



Catalog # 77-4003

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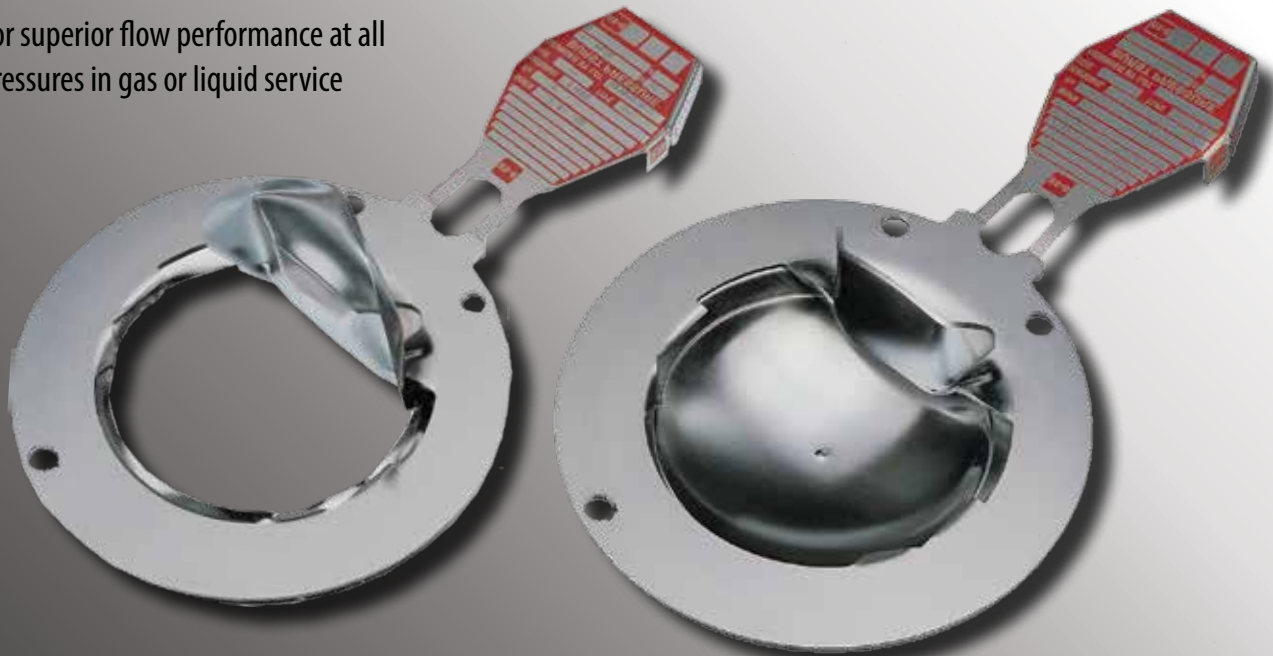


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SK_R™ Rupture Disk

The All Purpose Rupture Disk for Controlled Pressure Relief

Designed for superior flow performance at all
burst pressures in gas or liquid service



US patents: 5,996,605; 6,178,983; 6,446,653. International patents pending

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SK_RTM the All Purpose Rupture Disk for Controlled Pressure Relief

The SK_RTM 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 line. The SK_R uses SafTM 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 on opening, avoiding fragmentation.



Manufacturing Design Range (MDR)

The standard MDR for the SK_R disk 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.

*The ASME code defines the MDR as 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 his agent

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

The ASME code requires also that the marked burst pressure will not exceed the maximum allowable working pressure of the vessel to be protected.

Marked Burst Pressure

The ASME code requires that the marked burst pressure is within the MDR and is determined such that the sample burst test pressures are within the specified tolerance (± 2 psig at or below 40 psig or $\pm 5\%$ above 40 psig). BS&B will exceed ASME code requirements by continuing to use the average of the burst test values as the marked burst pressure (for -5% and -10% MDR) and requiring this average to fall within the MDR. This is in accordance with previous editions of the code and will maintain consistency in burst pressure marking for the user.

Flow Performance

The SK_RTM 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. Flow resistance factor K_R may be used to determine the relieving capacity of a system according to the ASME and CEN (pending) codes. Individual KR values have been established for both gas and liquid service for the SK_RTM disk. MNFA for each disk size is provided to assist with ASME sizing calculations and NRA is provided to assist with European code sizing calculations.

