>20 (75.7)</td>
<td>16.7 (1.14)</td>
<td>22 (83.3)</td>
</tr>
</tbody>
</table>

Deflector to Ceiling Distance:
- General 1 to 4 inches (25 to 100mm)
- F2 Escutcheon 1-1/4 to 1-3/4 inches (31.7 to 44.4 mm)

Temperature Ratings
- 165°F (74°C)
- 212°F (100°C)

Recessed Escutcheons
- F2 Recessed

Sprinkler Wrenches
- Model W2
- Model W1 (recessed)

Listings and Approvals
- cULUs
Model KRes58

Technical Specifications
- Style: Pendent
- Threads: 1/2” NPT or ISO7-1R1/2
- Nominal K-Factor: 5.8 (84 metric)
- Max. Working Pressure: 175 psi (12 bar)

Material Specifications (Ref. Fig. 7)
- Thermal Sensor: Nickel Alloy fusible link
- Sprinkler Frame: Brass Alloy
- Button: Copper Alloy
- Sealing Assembly: Nickel Alloy with PTFE
- Load Screw: Bronze Alloy
- Deflector: Bronze Alloy
- Lever: Stainless Steel
- Strut: Stainless Steel

Finishes
(See Table H)

Temperature Ratings
- 165°F (74°C)
- 212°F (100°C)

Recessed Escutcheons
- F2 Recessed

Sprinkler Wrenches
- Model W2
- Model W1 (recessed)

Listings and Approvals
- cULUs

---

Model KRes58 Sprinkler Hydraulic Design Criteria

<table>
<thead>
<tr>
<th>Max. Coverage Area ft. x ft. (m x m)</th>
<th>Ordinary Temp. Rating (165°F/74°C)</th>
<th>Intermediate Temp. Rating (212°F/100°C)</th>
<th>Deflector to Ceiling Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Flow GPM (L/min)</td>
<td>Pressure PSI (bar)</td>
<td>Flow GPM (L/min)</td>
</tr>
<tr>
<td>12 x 12 (3.6 x 3.6)</td>
<td>16 (61)</td>
<td>7.6 (0.53)</td>
<td>16 (61)</td>
</tr>
<tr>
<td>14 x 14 (4.3 x 4.3)</td>
<td>16 (61)</td>
<td>7.6 (0.53)</td>
<td>16 (61)</td>
</tr>
<tr>
<td>16 x 16 (4.9 x 4.9)</td>
<td>16 (61)</td>
<td>7.6 (0.53)</td>
<td>17 (64,3)</td>
</tr>
<tr>
<td>18 x 18 (5.5 x 5.5)</td>
<td>19 (72)</td>
<td>10.8 (0.75)</td>
<td>19 (72)</td>
</tr>
<tr>
<td>20 x 20 (6.1 x 6.1)</td>
<td>22 (83,3)</td>
<td>14.4 (1,0)</td>
<td>23 (87,1)</td>
</tr>
</tbody>
</table>

---

Dimensions

F2 Recessed Escutcheon Installation

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Bulletin 935
July 2019
www.reliablesprinkler.com
Model KRes44 HSW

Technical Specifications

- Style: Horizontal Sidewall
- Threads: 1/2" NPT or ISO7-1R1/2
- Nominal K-Factor: 4.4 (63 metric)
- Max. Working Pressure: 175 psi (12 bar)

Material Specifications (Ref. Fig. 7)
- Thermal Sensor: Nickel Alloy fusible link
- Sprinkler Frame: Brass Alloy
- Button: Copper Alloy
- Sealing Assembly: Nickel Alloy with PTFE
- Load Screw: Bronze Alloy
- Deflector: Bronze Alloy
- Lever: Stainless Steel
- Strut: Stainless Steel

Finishes
- (See Table H)

Temperature Ratings
- 165°F (74°C)

Recessed Escutcheons
- F2 Recessed

Sprinkler Wrenches
- Model W2
- Model W1 (recessed)

Listings and Approvals
- cULUs

Model KRes44 HSW/F2

Finishes
- (See Table H)

