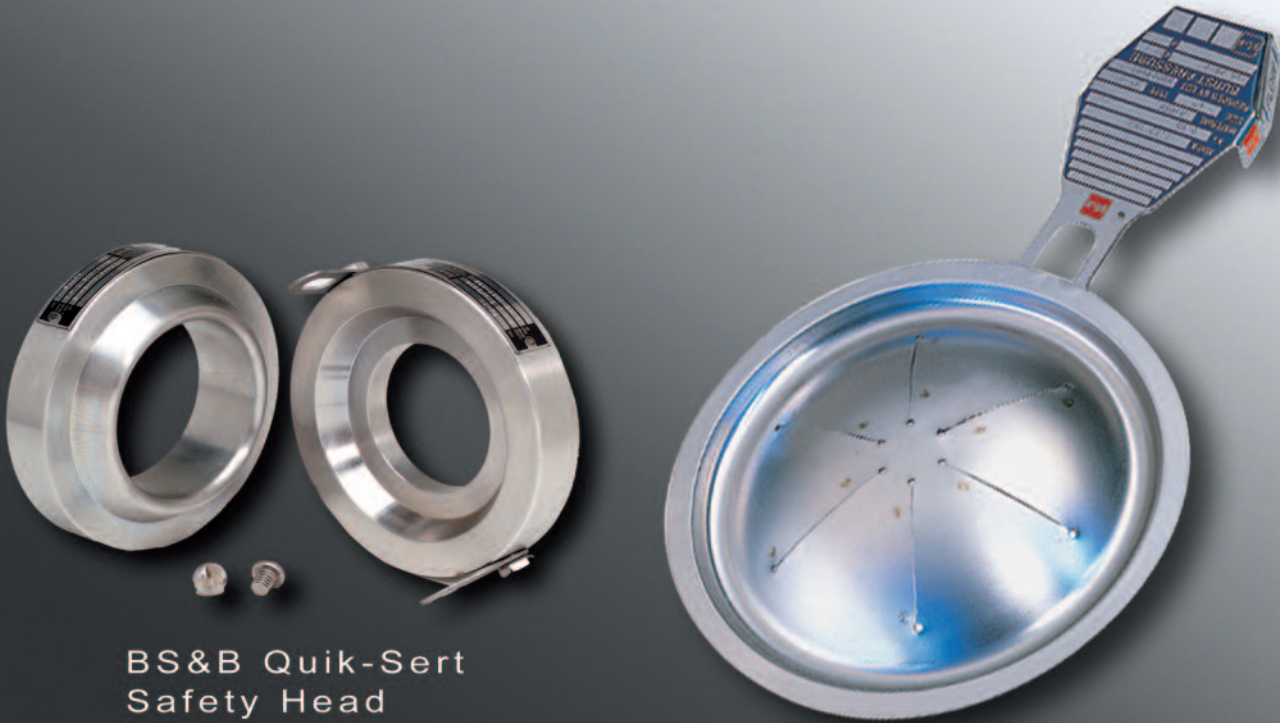




SAFETY SYSTEMS

Catalog # 77-3001

TYPE D™ COMPOSITE RUPTURE DISKS



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for the most complete, up-to-date information.

TYPE D™


Composite Disk

Type D rupture disks consist of a slotted metal top section and a metal or fluorocarbon seal for low burst pressure. Since the top section has open slots, the seal isolates it from process media to prevent leakage. When in service, pressure is applied to the concave side of the disk, putting the disk in a tension loaded condition. When vacuum or back pressure are present, in any amount, the seal must have a structural support.


Features:

- Gas and full liquid service
- Suitable for operating pressure to 80% of the marked burst pressure
- Designed for non-fragmentation
- Available in sizes 1 through 44 inches (25 through 1117mm)
- Flange insert or union style angular seat holder configuration (flat seat designs may be available)


