Catalog # 77-4026

LSR-S™

Reverse Buckling Rupture Disk

The LSR-S™ rupture disk is a circular scored reverse buckling rupture disk. At the marked burst pressure, the disk's dome reverses and opens by shearing around the circular score line. The LSR-S series uses SAF™ (Structural Apex Forming) technology, the central "dimple" which aids in the control of burst pressure. The LSR-S™ is used for hygienic/aseptic applications in the pharmaceutical, biotechnology and food industries.

Vent Side



Process Side





The type GR-C™ outlet that provides quick installation of the LSR-S reverse buckling disk onto existing standard sanitary inlet fittings. The uniquely designed gasket helps eliminate inverted installation of the rupture disk.

US and International patents pending.

Features

- Designed for gas, liquid and multi-phase service.
- Damage safety ratio < 1.0.
- Ideal for CIP / SIP service.
- Integral sanitary gaskets.
- 8 to 16 micro-inch typical disk surface finish.
- Suitable for operating pressure to 90% of the minimum burst pressure.
- Install to ASME BPE / DIN 32676 Series C sanitary fittings.
- High flow design; Krgl 0.74
- Available with ASME "UD" (select 0%, -5%, -10% Manufacturing Design Range).
- Available with "CE" marking, European Pressure Equipment Directive compliance.
- Designed for non-fragmentation.
- 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.

Materials

The LSR-S reverse buckling rupture disk and GR-C outlet fitting are available in 316L stainless steel as standard. Alternative materials are available on request.

Sensors

The LSR-S rupture disk family is available with an integral Burst Alert® sensor (see model designations on next page) as an alternative to a separate downstream sensor as illustrated."

Minimum / Maximum Pressures

Disk Specification Min / Max Burst Pressure at 72°F (22°C)									
Sanitary Fitting		Burst Pressure				Overall Height		OD	
Nominal Disk Size		Min		Max					
in	mm	psi	bar	psi	bar	in	mm	in	mm
1.5	40	6	0.41	300	20	035	9	1.98	50.3
2	50	5.5	0.38	300	20	0.47	12	2.52	64
3	80	5	0.34	200	14	0.67	17	3.58	90.9
4	100	4	0.28	200	14	0.87	22	4.68	118.9

Other sizes and burst pressures may be available - consult BS&B

Flow Performance

The LSR-S 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 ensures an excellent pressure relief opening in all service phases.

Flow resistance factor, Kr may be used to determine the relieving capacity of a system according to ASME and CE codes and standards. A single Krgl of 0.74 applies to the LSR-S rupture disk size 1-1/2" and larger; the same low figure for both gas and liquid service conditions.

Gaskets

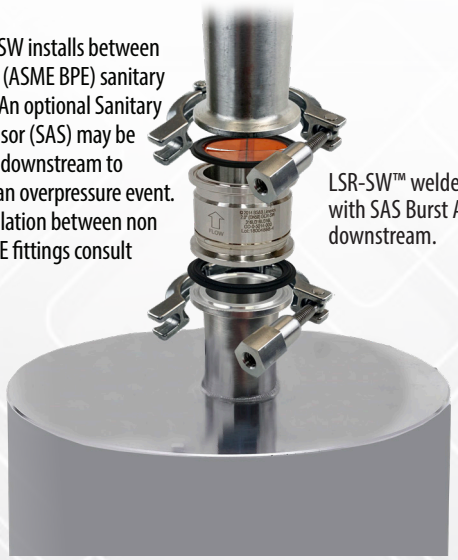
The LSR-S is supplied with gaskets which meet FDA, ASME BPE, ISO and USP requirements.

Material	Service temperature	
Silicone	-67°F (-55°C)	450°F (232°C)
Viton® (white or Black)	-40°F (-40°C)	400°F (204°C)
EPDM (white or Black)	-67°F (-55°C)	300°F (149°C)
PTFE blended with stainless steel	-20°F (-29°C)	450°F (232°C)

Liners

Liners are available in all sizes as optional on the process side of the disk. FEP or PFA are generally used. Burst pressure must be 15psi / 1.03 Bar or higher.

The LSR-SW installs between standard (ASME BPE) sanitary fittings. An optional Sanitary Alert Sensor (SAS) may be installed downstream to indicate an overpressure event. For installation between non ASME BPE fittings consult factory.



LSR-SW™ welded assembly with SAS Burst Alert® sensor downstream.

Burst Tolerance

Burst Pressure		Burst Tolerance *(per ASME)*
psig	barg	
28 and higher	1.93 and higher	±5%
20 to <28	1.38 to <1.93	±7%
10 to <20	0.69 to <1.38	±10%
<10	<0.69	±20%

Installation

The GR-C™ outlet ensures correct disk orientation and a leak tight rupture disk installation. BS&B recommends the assembly

LSR-S Disk Types and Integral Sensors

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

An integral burst alert sensor is provided on the outlet side of the disk with disk types LSR-SS, and LSR-SMS. The LSR-SW™ is a welded ferrule assembly with the disk welded between standard fittings.



Typical LSR-SM rupture disk installation using BS&B provided 13MHHS style clamp and hexagonal assembly nut.

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