Temperature Ratings
- 165°F (74°C)

Recessed Escutcheons
- F2 Recessed

Sprinkler Wrenches
- Model W2
- Model W1 (recessed)

Listings and Approvals
- cULUs

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www.reliablesprinkler.com

Model KRes44 HSW/F2 Sprinkler Hydraulic Design Criteria

Table E

<table>
<thead>
<tr>
<th>Max. Coverage Area ft. x ft. (m x m)</th>
<th>Ordinary Temp. Rating (165°F/74°C)</th>
<th>Deflector to Ceiling Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Flow GPM (L/min)</td>
<td>Pressure PSI (bar)</td>
</tr>
<tr>
<td>12 x 12 (3.6 x 3.6)</td>
<td>12 (45.4)</td>
<td>7.5 (0.52)</td>
</tr>
<tr>
<td>14 x 14 (4.3 x 4.3)</td>
<td>14 (53.0)</td>
<td>10.2 (0.71)</td>
</tr>
<tr>
<td>16 x 16 (4.9 x 4.9)</td>
<td>16 (60.6)</td>
<td>13.3 (0.92)</td>
</tr>
<tr>
<td>16 x 18 (4.9 x 5.5)</td>
<td>18 (68.1)</td>
<td>16.8 (1.03)</td>
</tr>
<tr>
<td>18 x 18 (5.5 x 5.5)</td>
<td>20 (75.7)</td>
<td>20.7 (1.43)</td>
</tr>
<tr>
<td>16 x 20 (4.9 x 6.1)</td>
<td>23 (87.1)</td>
<td>27.9 (1.89)</td>
</tr>
<tr>
<td>12 x 12 (3.6 x 3.6)</td>
<td>14 (53.0)</td>
<td>10.2 (0.71)</td>
</tr>
<tr>
<td>14 x 14 (4.3 x 4.3)</td>
<td>16 (60.6)</td>
<td>13.3 (0.92)</td>
</tr>
<tr>
<td>16 x 16 (4.9 x 4.9)</td>
<td>17 (64.4)</td>
<td>15.0 (1.04)</td>
</tr>
<tr>
<td>16 x 18 (4.9 x 5.5)</td>
<td>20 (75.7)</td>
<td>20.7 (1.43)</td>
</tr>
<tr>
<td>16 x 20 (4.9 x 6.1)</td>
<td>23 (87.1)</td>
<td>27.4 (1.89)</td>
</tr>
</tbody>
</table>
Model KRes58 HSW

Technical Specifications
- **Style:** Horizontal Sidewall
- **Threads:** 1/2" NPT or ISO7-1R1/2
- **Nominal K-Factor:** 5.8 (84 metric)
- **Max. Working Pressure:** 175 psi (12 bar)

Material Specifications (Ref. Fig. 7)
- **Thermal Sensor:** Nickel Alloy fusible link
- **Sprinkler Frame:** Brass Alloy
- **Button:** Copper Alloy
- **Sealing Assembly:** Nickel Alloy with PTFE
- **Load Screw:** Bronze Alloy
- **Deflector:** Bronze Alloy
- **Lever:** Stainless Steel
- **Strut:** Stainless Steel

Finishes
- (See Table H)

Temperature Ratings
- **165°F (74°C)**

Recessed Escutcheons
- F2 Recessed

Sprinkler Wrenches
- Model W2
- Model W1 (recessed)

