RA Series
Reverse-Acting Rupture Disk System

A revolutionary pre-torque holder design that meets all of your rupture disk needs...
In a continued effort to provide cutting edge products and technologies for rupture disk users, ZOOK is pleased to introduce our RA Series of Rupture Disks and Holders. The RA Series offers one unique holder design for use with multiple types of ZOOK Reverse-Acting metal rupture disks.

**Features / Benefits**

- **Pre-Torque Design**
  - pre-assembly of a rupture disk into a holder prior to field installation
  - removal of the assembly from the piping system for inspection without disturbing the seal integrity of the Rupture Disk
  - pre-torque bolts properly seat the disk by engaging the holder bite

- **One holder design**
  - accepts multiple disk designs

- **Disk dome is contained within inlet holder**
  - prevents damaging the disk during installation into mating flanges

- **Locating pin**
  - allows only reverse-acting type disks to be mounted into holder

- **Fluoropolymer coated socket head cap screws**
  - resists corroding to holder assembly
  - provides easy removal without special sockets

- **Polyethylene cap screw covers**
  - prevents debris from building up in cap screw head

- **Sizes 1” thru 12”**

- **Standard Holder Materials:**
  Carbon Steel, 316SS, Hastelloy

- **Holder information is permanently affixed to the O.D. of holder**

- **Bubble tight metal-to-metal bite and disk seal**

- **Flow direction arrows on disk tag and holder**
  - provide permanent visual verification that holder assembly is properly oriented in the piping system

- **Flange class and type specific**
  - guards against installing an assembly into mating flanges with a different pressure rating than the rupture disk holder

- **Positioning hole in mounting lug**
  - located in the exact position as the mating flange
  - allows for proper alignment
  - can be used as an extra “hand” when installing into horizontal piping

...rupture disks and related over-pressure protection products
Rupture Disk Features

- Designed for Non-fragmentation
- Standard operating ratio of 90% of the marked rating on disk tag (Contact ZOOK for operating ratio on pressures below 40 psig)
- Disk designs offer high cycle life (when compared to forward-acting design disks)
- Certified for liquid, gas, or two-phase applications (RAX available for gas service only)
- Standard manufacturing ranges of 0%, -5%, and -10% ensures marked rating on disk tag does not exceed the MAWP of equipment
- Withstands full vacuum without vacuum support
- Resists product build-up. The smooth convex side of the disk is exposed to the process media
- Unique alignment pin design ensures proper disk orientation into holder
- 3-dimensional stainless steel tag permanently engraved with complete disk specifications
- ASME UD, CE, and TUV marking available

Safety Relief Valve Protection

When disk is mounted under a Relief Valve, the working components of the valve are isolated from hostile environments.

Option Liners

Teflon liners are available to provide protection from corrosive media. Note that the maximum temperature ratings for disks supplied with liners is lower than the unlined disk.

Certified Flow Resistance factors (K_F)

<table>
<thead>
<tr>
<th>Disk Type</th>
<th>K_{rl} (Liquid)</th>
<th>K_{rg} (Gas)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RA4 Series</td>
<td>1.63</td>
<td>1.63</td>
</tr>
<tr>
<td>RA6 Series</td>
<td>0.98</td>
<td>0.80</td>
</tr>
<tr>
<td>RA8 Series</td>
<td>1.16</td>
<td>0.59</td>
</tr>
<tr>
<td>RAX Series</td>
<td>▲</td>
<td>2.00</td>
</tr>
</tbody>
</table>

▲ – Not Available
**Options/Accessories**

### Mid/Long Pattern
- Can be machined to meet existing piping specifications
- Prevents Rupture Disk membrane from protruding beyond the outlet holder after burst

### Gaskets
- **O-Ring Seal**
  - Teflon encapsulated Viton

### Gauge Tap**
- Used for monitoring pressure/temperature at rupture disk location
- Also available on inlet holder

### Replacement Fluoropolymer Coated Cap Screws

#### Cap Screw Specifications*:

<table>
<thead>
<tr>
<th>Type</th>
<th>Socket Head</th>
</tr>
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<tbody>
<tr>
<td>Material</td>
<td>Alloy Steel</td>
</tr>
<tr>
<td>Hardness</td>
<td>38-43-RC</td>
</tr>
<tr>
<td>Threads</td>
<td>UNRF 3A</td>
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</tbody>
</table>

*Required to meet Pre-Torque specifications

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**Holder Dimensions/Specifications**

<table>
<thead>
<tr>
<th>Nominal Size</th>
<th>Available ANSI Flange Class*</th>
<th>Minimum Height (in)*</th>
<th>Standard Height (in)</th>
<th>Weight (Lbs.) (Short Pattern)</th>
<th>Number of Cap Screws</th>
<th>Cap Screws Hex Size</th>
<th>Gauge Tap (NPT)**</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Short Pattern RAH</td>
<td>Mid Pattern RAH-LP1</td>
<td>Long Pattern RAH-LP2</td>
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<tr>
<td>1&quot;</td>
<td>150/300/600</td>
<td>1-9/16&quot;</td>
<td>2-1/8&quot;</td>
<td>2-11/32&quot;</td>
<td>2-9/16&quot;</td>
<td>3.8</td>
<td>4</td>
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<tr>
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<td>150/300/600</td>
<td>1-11/16&quot;</td>
<td>2-1/4&quot;</td>
<td>2-29/32&quot;</td>
<td>3-9/16&quot;</td>
<td>6.4</td>
<td>4</td>
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<tr>
<td>2&quot;</td>
<td>150/300/600</td>
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<td>3-1/8&quot;</td>
<td>4-15/16&quot;</td>
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<td>12</td>
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<tr>
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<td>13-5/32&quot;</td>
<td>19-25/32&quot;</td>
<td>136.0</td>
<td>12</td>
</tr>
</tbody>
</table>

* Holders are also available to fit DIN and JIS flanging. Contact ZOOK for details.

**Minimum height specified in table above will maintain the pre-torque feature of the rupture disk holder.

Refer to ASME/ANSI B16.5 Pipe flanges and Flange Fittings (Table 2) for Max allowable Pressure/Temperature Ratings per flange Class.

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**Gaskets**

- **Teflon** – DuPont
- **Hastelloy** – Cabot Corp.
- **Monel** – Huntington Alloys
- **Inconel** – International Nickel

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**Special Coating**

- **Fluoropolymer Teflon® Sintered (FS)**
  - Provides durable, non-stick surface (Requires O-Ring Seal)

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