The GCR™ Series of reverse buckling disks is designed with a circular score line located at the edge of the domed area. At the marked burst pressure, the disk’s dome reverses and opens by shearing around the circular score line. The GCR series uses SAF™ (Structural Apex Forming) technology, the central “dimple,” present in all GCR series rupture disks ensures a damaged disk will rupture at or below the marked burst pressure. The GCR™ series is used for hygenic/aseptic applications in the pharmaceutical, biotechnology and food industries.

Features
- One disk design for both gas and liquid service
- “Fail-safe” design damage safety ratio < 1.0
- Wide range of pressures
- Ideal for CIP / SIP service
- Integral sanitary gaskets
- 8 to 16 micro-inch typical disk surface finish
- Suitable for operating pressures up to 90% of marked burst pressure* or 95% of the specified minimum burst pressure (higher operating ratios may be available)
- Meets ASME BPE standards. CE marking also available
- Designed for non-fragmentation
- 0% standard Manufacturing Design Range - optional -5%, -10%
- Withstands full vacuum at all available burst pressures
- Available SAS™ (Sanitary Alert Sensor) for burst indication or LDS (Leak Detector Sensor) with leak sensing capability
- Integral burst disk sensor option

*S at marked burst pressures of 40 psig (2.76barg) and below, the recommended maximum operating pressure is 90% of the marked burst pressure, less 2 psig (0.138barg) tolerance

Sensors
The GCR™ Series of disks are also available with integral sensors to provide an alert of a burst rupture disk. For this added feature, specify types GCR-SS™ and GCR-SMS™.

Optional SAS™ for use between standard sanitary fittings to provide an alert of a burst rupture disk. Leaking disk detection is also available; consult BS&B for details.

Materials
The GCR series disks and GR-C outlet fitting are available in 316L stainless steel as standard. Alternative materials are available on request.

<table>
<thead>
<tr>
<th>Disk Specification Min / Max Burst Pressure at 72°F (22°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sanitary Fitting</td>
</tr>
<tr>
<td>Nominal Disk Size</td>
</tr>
<tr>
<td>in</td>
</tr>
<tr>
<td>1.5</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
</tbody>
</table>

Other burst pressures may be available - consult BS&B
Manufacturing Design Range
0% standard MDR (Manufacturing Design Range) - The user's requested burst pressure will be the marked burst pressure. An optional MDR of -5% and -10% may be selected as operating conditions permit. The MDR is applied only to the minus side of the requested burst pressure.

MDR is a range of pressures within, which the marked burst pressure must fall to be acceptable for a particular requirement as agreed upon between the rupture disk manufacturer and the user or their agent.

Example:
- Requested burst pressure 100 psig (6.89 barg)
- Agreed MDR - 10%
- Therefore the marked burst pressure shall be between 90 psig (6.21 barg) and 100 psig (6.89 barg)

Flow Performance
The GCR Series reverse buckling disk has been specifically developed to produce superior flow performance at all burst pressures in gas or liquid service. The circular score on the disk’s dome, coupled with the nonrestrictive hinge on the outlet side of the disk, ensures an excellent pressure relief opening in all service phases.

Flow resistance factor, $K_R$, may be used to determine the relieving capacity of a system according to the ASME and CE codes and standards. Individual $K_R$ values have been established for both gas and liquid service for the disk. $K_R$ values are available at www.bsbsystems.com.

Gaskets
The GCR series is supplied with gaskets which meet both FDA and USP Class VI Requirements.

<table>
<thead>
<tr>
<th>Material</th>
<th>Service temperature</th>
<th>Minimum burst pressure for lined disks at 72°F (22°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicone</td>
<td>-67°F (-55°C)</td>
<td>450°F (232°C)</td>
</tr>
<tr>
<td>Viton® (white or Black)</td>
<td>-40°F (-40°C)</td>
<td>400°F (204°C)</td>
</tr>
<tr>
<td>EPDM (white or Black)</td>
<td>-67°F (-55°C)</td>
<td>300°F (149°C)</td>
</tr>
<tr>
<td>PTFE blended with stainless steel</td>
<td>-20°F (-29°C)</td>
<td>450°F (232°C)</td>
</tr>
</tbody>
</table>

GCR Disk Types
GCR-S™ and GCR-SS™ with uniquely designed FDA approved gaskets are installed between a standard inlet ferrule and the GR-C™ outlet ensuring correct orientation of disk and leak tight installation.

The GCR-SM™ and GCR-SMS™ have a symmetric gasket configuration on both sides of the disk and fit between standard Tri-Clamp® (or equivalent) fittings.

The GCR-SE™ and GCR-SES™ are installed in an FM-C™ or FT-C™ safety head. The FM-C provides for flush mounting of the disk with the interior wall of the vessel while the FT-C accomplishes the same flush mounting in an “in-line” pipe configuration, both achieving minimal dead leg between the disk and process fluid. Similar flush installation is achieved with GCR-N™ and GCR-NS™ type disks when installed in NA-Connect® holders. An integral burst alert sensor is provided on the outlet side of the disk with disk types GCR-SS, GCR-SMS and GCR-NS. The GCR-SW™ is a welded ferrule assembly with the disk is welded between standard fittings.

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