



Installation Instructions

Type GCR-S™, GCR-SS™, GCR-SM™, GCR-SMS™, GCR-SE™ Rupture Disks GR-C™ and FM-C™ Safety Heads

DANGER: Rupture disks are intended to provide a pressure relief opening. This rupture disk is designed to burst at a specified temperature and pressure, thereby relieving excess pressure or preventing excessive vacuum in a system. **IT IS IMPERATIVE THAT THIS RUPTURE DISK BE PROPERLY INSTALLED AND SAFELY VENTED IN ORDER TO AVOID BODILY INJURY, DAMAGE TO PROPERTY, POLLUTION AND LOSS OF PRODUCT.** BS&B Safety Systems, Inc and BS&B Safety Systems Ltd supply disks selected by their customers which are manufactured in reliance upon information and specifications supplied by the customer. BS&B Safety Systems, Inc and BS&B Safety Systems Ltd are not liable for any damage resulting from improper installation, improper system design, unsafe venting, or other factors beyond BS&B Safety Systems, Inc and BS&B Safety Systems Ltd control.

ORDER REPLACEMENT DISKS BY LOT NUMBER (shown on disk tag).

BEFORE YOU INSTALL A RUPTURE DISK Inspect Safety Head

1. Inspect Safety Head's mating surfaces for foreign material. Pits, dirt or grit can damage the rupture disk affecting disk performance or cause leakage. Clean if necessary.
2. The rupture disk and Safety Head must not be machined or modified in any way except with the approval of BS&B Safety Systems, Inc. or BS&B Safety Systems Ltd. Failure to obtain such approval voids the warranty on this product.

Inspect the Rupture Disk

1. Handle the rupture disk carefully holding the disk by the tag and the perimeter only. Examine seating and domed surfaces for nicks, dents, scratches and foreign material which can damage the disk or cause leakage or affect the burst pressure. **Do not install a damaged disk.** Installation of a damaged disk may result in a premature bursting of the disk. The GCR-S™ series uses SAF™ technology (Structural Apex Forming) and the designed precision indentation in the center of the disk is present in all cases to assist operating accuracy.

Safety Precautions

CAUTION: Provide adequate support for piping and connections to absorb recoil/reaction forces when the disk ruptures.

The rupture disk and Safety Head should not be subjected to bending stresses.

Do not locate the disk where it may be subjected to thermal shock. Moisture, rain, condensation or snow may cause a thermal shock to the disk causing the disk to burst below its marked Burst Pressure. A protector is recommended for temperature above 212°F (100°C), consult BS&B Safety Systems, Inc or BS&B Safety Systems Ltd.



Worldwide patents pending

When the disk ruptures, the resulting shock wave may affect the operating performance of downstream equipment.

WARNING: Do not locate the rupture disk where personnel, equipment or property will be exposed to released product and pressure through the disk. Handle carefully, disk and tag may have sharp edges.

Note: Corrosion and process conditions may affect disk deterioration and necessitate more frequent replacement. The installation of the rupture disk must be carried out by trained and competent personnel.

