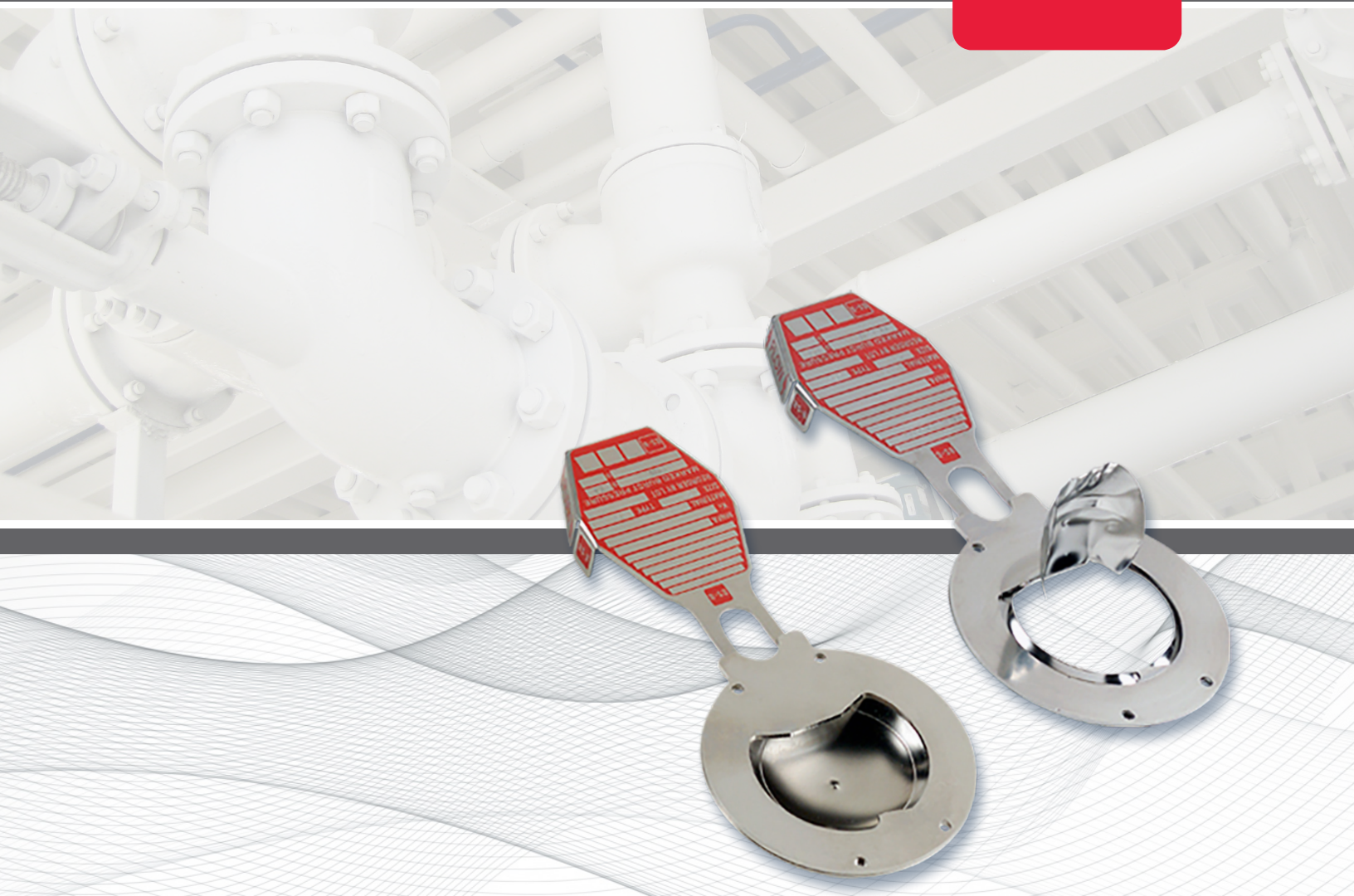
Catalog #77- 4002

BS&B®



LPS™ Low Pressure Reverse Buckling Rupture Disk

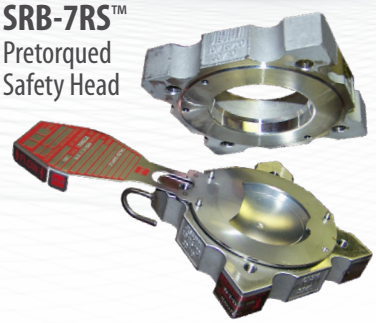
ISO 9001 CERTIFIED COMPANY

CE

ASME UD

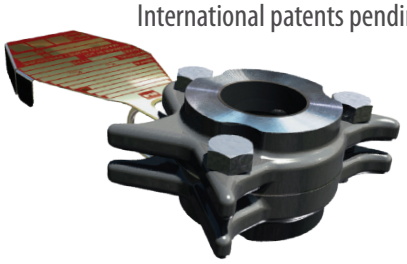
Safety Heads

SRB-7RS™
Pretorqued
Safety Head



LPS rupture disk, combined with the SRI-7RS™ or SRB-7RS™ pretorqued safety heads, provides accuracy and reliability.

SRI-7RS™
Pretorqued Safety Head.
US patent 10,704,698 applies.
International patents pending.



SRB-7FS™
Pretorqued Full-Bolted
Safety Head

S90-7R™
Pre-assembled insert
Safety Head

Available only for burst pressures higher than 15 psig (1 barg)

TR™ option

For applications using high energy sealing systems, such spiral wound gaskets, the torque resistant safety head option is recommended. Order with TR™ option. Safety head model names become: SRI-7RS-TR; SRB-7RS-TR; and SRB-7FS-TR.

For detailed information about Safety heads available for the LPS, including safety head specifications, please consult catalog 77-4001, Sta-Saf Rupture Disks , available online at www.bsbsystems.com.

LPS™ Low Pressure Reverse Buckling Disk

The LPS rupture disk was developed to provide low burst pressures from 5 psig (0.35 barg) using reverse buckling rupture disk technology. The LPS rupture disk, combined with the SRI-7RS® or SRB-7RS® safety heads, provides accuracy and reliability. The LPS uses SAF™ technology enabling very low burst pressures to be achieved with excellent opening characteristics. The Type GLP-S rupture disk is available for installation in the sanitary/aseptic SR-C safety head.