Materials

The SK_RTM is available in 316SS, nickel alloy 200, Monel[®] alloy 400, Inconel[®] alloy 600, Hastelloy[®] alloy C-276, titanium and tantalum. A competent person should select the disk material that is chemically resistant to the process media. Corrosion of the disk material will affect its performance and may result in premature bursting or leakage through the disk. For assistance in disk material selection contact BS&B.

Burst Tolerance

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

Liners

Fluoropolymer Liners are available in all sizes as 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 - the first rupture disk specifically developed and performance flow tested* for use in all service conditions

- One disk design for gas and liquid service
- Low-to-high burst pressures
- Available in standard or exotic materials
- 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
- Fail-safe design — damage safety ratio < 1
- For installation in BS&B type SRI-7RS, SRB-7RS and SRB-7FS pretorqued safety heads
- Designed for non-fragmentation
- Standard MDR, zero%, optional -5%, -10%
- Withstands full vacuum
- Ideal for relief valve isolation
- Three-dimensional tag indicates correct orientation and ASME or CE requirements
- US patents 5996605, 6178983, 6321582, 6446653, and international patents apply

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

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	3.8	34.5	60	500	4.2	34.5	60	500	4.2	34.5	60	500	3.8	34.5	55	500	4.2	34.5	90	500	4.2	34.5
1.5	40	40	500	2.8	34.5	45	500	3.1	34.5	45	500	3.1	34.5	45	500	2.8	34.5	40	500	3.1	34.5	60	500	3.1	34.5
2	50	25	500	1.8	34.5	30	500	2.1	34.5	30	500	2.1	34.5	30	500	1.8	34.5	25	500	2.1	34.5	35	500	2.1	34.5
3	80	20	500	1.4	34.5	25	500	1.8	34.5	22	500	1.5	34.5	22	500	1.4	34.5	20	500	1.8	34.5	25	500	1.5	34.5
4	100	16	500	1.1	34.5	20	500	1.4	34.5	18	500	1.3	34.5	18	500	1.1	34.5	16	500	1.4	34.5	20	500	1.3	34.5
6	150	15	261	1	18	20	261	1.4	18	15	261	1	18	15	261	1	18	15	261	1.4	18	20	261	1	18
8	200	15	200	1	13.8	20	200	1.4	13.8	15	200	1	13.8	15	200	1	13.8	15	200	1.4	13.8	20	200	1	13.8
10	250	15	150	1	10.3	20	150	1.4	10.3	15	150	1	10.3	15	150	1	10.3	15	150	1.4	10.3	20	150	1	10.3

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.

Type SK_R-U 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.

Saf™ Technology

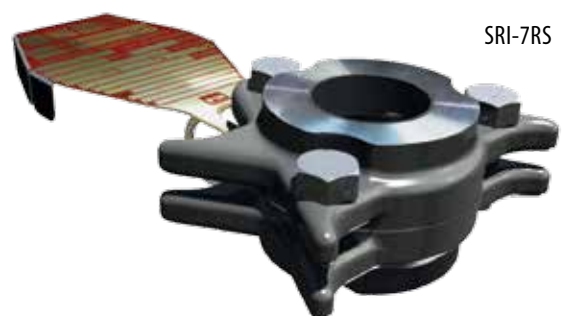
Damage-Safety Ratio < 1

Structural apex forming, the central “dimple” present in all SKR rupture disks, combined with the unique energy absorbing hinge design ensures that a damaged SKR disk will rupture at or below the marked burst pressure.

Note: Recommended temperatures may be lower for CE marked disks

SRI-7RS™

In the spirit of BS&B’s core values of Innovation and Excellence, the SRI-7RS has been developed to enhance and optimize safety, reliability, convenience, and performance. The experience gained from meeting and exceeding customer expectations with the SRB-7RS safety head is built upon by the SRI-7RS features. See 77-7007 SRI-7RS brochure.