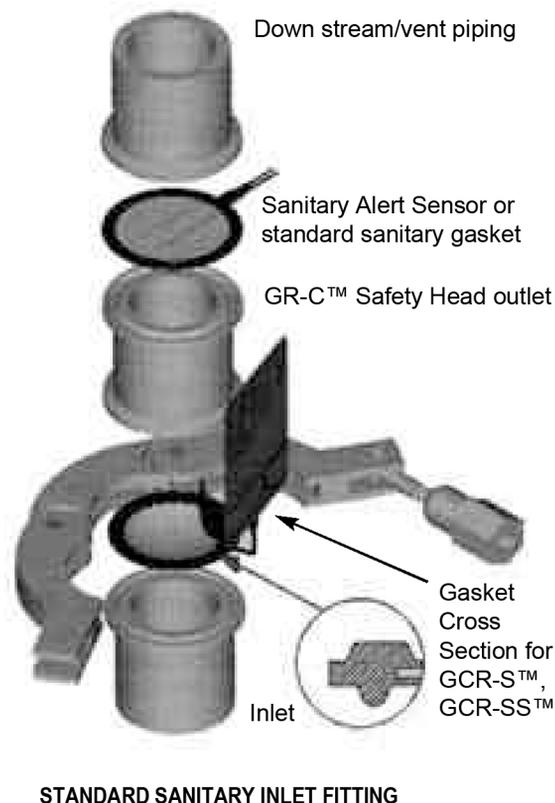
Disk and Safety Head Types

Disk Types	Safety Head
GCR-S™	GR-C™
GCR-SS™	GR-C™
GCR-SM™	Between standard ferrules
GCR-SMS™	Between standard ferrules
GCR-SE™	FM-C™

Assemble Rupture Disk in GR-C™ or FM-C™ Safety Heads, or between standard ferrules.

1. Arrange safety head outlet in position shown.
2. Place undamaged rupture disk on inlet fitting. The convex side of the disk, the dome, faces the inlet.
3. Carefully place Safety Head outlet in position shown in Figure 1 or Figure 2. Ensure that the disk gasket's larger seal bead (Types GCR-S™, GCR-SE™ and GCR-SS™) mates properly with the outlet groove. **Ensure flow arrows on the disk tag end on the Safety Head outlet point in the same direction.** In the case of type GCR-SM™ and GCR-SMS™, the seal bead has a symmetric gasket configuration on both sides of the disk and fits between standard Tri-Clamp® (or equivalent) ferrules.
4. Assemble unit with sanitary clamp. Ensure sealing of rupture disk in Safety Head by applying the torque value to the hexagon nut as shown below. Hexagon nuts are available from BS&B Safety Systems, Inc or BS&B Safety Systems Ltd.

GR-C™ Safety Head with GCR-S™ Rupture Disk



STANDARD SANITARY INLET FITTING

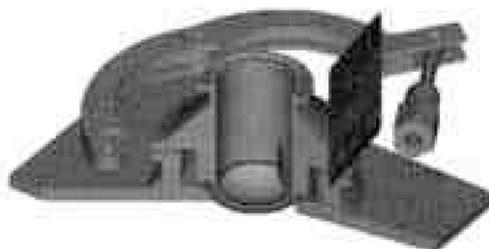
FIGURE 1

Sanitary Fittings and Nominal Disk Size		Torque	
in	mm	in. lbs.	Nm
1.5	40	40	5
2	50	50	6
3	80	60	7
4	100	75	8.5

Sanitary Fittings

As the dimensions of the internal bore and groove are critical to the performance of the rupture disk, Tri-Clamp® ferrules and clamps are recommended. A Tri-Clamp 13 MHHS (or equivalent) sanitary clamp is recommended. Consult manufacturers for ferrule and clamp pressure and temperature service ratings.

FM-C™ Safety Head with GCR-SE™ Rupture Disk



The FM-C™ Safety Head is welded to the vessel wall and permits the rupture disk to be installed flush with the interior wall of the vessel.

FIGURE 2

Limitations of Warranties – BS&B Safety Systems, Inc. and BS&B Safety Systems Ltd warrants their products, when properly installed, used and maintained by the original purchaser, against defective workmanship and materials for a period of twelve (12) months from the date of shipment. Purchaser's failure to use this product in strict compliance with all material operating specifications provided to BS&B Safety Systems, Inc. or BS&B Safety Systems Ltd by purchaser prior to BS&B Safety Systems, Inc. or BS&B Safety Systems Ltd. production or shipment of this product shall void this warranty. Rupture disks are warranted solely to burst within specified pressure ranges at temperatures specified at the time of sale.

Where pressure relief or other products used by Buyer involve multi-part assemblies, each part must be manufactured by BS&B Safety Systems, Inc. or BS&B Safety Systems Ltd. BS&B Safety Systems, Inc. and BS&B Safety Systems Ltd. specifically disclaim any warranties and any and all liability for damages, either direct or indirect, incidental or consequential, arising from the use of rupture disk assemblies (e.g. rupture disk and rupture disk holder), explosion vent assemblies (e.g. vent and safety frame) or other assemblies not wholly comprised of BS&B Safety Systems, Inc. and BS&B Safety Systems Ltd manufactured products.

