1. DESCRIPTION
Viking Intermediate Level In-Rack Sprinklers consist of a water shield installed on specifically listed and/or approved frame style standard and quick response sprinklers equipped with glass bulbs or fusible elements. Refer to Approval Charts 1 and 2 for listings and approvals. They are available in both upright and pendant styles with or without sprinkler guards. Refer to Section 5. ORDERING INSTRUCTIONS.
Viking Water Shields protect sprinkler heat-sensing elements from water spray discharging from sprinklers located at a higher elevation. They may be used on in-rack sprinkler systems, under grating, on pilot sprinklers for deluge systems, outdoors as a weather shield, or any other application where water shielding is required.

2. LISTINGS AND APPROVALS

- **cULus Listed**: Category VNIV
- **FM Approved**: Classes 2005 and 2020

See the Approval Charts 1 and 2 on pages for sprinklers listed and/or approved as Intermediate Level Sprinklers with water shields.

3. TECHNICAL DATA

**Specifications:**

- **A. Water Shield for Pre-assembled Viking Upright Intermediate Level Sprinklers (See Figure 1):**
  - Dimensions: 2-3/4" (70 mm) diameter, 0.0359" (0.91 mm) thick.

- **B. Model E-1 Water Shield for Upright Sprinklers equipped with Model D-1 Guards (See Figure 2 - Top):**
  - Dimensions: 4-3/8" (112 mm) diameter, 2-1/8" (54 mm), 1/2" (12.7 mm) depth, 0.0359" (0.91 mm) thick. Available since 1998.

- **C. Model F-1 Water Shield for Pendent Sprinklers (See Figure 3 - Top):**
  - Dimensions: 3" (75 mm) diameter, 0.0359" (0.91 mm) thick. Available since 1998.

**Material Standards:**
Water Shields: Cold Rolled Steel UNS-G10080. Finish: Clear Chromate over Zinc Plating, or Stainless Steel UNS-S30400

**Ordering Information:** (Also refer to the current Viking price list.)

- **Upright Intermediate Level Sprinklers (without guards):** Upright Intermediate Level Sprinklers shown in Figure 1 are pre-assembled with the water shields factory installed (see note below). Refer to the chart on page 4 for upright sprinklers listed and/or approved with water shields.
  - To order a factory pre-assembled Intermediate Level Upright Sprinkler by part number, use the base part number for the sprinkler selected from the chart on page 4. Add the suffix “U” after the suffixes for the desired temperature and finish (see current Viking Price Book for temperature and finish suffixes).
  - **NOTE:** Sprinkler guards are NOT available for use with factory preassembled Intermediate Level Upright Sprinklers. For Upright Intermediate Level Sprinklers with guards, see paragraph below.

- **Upright Intermediate Level Sprinklers (with Model D-1 Sprinkler Guards):** For Upright Intermediate Level Sprinklers with guards (Figure 2), the special water shield must be ordered separately and installed in the field. Refer to page 4 for upright sprinklers listed and/or approved for installation with water shields.
  - 1. Order the sprinkler using the base part number (plus appropriate suffixes for temperature and finish) for the sprinkler selected from Approval Chart 1 on page 4 (see current Viking Price Book for temperature and finish suffixes).
    - a. To order the sprinkler guard factory installed on the upright sprinkler, add the suffix “G”.
    - b. To order the sprinkler guard separately, add the suffix “S”.

*Upright Intermediate Level Sprinkler (Factory pre-assembled only)*
The standard response glass bulb style sprinkler shown above is representative only. Standard response fusible link sprinklers and quick response glass bulb or fusible element style sprinklers are also available as intermediate level sprinklers. Refer to Approval Chart 1 for listings and approvals.

*Upright Intermediate Level Sprinkler (with Guard and Water Shield)*
The standard response sprinkler equipped with a 5 mm glass bulb shown above is representative only. Standard response fusible link sprinklers and quick response sprinklers equipped with glass bulbs or fusible elements are also available as intermediate level sprinklers. Refer to Approval Chart 1 on page 4 for listings and approvals.
b. To order the Model D-1 Sprinkler Guard separately, order Part No. 10325 or Stainless Steel Part No. 12198 (see pages 1-3).

2. Order the upright Model E-1 Water Shield, Viking Part No. 10326 or Stainless Steel Part No. 14682.

**Pendent Intermediate Level Sprinklers:** For pendent Intermediate Level Sprinklers Figure 3), the Model F-1 Water Shields and sprinklers must be ordered separately and the water shield must be installed in the field.

Refer to page 5 for pendent sprinklers listed and/or approved for installation with water shields.