Listings and Approvals
- cULUs

---

Model KRes58 HSW/F2

Figure 5

Dimensions

F2 Recessed Escutcheon Installation

---

Model KRes58 HSW/F2 Sprinkler Hydraulic Design Criteria

<table>
<thead>
<tr>
<th>Max. Coverage Area</th>
<th>Ordinary Temp. Rating (165°F/74°C)</th>
<th>Deflector to Ceiling Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>ft. x ft. (m x m)</td>
<td>Flow GPM (L/min)</td>
<td>Pressure PSI (bar)</td>
</tr>
<tr>
<td>12 x 12 (3.6 x 3.6)</td>
<td>16 (60,6)</td>
<td>7.6 (0,53)</td>
</tr>
<tr>
<td>14 x 14 (4.3 x 4.3)</td>
<td>18 (68,2)</td>
<td>9.7 (0,69)</td>
</tr>
<tr>
<td>16 x 16 (4.9 x 4.9)</td>
<td>21 (79,5)</td>
<td>13.2 (0,91)</td>
</tr>
<tr>
<td>16 x 18 (4.9 x 5,5)</td>
<td>25 (94,7)</td>
<td>18.6 (1,28)</td>
</tr>
<tr>
<td>16 x 20 (4,9 x 6,1)</td>
<td>29 (109,8)</td>
<td>25 (1,73)</td>
</tr>
<tr>
<td>12 x 12 (3.6 x 3.6)</td>
<td>22 (83,3)</td>
<td>14.4 (1,0)</td>
</tr>
<tr>
<td>14 x 14 (4.3 x 4.3)</td>
<td>22 (83,3)</td>
<td>14.4 (1,0)</td>
</tr>
<tr>
<td>16 x 16 (4.9 x 4.9)</td>
<td>26 (98,4)</td>
<td>20.1 (1,39)</td>
</tr>
<tr>
<td>16 x 18 (4,9 x 5,5)</td>
<td>31 (117,4)</td>
<td>28.6 (1,97)</td>
</tr>
<tr>
<td>16 x 20 (4,9 x 6,1)</td>
<td>33 (124,9)</td>
<td>32 (2,21)</td>
</tr>
</tbody>
</table>
Model KRes58 HSWX Residential Sprinkler

Technical Specifications
- **Style:** Horizontal Sidewall
- **Threads:** 1/2" NPT or ISO7-1R1/2
- **Nominal K-Factor:** 5.8 (84 metric)
- **Max. Working Pressure:** 175 psi (12 bar)

Material Specifications (Ref. Fig. 7)
- **Thermal Sensor:** Nickel Alloy fusible link
- **Sprinkler Frame:** Brass Alloy
- **Button:** Copper Alloy
- **Sealing Assembly:** Nickel Alloy with PTFE
- **Load Screw:** Bronze Alloy
- **Deflector:** Bronze Alloy
- **Lever:** Stainless Steel
- **Strut:** Stainless Steel

Model KRes58 HSWX Residential Sprinkler

Temperature Ratings
- **165°F (74°C)**

Recessed Escutcheons
- F2 Recessed

Sprinkler Wrenches
- Model W2
- Model W1 (recessed)

Listings and Approvals
- cULUs

Model KRes58 HSWX Sprinkler Components and Dimensions

Model KRes58 HSWX Sprinkler Hydraulic Design Criteria

<table>
<thead>
<tr>
<th>Max. Coverage Area ft. x ft. (m x m)</th>
<th>Flow gpm (l/min)</th>
<th>Pressure psi (bar)</th>
<th>Deflector to Ceiling Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 x 20 (5,5 x 6,1)</td>
<td>29 (109)</td>
<td>25 (1,72)</td>
<td>4 to 6 inches (100 to 150 mm)</td>
</tr>
<tr>
<td>20 x 20 (6,1 x 6,1)</td>
<td>30 (114)</td>
<td>26.8 (1,85)</td>
<td></td>
</tr>
<tr>
<td>16 x 22 (4,9 x 6,7)</td>
<td>33 (125)</td>
<td>32.4 (2,23)</td>
<td></td>
</tr>
<tr>
<td>16 x 24 (4,9 x 7,3)</td>
<td>38 (144)</td>
<td>42.9 (2,96)</td>
<td></td>
</tr>
<tr>
<td>14 x 26 (4,3 x 7,9)</td>
<td>42 (160)</td>
<td>52.4 (3,75)</td>
<td></td>
</tr>
<tr>
<td>18 x 20 (5,5 x 6,1)</td>
<td>35 (133)</td>
<td>36.4 (2,5)</td>
<td>6 to 12 inches (150 to 300 mm)</td>
</tr>
<tr>
<td>16 x 22 (4,9 x 6,7)</td>
<td>38 (144)</td>
<td>42.9 (2,96)</td>
<td></td>
</tr>
<tr>
<td>16 x 24 (4,9 x 7,3)</td>
<td>42 (160)</td>
<td>52.4 (3,6)</td>
<td></td>
</tr>
<tr>
<td>14 x 26 (4,3 x 7,9)</td>
<td>46 (174)</td>
<td>62.9 (4,34)</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** For coverage area dimensions less than or between those listed above, use the minimum required flow for the next highest coverage area for which hydraulic design criteria are stated.
Installation