BS&B Safety Systems, Inc. and BS&B Safety Systems Ltd do not warrant any article not manufactured by BS&B Safety Systems, Inc. or BS&B Safety Systems Ltd. BS&B Safety Systems, Inc. and BS&B Safety Systems Ltd do not warrant this product against loss or damage caused directly or indirectly by improper pressure relief system design; by the improper use, maintenance or installation (including improper torque) of this product; or by corrosion, erosion or malfunction caused by acids, chemicals, fumes, rust, dirt, debris, thermal shock, shock waves or other external agencies over which BS&B Safety Systems, Inc. and BS&B Safety Systems Ltd have no control.

THE EXPRESSED WARRANTIES HEREIN GIVEN ARE EXCLUSIVE AND IN LIEU OF ALL WARRANTIES EXPRESSED OR IMPLIED, BY OPERATION OF LAW OR OTHERWISE INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. BUYER'S SOLE AND EXCLUSIVE REMEDY FOR BREACH OF ANY WARRANTY SHALL BE, AT BS&B SAFETY SYSTEMS, INC. OR BS&B SAFETY SYSTEMS LTD OPTION, THE REPAIR OR REPLACEMENT OF THE PRODUCT, F.O.B. TULSA, OKLAHOMA. OR LIMERICK, IRELAND.

Liability Limitations – BS&B Safety Systems, Inc. and BS&B Safety Systems Ltd manufacture and supply their products in reliance upon information and specifications provided by its customers. BS&B Safety Systems, Inc. and BS&B Safety Systems Ltd specifically disclaim any and all liability, of whatever nature, resulting or arising from Buyer's failure to disclose fully all material operating conditions, design parameters, process components, or system or vessel requirements, or from any misrepresentations or omissions by Buyer. Buyer agrees to indemnify and hold harmless BS&B Safety Systems, Inc. or BS&B Safety Systems Ltd for all costs, loss, liability or damage arising or resulting from BS&B Safety Systems, Inc. or BS&B Safety Systems Ltd manufacture or supply of this product in accordance with Buyer's specifications or requirements.

BS&B SAFETY SYSTEMS, INC. OR BS&B SAFETY SYSTEMS LTD AGGREGATE TOTAL LIABILITY TO BUYER FOR ANY AND ALL LOSS OR DAMAGE ARISING OUT OF BUYER'S USE OF, OR INABILITY TO USE, THE PRODUCT SHALL IN NO EVENT EXCEED THE PURCHASE PRICE OF THE PRODUCT OR \$1,000.00, WHICHEVER IS LESSER. BS&B SAFETY SYSTEMS INC. OR BS&B SAFETY SYSTEMS LTD SHALL NOT BE LIABLE FOR PERSONAL INJURY OR PROPERTY DAMAGE ARISING OUT OF BUYER'S PURCHASE, INSTALLATION, OR USE OF THE PRODUCT, AND IN NO EVENT SHALL BS&B SAFETY SYSTEMS, INC. OR BS&B SAFETY SYSTEMS LTD BE LIABLE FOR SPECIAL, INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES RESULTING FROM ANY SUCH CAUSES.



BS&B SAFETY SYSTEMS, INC.
BS&B SAFETY SYSTEMS LTD.

BS&B Safety Systems, Inc. and BS&B Safety Systems Ltd. are here to assist you in providing a safe and efficient work place. For assistance on installation, audits, training or technical advice, please contact our Customer Service Department.

BS&B Safety Systems, Inc.
7455 East 46th Street
Tulsa, OK 74145
Telephone: 918-622-5950
Facsimile: 918-665-3904
www.bsbsystems.com

or

BS&B Safety Systems Ltd.
Raheen Business Park
Raheen, Limerick, Ireland
Telephone: +353 61 227022
Facsimile: +353 61 227987
www.bsb.ie

ISO 9001 Quality System Certification