1. Order the sprinklers using the base part number (plus appropriate suffixes for temperature and finish) for the sprinkler selected from the chart on page 5 (see current Viking Price Book for temperature and finish suffixes).
   a. For optional sprinkler guards factory installed on the pendent sprinker, add the suffix “G”.
   b. To order the optional Model D-1 Sprinkler Guard separately, order Part No. 10325 or Stainless Steel Part No. 12198 (see pages 1-3).

2. Order the Model F-1 Water Shields using the appropriate part number for the thread size required. For ½” NPT, order Part No. 10323 or Stainless Steel Part No. 14683. For ¾” NPT, order Part No. 10324 or Stainless Steel Part No. 14684.

**NOTE:** Water shields are for use on pendent sprinklers with or without guards.

**Accessories:** (Also refer to the Viking website.)

**Sprinkler Wrench:** Standard Wrench: Part No. 21475MB (available since 2017).

**Model D-1 Sprinkler Guard:** Part No. 10325 or Stainless Steel Part No. 12198 (NOT for use with factory pre-assembled Upright Intermediate Level Sprinkler.) (See technical data pages 1-3.)

**Sprinkler Cabinet:** Six-head capacity: Part No. 03985A for factory pre-assembled upright intermediate level sprinklers (available since 1977)

4. **INSTALLATION**

Refer to the appropriate sprinkler technical data page for warnings and additional installation instructions. Then install units according to the following.

Where sprinkler guards* are used, follow installation steps described on pages 1-3. (Note: sprinkler guards* may be ordered factory pre-installed).

**For pre-assembled Upright Intermediate Level Sprinklers** (see Figure 1):

Go to steps 2 and 3 below.

* Note: Sprinkler guards are NOT available for pre-assembled Upright Intermediate Level Sprinklers.

**For Upright Intermediate Level Sprinklers with Guards (see Figure 2):**

1. Install the Model E-1 Water Shields for upright sprinklers with Model D-1 Sprinkler Guards.
   a. Position the concave surface of the water shield facing the guard.
   a-2. Align the “x” slots in the water shield with the intersecting wires at the top of the guard.
   a-3. Press the water shield down firmly until the shield snaps into place with the flat inside surface of the water shield resting on the top horizontal wire ring of the guard (see Figure 2).

2. Go to steps 2 and 3 below.

**For Pendent Intermediate Level Sprinklers (see Figure 3):**

1. Install the Model F-1 Water Shields, threading the pendent sprinklers into the shields.

2. Apply a small amount of pipe-joint compound or tape to the external sprinklers threads only, taking care not to allow a build-up of compound in the sprinkler orifice.

3. Install the sprinkler on the piping using the special sprinkler wrench designed for the sprinkler used. DO NOT use the water shield or guard to start or thread the sprinkler into the fitting. C-1 Water Shield shall be engaged on sprinkler threads snug against the face of fitting.
5. OPERATION
   Refer to the sprinkler technical data page for the sprinkler model used. Viking Water Shields protect sprinkler heat-sensing elements from water spray discharging from sprinklers located at a higher elevation.

6. INSPECTIONS, TESTS AND MAINTENANCE
   Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

7. AVAILABILITY
   Viking Intermediate Level In-Rack Sprinklers are available through a network of domestic and international distributors. See The Viking Corporation web site for the closest distributor or contact The Viking Corporation.

8. GUARANTEE
   For details of warranty, refer to Viking’s current list price schedule or contact Viking directly.
# Approval Chart 1

## Upright Intermediate-Level Sprinklers
(The following upright sprinklers may be ordered with water shields factory installed.)