Models KRes fire sprinklers are to be installed in accordance with NFPA 13, 13D, or 13R and as shown in this bulletin. For recessed installations, the Model F2 recessed escutcheon is the only escutcheon to be used with the KRes sprinklers. Use of any other recessed escutcheon will void approvals and warranties.

For installing Model KRes sprinklers, use only the Model W2 sprinkler Wrench; for installing Models KRes Recessed Pendant and Sidewall sprinklers use only the Model W1 sprinkler wrench. Use of wrenches other than those specified may damage these sprinklers.

Installation of KRes sprinklers in a wall or ceiling will require a hole diameter of 2-1/4" (57 mm) for F2 recessed escutcheons.

Install KRes HSW sprinklers with a ceiling to deflector distance that complies with the hydraulic design criteria tables in this bulletin. The flow arrow on deflector must point away from near wall and “Top” marking must face the ceiling.

A “leak tight” sprinkler joint can be obtained with a torque of 8-18 ft-lbs (11 – 24 N-m).

Do not tighten sprinklers over maximum recommended torque. This may cause leakage or impairment of the sprinklers.

Maintenance

Reliable Model KRes Sprinklers should be inspected and the sprinkler system maintained in accordance with NFPA 25, 13, 13D, and 13R, 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) or 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.

Notes:

(1) Paint or any other coating applied over the factory finish will void all approvals and warranties.

(2) cULus Listed Corrosion Resistant.

<table>
<thead>
<tr>
<th>Standard Finishes</th>
<th>Special Application Finishes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sprinkler (1)</td>
<td>Sprinkler (1)</td>
</tr>
<tr>
<td>F2 Escutcheon</td>
<td>F2 Escutcheon</td>
</tr>
<tr>
<td>Bronze</td>
<td>Bright Brass</td>
</tr>
<tr>
<td>Chrome Plated</td>
<td>Bright Brass</td>
</tr>
<tr>
<td>White Polyester (2)</td>
<td>Black Polyester (2)</td>
</tr>
<tr>
<td>--</td>
<td>Custom Color Polyester</td>
</tr>
<tr>
<td>--</td>
<td>Custom Color Polyester</td>
</tr>
</tbody>
</table>

Table H

Notes:

(1) Paint or any other coating applied over the factory finish will void all approvals and warranties.

(2) cULus Listed Corrosion Resistant.

Components

Note: Deflector varies by model

Maintenance

Figure 7

Components

Threads

Wrench Flat

Thermal Sensor

Button & Sealing Assembly

Frame

Strut & Lever

Deflector

Load Screw

Model W1

Model W2
Listings & Approvals
Listed by Underwriters Laboratories Inc. and UL Certified for Canada (cULus)

Guarantee
For Reliable Automatic Sprinkler Company guarantee, terms, and conditions, visit www.reliablesprinkler.com.

Patents
For patents applicable to products contained in this technical bulletin, please visit www.r-s.co

Ordering Information
Specify the following when ordering:

Sprinkler
- Model (See Table A)
- Temperature Rating
- Threads (NPT or ISO7-1)
- Finish (See Table H)

Escutcheon
- Model F2 Recessed
- Finish (See Table H)

Note: A variety of surface mount escutcheons are also available; please refer to Reliable Technical Bulletin 204.

Sprinkler Wrench
- Model W2 (Pendent and HSW)
- W1 (Recessed and Concealed)