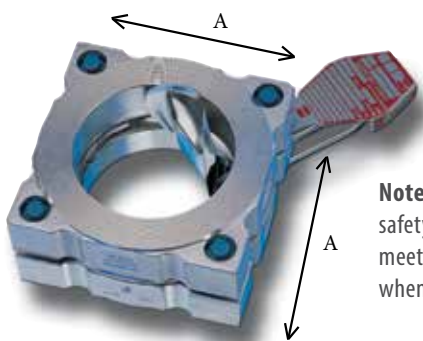


Safety Heads

Pretorqued Safety Heads SK_RTM for all Purpose Rupture Disk

SRB-7RS Safety Head Specifications

Size		Safety Head Flange Rating			Safety Head Flange Thickness		Dimensions A	
in	mm	ASME / ANSI	EN	JIS	in	mm	in	mm
1	25	150	10/16	10/16	1.5	38	2.6	67
1	25	300/600	25/40	20/30/40	1.5	38	2.9	73
1	25	900/1500	-	-	-	-	-	-
1.5	40	150	10/16	10/16	1.6	43	3.4	86
1.5	40	300/600	25/40	20/30/40	1.6	43	3.75	95
1.5	40	900/1500	-	-	-	-	-	-
2	50	150	10/16	10/16	1.75	48	4.1	105
2	50	300/600	25/40	20/30/40	-	-	-	-
2	50	900/1500	-	-	-	-	-	-
3	80	150	10/16	10/16	2.1	55	5.25	133
3	80	300/600	25/40	20/30/40	2.6	67	4.75	121
3	80	900	-	-	-	-	-	-
4	100	150	10/16	10/16	2.9	73	6.25	159
4	100	300	25/40	20/30/40	2.8	70	Flower petal	
4	100	600	-	-	2.6	67	7 5/8 inches OD (194mm OD)	
6	150	150	10/16	10/16	3.7	94	Flower petal	
6	150	300	25/40	20/30/40	4.2	107	Flower petal	
6	150	600	-	-	3.1	79	10 3/8 inches OD (264mm OD)	
8	200	150	-	-	3.8	97	Flower petal	
8	200	300	-	-	-	-	-	
10	250	150	-	-	4.4	111	Flower petal	
10	250	300	-	-	-	-	-	



Note: Optional tell tale connection in safety head outlet will be required to meet ASME and PED code requirements when downstream devices are present.

Specifications: Safety Head Type S90-7R

Size		Safety Head Flange Rating		Outside Diameter		Overall height	
in	mm	ANSI	DIN PN	in	mm	in	mm
1	25	150	10/16/25/40	2.5	64	1.7	43
1	25	300/600		2.8	70	1.3	32
1	25	900/1500	-	2.8	71	1.8	45
1.5	40	150	10/16	3.3	83	1.3	32
1.5	40	300/600	25/40	3.6	92	1.3	32
1.5	40	900/1500	-	3.6	92	1.5	38
2	50	150	10/16	4.0	102	1.3	32
2	50	300/600	25/40	4.3	108	1.3	32
2	50	900/1500	-	4.2	107	1.5	38
3	80	150	10/16	5.3	133	1.5	38
3	80	300/600	25/40	5.8	146	1.5	38
3	80	900	-	5.6	142	1.7	44
4	100	150	10/16	6.8	172	1.7	44
4	100	300	25/40	7.0	178	1.7	44
4	100	600	-	7.5	191	1.7	44
4	100	-	-	6.4	162	1.8	45
4	100	-	-	6.6	167	1.9	48
6	150	150	10/16	8.6	219	2.5	64
6	150	300	25/40	9.8	248	2.5	64
6	150	600	-	10.4	264	2.6	67
6	150	-	-	8.5	217	2.5	64
6	150	-	-	8.8	223	2.5	64
8	200	150	-	10.9	276	3.4	86
8	200	300	-	12.0	305	3.4	86
8	200	-	-	12.5	318	3.8	95
8	200	-	-	10.7	272	3.5	88
8	200	-	-	11.1	283	3.4	86
8	200	-	-	11.4	290	3.4	86
10	250	150	-	13.3	337	6.0	153
10	250	300	-	14.1	359	6.0	153
10	250	-	-	15.6	397	-	-
10	250	-	-	12.9	328	6.0	153
10	250	-	-	13.4	340	-	-
10	250	-	-	13.9	352	-	-

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