<table>
<thead>
<tr>
<th>Sprinkler Base Part No.</th>
<th>SIN</th>
<th>Sprinkler Style</th>
<th>Thread Size</th>
<th>Orifice Size</th>
<th>Nominal K-Factor</th>
<th>Maximum Pressure</th>
<th>Overall Length</th>
<th>Listings and Approvals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>NPT</td>
<td>U.S.</td>
<td>metric²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard Response, Glass Bulb Type</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12986 VK550 Upright</td>
<td>1/2&quot;</td>
<td>--</td>
<td>Standard</td>
<td>5.6</td>
<td>80.6</td>
<td>175 psi</td>
<td>2-3/8</td>
<td>60 B1 A1</td>
</tr>
<tr>
<td>18263 VK560 Upright</td>
<td>3/4&quot;</td>
<td>--</td>
<td>Large</td>
<td>8.0</td>
<td>115.2</td>
<td>175 psi</td>
<td>2-5/16</td>
<td>59 B1 A1</td>
</tr>
<tr>
<td>18268 VK560 Upright</td>
<td>1/2&quot;</td>
<td>--</td>
<td>Large</td>
<td>8.0</td>
<td>115.2</td>
<td>175 psi</td>
<td>2-5/16</td>
<td>59 B1 --</td>
</tr>
<tr>
<td>Standard Response, Fusible Link Type</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12973 VK552 Upright</td>
<td>1/2&quot;</td>
<td>--</td>
<td>Standard</td>
<td>5.6</td>
<td>80.6</td>
<td>175 psi</td>
<td>2-3/8</td>
<td>60 C1 C1</td>
</tr>
<tr>
<td>18253 VK562 Upright</td>
<td>3/4&quot;</td>
<td>--</td>
<td>Large</td>
<td>8.0</td>
<td>115.2</td>
<td>175 psi</td>
<td>2-5/16</td>
<td>59 C1 C1</td>
</tr>
<tr>
<td>Quick Response, Glass Bulb Type</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12978 VK556 Upright</td>
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<td>--</td>
<td>Standard</td>
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<td>80.6</td>
<td>175 psi</td>
<td>2-5/16</td>
<td>60 B1 B1</td>
</tr>
<tr>
<td>12281 VK558 Upright</td>
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<td>Standard</td>
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<td>80.6</td>
<td>250 psi</td>
<td>2-1/4</td>
<td>57 B1 --</td>
</tr>
<tr>
<td>18257 VK566 Upright</td>
<td>3/4&quot;</td>
<td>--</td>
<td>Large</td>
<td>8.0</td>
<td>115.2</td>
<td>175 psi</td>
<td>2-5/16</td>
<td>59 B1 B1</td>
</tr>
<tr>
<td>Quick Response, Fusible Element Type</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12279 VK551 Upright</td>
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<td>Standard</td>
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<td>80.6</td>
<td>175 psi</td>
<td>2-5/16</td>
<td>59 D1 --</td>
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<tr>
<td>18275 VK567 Upright</td>
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<td>--</td>
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<td>115.2</td>
<td>175 psi</td>
<td>2-5/16</td>
<td>59 D1 D1</td>
</tr>
</tbody>
</table>

## Approved Temperature Ratings

A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), 286 °F (141 °C), and 360 °F (182 °C)
B - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141 °C)
C - 165 °F (74 °C), 220 °F (104 °C), and 286 °F (141 °C)
D - 165 °F (74 °C), 205 °F (96 °C), and 280 °F (138 °C)

## Approved Finish
1 - Brass

### Footnotes
1. Base part number is shown. For complete part number, refer to Viking’s current price list.
2. Metric K-factor measurement shown is when pressure is measured in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.
3. This chart shows the listings and approvals available at the time of printing. Other approvals may be in process. Check with the manufacturer for any additional approvals.
4. Listed by Underwriters Laboratories, Inc. for use in the U.S. and Canada.
5. FM Approved for protection of occupancies described in the FM Global Loss Prevention Data Sheets (including 2-0 and 8-9) and Technical Advisory Bulletins.
### Approval Chart 2

**Pendent Intermediate-Level Sprinklers**

(The following pendent sprinklers may be installed with water shields. Pendent sprinklers and water shields must be ordered separately and field assembled.)

<table>
<thead>
<tr>
<th>Sprinkler Base Part No.</th>
<th>SIN</th>
<th>Sprinkler Style</th>
<th>Thread Size</th>
<th>Nominal Orifice</th>
<th>Nominal K-Factor</th>
<th>Maximum Pressure</th>
<th>Overall Length (Sprinkler)</th>
<th>Listings and Approvals</th>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>U.S.</td>
<td>metric^2</td>
<td>Inches</td>
<td>mm</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NPT</td>
<td>--</td>
<td>--</td>
<td>175 psi</td>
<td>2-1/4</td>
<td>57</td>
</tr>
<tr>
<td>12987</td>
<td>VK102</td>
<td>Pendent</td>
<td>1/2&quot;</td>
<td>Standard</td>
<td>5.6</td>
<td>80.6</td>
<td>175 psi</td>
<td>2-1/4</td>
</tr>
<tr>
<td>18264</td>
<td>VK202</td>
<td>Pendent</td>
<td>3/4&quot;</td>
<td>Large</td>
<td>8.0</td>
<td>115.2</td>
<td>175 psi</td>
<td>2-5/16</td>
</tr>
<tr>
<td>07961</td>
<td>VK536</td>
<td>Pendent</td>
<td>3/4&quot;</td>
<td>ELO</td>
<td>11.2</td>
<td>161.3</td>
<td>175 psi</td>
<td>2-5/16</td>
</tr>
<tr>
<td>14820</td>
<td>VK536</td>
<td>Pendent</td>
<td>--</td>
<td>20 mm</td>
<td>ELO</td>
<td>11.2</td>
<td>161.3</td>
<td>175 psi</td>
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</table>