Available Sizes	Types D, DV, DR, DRV and DRSV Full Range1 - 44 inches (25 - 1117mm) Standard Sizes1 - 30 inches (25 - 762mm)
	Type PLD Full Range1 - 44 inches (25 - 1117mm) Standard Sizes1 - 24 inches (25 - 610mm)
Set Pressure	Type PLDV Full Range1 - 44 inches (25 - 1117mm) Standard Sizes1 - 24 inches (25 - 610mm)
	Full Range0.5 to 2000 psig @ 72°F 0.034 to 138barg @ 22°C
Temperature	FEP Plastic Seal-40°F (-40°C) to 400°F (204°C) TFE Plastic Seal-40°F (-40°C) to 500°F (260°C) Metal Seal-320°F (-196°C) to 1000°F (538°C)
	Cycle life for "D" disks may be greatly reduced at temperatures lower than -40°F (-40°C)
Top Section	Standard metals316ss; Inconel® (alloy 600); Nickel (alloy 200); Monel® (alloy 400)
	Special MetalsHastelloy® C-276 (alloy C-276); titanium and tantalum
Seal	Standard Materials ...FEP plastic; TFE plastic; 316ss Nickel (alloy 200); Inconel® (alloy 600); Monel® (alloy 400); Hastelloy® C-276 (alloy C-276); silver; aluminum
	Special MetalsPlatinum, titanium and tantalum
Vacuum Support	Standard Metals316ss, Inconel® (alloy 600); Nickel (alloy 200); Monel® (alloy 400)
	Special MetalsHastelloy® C-276 (alloy C-276); titanium and tantalum
Protective Ring	Standard Metals316ss; Inconel® (alloy 600); Nickel (alloy 200); Monel® (alloy 400)
	Special MetalsHastelloy® C-276 (alloy C-276); titanium and tantalum
Soft Gasket Ring	StandardAluminum or FEP plastic




Type DR Rupture Disk: A type D disk with a protective ring attached to lower (pressure) side of disk




Type DRR Rupture Disk: A type D thin disk with rings attached to both top and bottom sides




Type DRV Rupture Disk: A type D disk with a protective ring attached to the top of the disk and vacuum support attached.



Type DV Rupture Disk: A type D disk with vacuum support attached



Type DSV Rupture Disk: A type D disk with vacuum support and soft gasket ring attached to bottom side of disk. For disks in high vacuum service



Type PLD Rupture Disk: A type D disk with plastic liner attached to top (atmospheric) side of disk. Type PLDV rupture disk is similar in appearance. Vacuum support is built into disk top section.

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Composite Disks: Types D, DV, DR, DRR, DRV, DSV, DRSV; Top section material: Inconel® and 316ss

Disk seal material. Call pressures listed at 72°F (22°C)

Disk size	FEP				TFE				Aluminum				Silver				Nickel alloy 200				Monel® (alloy 400)				Inconel® (alloy 600)				316ss				Hastelloy® B or C-276 (alloy C-276)				
	Min		Max		Min		Max		Min		Max		Min		Max		Min		Max		Min		Max		Min		Max		Min		Max		Min		Max		
	in	mm	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg			
1	25	89	6.26	1000	70.3	44	3.09	1000	70.3	50	3.52	1600	112.5	110	7.7	2000	140.7	180	12.7	2000	140.7	220	15.5	2000	140.7	285	20	2000	140.7	400	28.1	2000	140.7	680	47.8	2000	140.7
1.5	40	63	4.43	700	49.2	31	2.18	700	49.2	33	2.32	1300	91.4	73	5.13	1400	98.5	120	8.4	1400	98.5	145	10.2	1400	98.5	185	13	1400	98.5	265	18.6	1400	98.5	265	18.6	1400	98.5
2	50	31	2.18	555	39	15	1.05	555	39	20	1.41	960	67.5	43	3.02	1100	77.4	69	4.85	1100	77.4	84	5.91	1100	77.4	109	7.7	1100	77.4	150	10.6	1100	77.4	260	17.6	1100	77.4
3	80	25	1.76	450	31.7	11	0.77	450	31.7	15	1.05	730	51.3	32	2.25	650	45.7	52	3.66	900	63.3	62	4.36	900	63.3	79	5.56	900	63.3	115	8.1	900	63.3	195	13.7	900	63.3
4	100	19	1.34	415	29.2	8	0.56	415	29.2	12	0.84	630	44.3	24	1.69	600	42.2	39	2.74	830	58.4	47	3.31	830	58.4	60	4.22	830	58.4	85	5.98	830	58.4	145	10.2	830	58.4
6	150	13	0.91	320	22.5	6	0.42	320	22.5	9	.63	485	34.1	18	1.27	500	35.2	29	2.04	640	45	35	2.46	640	45	45	3.16	640	45	64	4.5	640	45	110	7.7	640	45
8	200	11	0.77	295	20.8	5	0.35	295	20.8	7	0.49	420	29.5	14	0.98	400	28.1	23	1.62	590	41.5	28	1.97	590	41.5	35	2.46	590	41.5	50	3.52	590	41.5	85	5.98	590	41.5
10	250	7	0.49	240	16.9	4	0.28	240	16.9	5	0.35	340	23.9	12	0.84	200	14.1	18	1.27	480	33.8	22	1.55	480	33.8	28	1.97	480	33.8	38	2.67	480	33.8	-	-	-	-
12	300	5	0.35	200	14.1	3	0.21	200	14.1	5	0.35	290	20.4	-	-	-	-	15	1.05	400	28.1	19	1.34	400	28.1	24	1.69	400	28.1	34	2.39	400	28.1	-	-	-	-
14	350	5	0.35	170	12	3	0.21	170	12	4	0.28	270	19	-	-	-	-	14	0.98	350	24.6	17	1.2	350	24.6	22	1.55	350	24.6	29	2.04	350	24.6	-	-	-	-
16	400	5	0.35	150	10.6	3	0.21	150	10.6	4	0.28	250	17.6	-	-	-	-	12	0.84	300	21.1	14	0.98	300	21.1	19	1.34	300	21.1	25	1.76	300	21.1	-	-	-	-
18	450	5	0.35	135	9.5	3	0.21	135	9.5	4	0.28	225	15.8	-	-	-	-	10	0.7	270	19	13	0.91	270	19	17	1.2	270	19	23	1.62	270	19	-	-	-	-
20	508	5	0.35	120	8.4	3	0.21	120	8.4	3	0.21	200	14.1	-	-	-	-	10	0.7	240	16.9	12	0.84	240	16.9	15	1.05	240	16.9	20	1.41	240	16.9	-	-	-	-
24	610	5	0.35	100	7.03	3	0.21	100	7.03	3	0.21	170	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70	4.92	200	14.1	-	-	-	-
30	762	5	0.35	80	5.63	3	0.21	80	5.63	3	0.21	140	9.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	56	3.94	170	12	-	-	-	-