Features

- Solid metal design
- Low burst pressure from 5 psig (0.35 barg)
- Designed for gas, liquid or two phase service
- Fail safe: damage safety ratio < 1
- Designed for non-fragmentation
- Vacuum and back pressure resistant
- High operating ratio: 90% of minimum burst pressure
- Reverse buckling disk in sizes: 1-12 inches (25-300 mm)
- For installation in Types SRI-7RS and SRB-7RS, S90-7R, SRB-7FS, SPR-7R, SR-7R and TR-Series pretorqued safety heads
- Sanitary / Aseptic options are available

Manufacturing Design Range (MDR)

The standard LPS manufacturing design ranges are 0%, -5%, -10%. For tantalum, the MDR options are -5% and -10% only.

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	±15%
Alternate:		±2 psi (0.138 bar)
<40	<2.76	

Performance Tolerance

Specified Burst Pressure		Performance Tolerance, *standard** *(per ISO / EN 4126)*		
psig	barg	0% MDR	-5% MDR	-10% MDR
28 and higher	1.93 and higher	±5%	+5% /-10%	+5% /-15%
20 to <28	1.38 to <1.93	±7%	+7% /-12%	+7% /-17%
10 to <20	0.69 to <1.38	±10%	+10% /-15%	+10% /-20%
<10	<0.69	±15%	+10% /-25%	+10% /-30%
Alternate:		±10%	+10% /-15%	+10% /-20%
20 to <40	1.38 to <2.76			

** Select one. Special requests for performance tolerance accepted.*

LPS™ Disk Specifications Minimum / Maximum Pressure with Rating at 72°F (22°C)