**Standard Response, Glass Bulb Type**

<table>
<thead>
<tr>
<th>Sprinkler Base Part No.</th>
<th>SIN</th>
<th>Sprinkler Style</th>
<th>Thread Size</th>
<th>Nominal Orifice</th>
<th>Nominal K-Factor</th>
<th>Maximum Pressure</th>
<th>Overall Length (Sprinkler)</th>
<th>Listings and Approvals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>NPT</td>
<td>--</td>
<td>--</td>
<td>175 psi</td>
<td>2-1/4</td>
<td>57</td>
</tr>
<tr>
<td>12972</td>
<td>VK110</td>
<td>Pendent</td>
<td>1/2&quot;</td>
<td>Standard</td>
<td>5.6</td>
<td>80.6</td>
<td>175 psi</td>
<td>2-1/4</td>
</tr>
<tr>
<td>18254</td>
<td>VK206</td>
<td>Pendent</td>
<td>3/4&quot;</td>
<td>Large</td>
<td>8.0</td>
<td>115.2</td>
<td>175 psi</td>
<td>2-5/16</td>
</tr>
</tbody>
</table>

**Standard Response, Fusible Link Type**

<table>
<thead>
<tr>
<th>Sprinkler Base Part No.</th>
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<th>Sprinkler Style</th>
<th>Thread Size</th>
<th>Nominal Orifice</th>
<th>Nominal K-Factor</th>
<th>Maximum Pressure</th>
<th>Overall Length (Sprinkler)</th>
<th>Listings and Approvals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>NPT</td>
<td>--</td>
<td>--</td>
<td>175 psi</td>
<td>2-1/4</td>
<td>58</td>
</tr>
<tr>
<td>12979</td>
<td>VK302</td>
<td>Pendent</td>
<td>1/2&quot;</td>
<td>Standard</td>
<td>5.6</td>
<td>80.6</td>
<td>175 psi</td>
<td>2-1/4</td>
</tr>
<tr>
<td>12282</td>
<td>VK317</td>
<td>Pendent</td>
<td>1/2&quot;</td>
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<td>5.6</td>
<td>80.6</td>
<td>250 psi</td>
<td>2-1/4</td>
</tr>
<tr>
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<td>Pendent</td>
<td>3/4&quot;</td>
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<td>08377</td>
<td>VK377</td>
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<td>ELO</td>
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<td>2-5/16</td>
</tr>
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</table>

**Quick Response, Glass Bulb Type**

<table>
<thead>
<tr>
<th>Sprinkler Base Part No.</th>
<th>SIN</th>
<th>Sprinkler Style</th>
<th>Thread Size</th>
<th>Nominal Orifice</th>
<th>Nominal K-Factor</th>
<th>Maximum Pressure</th>
<th>Overall Length (Sprinkler)</th>
<th>Listings and Approvals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>NPT</td>
<td>--</td>
<td>--</td>
<td>175 psi</td>
<td>2-1/4</td>
<td>58</td>
</tr>
<tr>
<td>12275</td>
<td>VK303</td>
<td>Pendent</td>
<td>1/2&quot;</td>
<td>Standard</td>
<td>5.6</td>
<td>80.6</td>
<td>175 psi</td>
<td>2-1/4</td>
</tr>
<tr>
<td>18274</td>
<td>VK353</td>
<td>Pendent</td>
<td>3/4&quot;</td>
<td>Large</td>
<td>8.0</td>
<td>115.2</td>
<td>175 psi</td>
<td>2-3/8</td>
</tr>
</tbody>
</table>

**Quick Response, Fusible Element Type**

**Approved Temperature Ratings**

A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), 286 °F (141 °C), and 360 °F (182 °C)
B - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141 °C)
C - 165 °F (74 °C), 220 °F (104 °C), and 286 °F (141 °C)
D - 165 °F (74 °C), 205 °F (96 °C), and 280 °F (138 °C)
E - 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141 °C)

**Approved Finish**

1 - Brass

### Footnotes

1 Base part number is shown. For complete part number, refer to Viking’s current price list.
2 Metric K-factor measurement shown is when pressure is measured in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.
3 This chart shows the listings and approvals available at the time of printing. Other approvals may be in process. Check with the manufacturer for any additional approvals.
4 Listed by Underwriters Laboratories, Inc. for use in the U.S. and Canada.
5 FM Approved for protection of occupancies described in the FM Global Loss Prevention Data Sheets (including 2-0 and 8-9) and Technical Advisory Bulletins.