Normal Rupture Tolerances for Type D Series Composite Disks

Manufacturing Ranges for Composite Disks

Marked Burst Pressure	Expected Rupture Tolerance	
	psig	barg
Greater than 2 psig (0.138barg) to less than 15 psig (1.03barg)	± 1.5	± 0.103
15 psig (1.03barg) to less than 40 psig (2.7barg)	± 2.0	± 0.138
40 (2.7barg) and above	± 5%	± 5%

Desired pressure rating	Test specimens must rupture within limits below of the pressure you specify					
	Plus		Minus			
	psig	Kg/cm ²	psig	Kg/cm ²	psig	Kg/cm ²
2.5 - 3.5	0.176 - 0.246	1	0.07	1	0.07	
4 - 6	0.281 - 0.422	2	0.141	1	0.07	
7 - 10	0.49 - 0.70	2.5	0.176	1.5	0.105	
11 - 16	0.77 - 1.13	3	0.211	2	0.141	
17 - 25	1.20 - 1.76	4	0.281	2	0.141	
26 - 40	1.83 - 2.81	5	0.352	3	0.211	
41 - 65	2.88 - 4.57	6	0.422	4	0.281	
66 - 100	4.64 - 7.03	9	0.633	5	0.352	
101 - 150	7.10 - 10.55	12	0.844	6	0.422	
151 - 200	10.62 - 14.06	16	1.125	9	0.633	
201 - 350	14.14 - 24.61	23	1.617	12	0.844	
351 - 500	24.68 - 35.16	30	2.11	15	1.055	
501 & up	35.23 & up	6%	6%	3%	3%	

Maximum Temperature for all Components		
Disk Material	F°	C°
FEP	400	204
TFE	500	260
Aluminum	800	427
Silver	800	427
Nickel alloy 200	1000	538
Monel® (alloy 400)	1000	538
Inconel® (alloy 600)	1000	538
316ss	1000	538
Hastelloy® B or C-276 (alloy C-276)	1000	538

Notes

1. If type D, DR or PLD disk will be exposed to vacuum or back pressure, specify DV, DRV, DSV, DRSV or PLDV.
2. TFE plastic for seals is standard from 1 through 8 inch size and FEP plastic for seals is standard for 10 inch and larger except when temperature is over 400°F (204°C), or pressure is less than available with TFE.
3. Before specifying any disk, see table of manufacturing ranges.

