

BS&B®



SK_RTM the all purpose
rupture disk for controlled pressure relief



SK_R Safety Heads

SRI-7RS™

Pretorqued Safety Head
US patent 10,704,698 applies.
International patents pending



SRB-7RS™

Pretorqued Safety Head



SRB-7FS™

Pretorqued
Safety Head



S-90-7R™

Pretorqued
Safety Head



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

SK_R™ the all purpose rupture disk for controlled pressure relief

The SK_R™ reverse buckling disk is designed with a circular score line located at the edge of the domed area on the downstream side of the disk. At the marked burst pressure, the disk's dome reverses and opens by shearing around the circular score. The SK_R uses SAF™ technology (structural apex forming) enabling very low burst pressures to be achieved with excellent opening characteristics. An integral energy-absorbing hinge located on the downstream side of the disk enables the SK_R to perform in gas or liquid service with superior flow performance. The hinge design interacts with the safety head bore to retain the SK_R disk petal on opening, avoiding fragmentation.

FEATURES

- The first rupture disk specifically developed and performance flow tested* for use in all service conditions
- Gas or liquid service
- Long service life in pressure cycling or pulsating conditions
- Suitable for operating pressures up to 90% of the marked burst pressure, or 95% of the minimum burst pressure
- Damage safety ratio < 1
- Designed for non-fragmentation
- Standard MDR: 0%, optional -5%, -10%
- Withstands full vacuum
- Ideal for relief valve isolation
- Three-dimensional tag indicates correct directional orientation and ASME or CE requirements
- US patents 6321582, 6178983, 6446653, 5996605 and international patents apply
- For installation in Types SRI-7RS, SRB-7RS, S90-7R, SRB-7FS, SPR-7R, SR-7R and TR-Series pretorqued safety heads

*ASME code section VIII division 1, according to the test method of PTC-25

BURST TOLERANCE

Marked Burst Pressure	Burst Tolerance
≤ 40 psig (2.76 barg)	± 2 psig (0.138 barg)
> 40 psig (2.76 barg)	± 5%

MANUFACTURING DESIGN RANGE (MDR)

The standard MDR for the SK_R is 0%. The user's requested burst pressure will be the marked burst pressure. Optional MDR's of -5% and -10% may be selected as operating conditions permit. The MDR is applied to the minus side only of the requested burst pressure.

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

LINERS

Fluoropolymer liners: available in all sizes, optional on the process side of the disk.
- Temperature Range: FEP -40°F to 400°F (-40°C to 205°C); PTFE -40°F to 500°F (-40°C to 260°C)

SK_R™ Disk Specifications Minimum / Maximum Pressure Rating at 72°F (22°C) PSIG (barg)

Disk Size		Nickel Alloy 200				Hastelloy® Alloy C-276 and 316				Inconel® Alloy 600				Monel® Alloy 400				Tantalum				Titanium			
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	55	500	3.79	34.47	60	500	4.14	34.47	60	500	4.14	34.47	60	500	4.14	34.47	55	500	3.79	34.47	90	500	6.20	34.47
1.5	40	40	500	2.76	34.47	45	500	3.10	34.47	45	500	3.10	34.47	45	500	3.10	34.47	40	500	2.76	34.47	60	500	4.14	34.47
2	50	25	500	1.72	34.47	30	500	2.07	34.47	30	500	2.07	34.47	30	500	2.07	34.47	25	500	1.72	34.47	35	500	2.41	34.47
3	80	20	500	1.38	34.47	25	500	1.72	34.47	22	500	1.52	34.47	22	500	1.52	34.47	20	500	1.38	34.47	25	500	1.72	34.47
4	100	16	500	1.10	34.47	20	500	1.38	34.47	18	500	1.24	34.47	18	500	1.24	34.47	16	500	1.10	34.47	20	500	1.38	34.47
6	150	15	261	1.03	18.00	20	261	1.38	18.00	15	261	1.03	18.00	15	261	1.03	18.00	15	261	1.03	18.00	20	261	1.38	18.00
8	200	15	200	1.03	13.79	20	200	1.38	13.79	15	200	1.03	13.79	15	200	1.03	13.79	15	200	1.03	13.79	20	200	1.38	13.79
10	250	15	150	1.03	10.34	20	150	1.38	10.34	15	150	1.03	10.34	15	150	1.03	10.34	15	150	1.03	10.34	20	150	1.38	10.34
12	300	10	110	0.69	7.58	15	110	1.03	7.58	15	110	1.03	7.58	15	110	1.03	7.58	15	110	1.03	7.58	20	110	1.38	7.58

Note: Hastelloy® is a trademark of Haynes International Inc. Monel® and Inconel® are registered trademarks of Special Metals Corporation and its subsidiaries.