Disk Size		Nickel Alloy 200				316ss				Inconel® Alloy 600				Monel® Alloy 400				Hastelloy® Alloy C-276				Tantalum			
in	mm	psig		barg		psig		barg		psig		barg		psig		barg		psig		barg		psig		barg	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
1	25	15	70	1.03	4.83	15	70	1.03	4.83	20	70	1.38	4.83	20	70	1.38	4.83	15	70	1.03	4.83	20	70	1.38	4.83
1.5	40	6	55	0.41	3.79	6	55	0.41	3.79	10	55	0.69	3.79	10	55	0.69	3.79	7	55	0.48	3.79	10	55	0.69	3.79
2	50	5	40	0.34	2.76	5	40	0.34	2.76	8	40	0.55	2.76	8	40	0.55	2.76	6	40	0.41	2.76	8	40	0.55	2.76
3	80	5	35	0.34	2.41	5	35	0.34	2.41	7	35	0.48	2.41	7	35	0.48	2.41	5	35	0.34	2.41	7	35	0.48	2.41
4	100	5	30	0.34	2.06	5	30	0.34	2.06	7	30	0.48	2.06	7	30	0.48	2.06	5	30	0.34	2.06	7	30	0.48	2.06
6	150	5	25	0.34	1.72	5	25	0.34	1.72	7	25	0.48	1.72	7	25	0.48	1.72	5	25	0.34	1.72	7	25	0.48	1.72
8	200	5	25	0.34	1.72	5	25	0.34	1.72	7	25	0.48	1.72	7	25	0.48	1.72	5	25	0.34	1.72	7	25	0.48	1.72
10	250	5	25	0.34	1.72	5	25	0.34	1.72	7	25	0.48	1.72	7	25	0.48	1.72	5	25	0.34	1.72	7	25	0.48	1.72
12	300	5	25	0.34	1.72	5	25	0.34	1.72	7	25	0.48	1.72	7	25	0.48	1.72	5	25	0.34	1.72	7	25	0.48	1.72

Consult BS&B for applications where the disk may be rated with a coincident temperature below 300°F (149°C) (176°F (80°C) for Hastelloy) but operated at a higher value. Special processing may be required. ***Note****: Hastelloy® is a trademark of Haynes International Inc. Monel® and Inconel® are registered trademarks of Special Metals Corporation and Its subsidiaries.*

Cycle Resistance / Temperature Influence / Service Life

The cycle resistance of the LPS disk is a function of the application operating conditions. If the operating pressure is static, (without pressure cycles), then as for all types of rupture disk devices, the service life shall be maximized. If the operating pressure is mildly cyclic, such as the conditions of a sealed atmospheric tank under ambient temperature fluctuations, the LPS disk may resist in excess of 1000 cycles.

Under highly cyclic operating pressure conditions, the cycle life of the LPS disk is determined by the frequency and magnitude of pressure change from positive to negative differential. When all of the pressure cycling takes place within the operating pressure ratio of the LPS disk and at a positive differential pressure, the service life shall be maximized. Should the operating pressure cycle between full vacuum and positive pressure, the service life of the LPS disk can be anticipated at several hundred cycles. Cycle and service life for every rupture disk depends upon its unique application operating conditions. It is particularly important to allow for the temperature's influence on burst pressure; if the rated burst temperature of the disk is selected too low, a higher actual temperature may reduce the disk burst pressure. Seek advice from BS&B Safety Systems regarding rated burst temperature. Other application factors including corrosion, erosion, abrasion, product build-up and vibration, affect the service life of a rupture disk and must be considered by the user.

Vacuum Resistance / Back Pressure Resistance

The LPS disk will resist vacuum without the need for an additional vacuum support. Back pressure resistance is limited to 15 psig (1barg) for disks rated to burst at 15 psig (1barg) or less. For higher burst pressures, back pressure resistance is equal to the minimum burst pressure of the ordered LPS disk.

Maximum Recommended Temperatures

Material	Max. Temperature
Nickel (alloy 200)	750°F (399°C)
Monel® (alloy 400)	900°F (482°C)
Inconel® (alloy 600)	1100°F (593°C)
316 stainless steel	900°F (482°C)
Hastelloy® C-276 (alloy C-276)	900°F (482°C)
Titanium	572°F (300°C)
Tantalum	500°F (260°C)
Fluoropolymer liner (PTFE)	500°F (260°C)
Fluoropolymer liner (FEP, PFA)	400°F (204°C)

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