Disk size		PLDV: Center section material: 316ss								PLDV: Center section material: nickel								Maximum temperature FEP		Maximum temperature TFE	
		Disk seal material								Disk seal material											
		FEP				TFE				FEP				TFE							
in	mm	Min		Max		Min		Max		Min		Max		Min		Max		Fahrenheit	Celsius	Fahrenheit	Celsius
		psig	barg	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg				
1	25	300	21.1	1000	70.3	300	21.1	1000	70.3	230	16.2	600	42.2	230	16.2	600	42.2	400	204	500	260
1.5	40	92	6.47	700	49.2	61	4.29	700	49.2	140	9.9	700	49.2	105	7.4	450	31.7	400	204	500	260
2	50	100	7.03	555	39	100	7.03	555	39	75	5.27	395	27.8	75	5.27	395	27.8	400	204	500	260
3	80	65	4.57	450	31.7	65	4.57	450	31.7	45	3.16	315	22.2	45	3.16	315	22.2	400	204	500	260
4	100	60	4.22	415	29.2	60	4.22	415	29.2	35	2.46	300	21.1	35	2.46	300	21.1	400	204	500	260
6	150	75	5.27	320	22.5	75	5.27	320	22.5	45	3.16	225	15.8	45	3.16	225	15.8	400	204	500	260
8	200	75	5.27	295	20.8	75	5.27	295	20.8	55	3.87	200	14.1	55	3.87	200	14.1	400	204	500	260
10	250	60	4.22	240	16.9	60	4.22	240	16.9	35	2.46	160	11.3	35	2.46	160	11.3	400	204	500	260
12	300	45	3.16	200	14.1	45	3.16	200	14.1	30	2.11	140	9.9	30	2.11	140	9.9	400	204	500	260
14	350	40	2.81	170	12	40	2.81	170	12	30	2.11	120	8.4	30	2.11	120	8.4	400	204	500	260
16	400	35	2.46	150	10.6	35	2.46	150	10.6	25	1.76	105	7.4	25	1.76	105	8.25	400	204	500	260
18	450	35	2.46	150	10.6	35	2.46	150	10.6	25	1.76	80	6.5	25	1.76	80	6.5	400	204	500	260
20	508	35	2.46	150	10.6	35	2.46	150	10.6	25	1.76	80	6.5	25	1.76	80	6.5	400	204	500	260
24	610	35	2.46	150	10.6	35	2.46	150	10.6	25	1.76	70	5.9	25	1.76	70	5.9	400	204	500	260

Composite disk: PLD; center section material 316ss										Maximum temperature FEP		Maximum temperature TFE	
Disk size		Disk seal material											
		FEP				TFE							
in	mm	Min		Max		Min		Max		Fahrenheit	Celsius	Fahrenheit	Celsius
		psig	barg	psig	barg	psig	barg	psig	barg				
1	25	130	9.1	1000	70.3	87	6.12	1000	70.3	400	204	500	260
1.5	40	92	6.47	700	49.2	61	4.29	700	49.2	400	204	500	260
2	50	45	3.16	555	39	30	2.11	555	39	400	204	500	260
3	80	32	2.25	450	31.7	11	0.77	450	31.7	400	204	500	260
4	100	24	1.69	415	29.2	16	1.13	415	29.2	400	204	500	260
6	150	18	1.27	320	22.5	12	0.84	320	22.5	400	204	500	260
8	200	16	1.13	295	20.8	11	0.77	295	20.8	400	204	500	260
10	250	14	0.98	240	16.9	9	0.63	240	16.9	400	204	500	260
12	300	10	0.7	200	14.1	6	0.42	200	14.1	400	204	500	260
14	350	10	0.7	170	12	6	0.42	170	12	400	204	500	260
16	400	10	0.7	150	10.6	6	0.42	150	10.6	400	204	500	260
18	450	10	0.7	135	9.5	6	0.42	135	9.5	400	204	500	260
20	508	10	0.7	120	8.4	6	0.42	120	8.4	400	204	500	260
24	610	10	0.7	100	7.03	6	0.42	100	7.03	400	204	500	260

Composite Rupture Disks for Bolted Flange and Union Type Safety Heads

BS&B bolted and union type safety heads require rupture disks with angular seating design. All standard disks with angular seating are listed in this catalog. Listing is by sizes with a full selection of standard disks for each size.

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