SK_R Material Selection

BS&B manufactures rupture disk pressure relief devices on a wide range of materials in order to meet customer selection design and operational requirements. The user is advised to determine and select the appropriate material for the application conditions.

An incorrect material choice may result in performance issues including corrosion of disk material that may affect performance and leak tightness characteristics.

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)

Fluoropolymer film liners are available as an additional corrosion barrier with most BS&B rupture disks. Order as "fluoropolymer liner" when required. Liners are typically applied to the inlet (process) side of the rupture disk, however some disk types allow for liners to be applied to both the inlet and outlet side of the rupture disk. When a specific liner material is required (FEP, PFA, PTFE), the customer shall specify.

Operating Pressure Ratio

Sta-Saf reverse buckling disks can be operated up to 95% of the marked burst pressure (or up to 100% of the minimum burst pressure) for burst pressures above 40 psig (2.76barg). For burst pressures less than 40 psig, the maximum operating pressures may be lower (consult product specific information).

Rupture disks respond to differential pressure. Please take into account the service conditions at the inlet and outlet of a rupture disk when completing specifications.

Maximum Recommended Temperature

For each material the upper temperature unit has been determined from the recommendations of material manufacturers and end user experience. Rupture disk technology uses nickel and its alloys to provide the user with a range of corrosion resistance capabilities and thermal stability particularly in the case of alloy 600.

Type SK_R Rupture Disk

Designed for use in union type threaded holder, type UR-2 safety head, with thread connections ½, ¾ or 1 inch (13, 19 or 25mm) all utilizing a nominal 1 inch (25mm) rupture disk. Refer to 1 inch SKR disk minimum-maximum burst pressure capability for each material for type SKR-U disks.



AMERICAS

Tulsa, OK USA

T: +1 918 622 5950
F: +1 918 665 3904
E: sales@bsbsystems.com

Houston, TX USA

T: +1 713 682 4515
F: +1 713 682 5992
E: sales@bsbsystems.com

Minneapolis, MN USA

T: +1 952 941 0146
F: +1 952 941 0646
E: sales@bsbipd.com

Edmonton, AB Canada

T: +1 780 955 2888
F: +1 780 955 3975
E: contacts@bsbprocess.com

Monterrey, Mexico

T: +011 52 81 8299 5861
T: +011 52 81 8299 5862
E: sales@bsbsystems.com

Sao Paulo, Brasil

T: +55 11 2084 4800
F: +55 11 2021 3801
E: sales@bsbbrazil.com

EUROPE, MIDDLE EAST & AFRICA

Limerick, Ireland

T: +353 61 484700
F: +353 61 227987
E: sales@bsb.ie

Düsseldorf, Germany

T: +49 211 930550
F: +49 211 3982171
E: info@bormann-neupertbsb.de

Manchester, UK

T: +44 161 955 4202
F: +44 161 870 1086
E: sales@bsb-systems.co.uk

Moscow, Russia

T: +7 495 747 5916
F: +7 499 133 4394
E: sales@bsbsystems.ru

The Hague, The Netherlands

T: +31 70 362 2136
F: +31 70 360 4724
E: info@bsbsystems.nl

Copenhagen, Denmark

T: +45 3318 9000
F: +45 3318 9001
E: info@bsbsystems.dk

United Arab Emirates

T: +971 (0) 55 518 0314
T: +971 (0) 55 518 0916
F: +971 (0) 2 558 9961
E: sales@bsbsystems.ae

ASIA PACIFIC

Singapore

T: +65 6513 9780
F: +65 6484 3711
E: sales@bsb.com.sg

Yokohama, Japan

T: +81 45 450 1271
F: +81 45 451 3061
E: information@bsb-systems.co.jp

Seoul, South Korea

T: ++82 2 2636 9110
F: +82 2 2636 9120
E: sales@bsbsystems.kr

Shanghai, China

T: +86 21 6391 2299
F: +86 21 6391 2117
E: sales@bsbsystems.com

Chennai, India

T: +91 44 2450 4200
F: +91 44 2450 1056
E: sales@bsbsystems.com



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