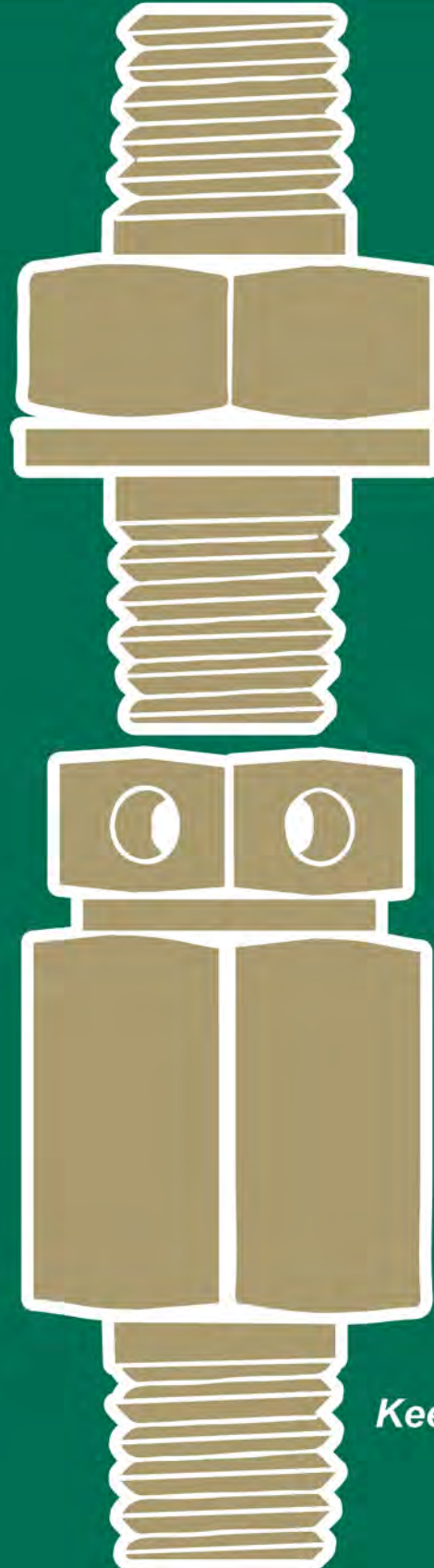




THREADED RUPTURE DISK ASSEMBLIES

CATALOG
77-7005

SAFETY SYSTEMS



Keep Pressure Systems Safe

STA-KUL™

SEALED TYPE SAFETY HEADS

BS&B STA-KUL Sealed Type Safety Heads are bottle-tight pressure relief devices designed primarily for air conditioning systems. When disk ruptures, complete unit is replaced.

The STA-KUL unit has two important features:

1. Controlled pressure accuracy
2. No leakage

Each unit is leak-tested before it leaves the factory.

The bottle-tight capability of the STA-KUL unit makes it highly desirable for other applications. It is readily adaptable for use on gas cylinders, pressure gauges, hydraulic accumulators, and portable compressed air systems.

BS&B STA-KUL units are available in two standard types:



**STA-KUL is a Trademark
of BS&B Safety Systems, Inc,**

Type 22

Brass body with Type B of BV solid metal rupture disk.

Rupture disk will withstand 14.7 psi back pressure without vacuum support at any pressure rating specified within minimum/maximum range. If disk will be exposed to back pressure higher than 14.7 psi at specified operating temperature, consult factory. A vacuum support may be required.

- For optimum service live normal operating pressure should be at or below:

Disk Material	Operating Pressure
Nickel	70% specified disk rating
Silver	50% specified disk rating

- Temperature at or below 750°F for nickel disk, 250°F for silver disk.
- Static pressure load on disk (non-pulsating).

Type 42

Brass body with Type D of DV composite rupture disk with a metal top section and silver or fluoropolymer seal.

Vacuum support required if disk has specified pressure rating below 550 psi @ 72° F. or will be exposed to elevated temperature and 14.7 psi back pressure.

Application guidelines

- Pressure, temperature or service conditions that exceed limits for Type 22 unit.
- Normal operating pressure should not exceed 80% of disk rating.

NOTE: If atmospheric conditions limit selection of top section metal, specify acceptable material(s).

Standard STA-KUL Sealed Type Safety Heads

*Lower minimum pressure ratings available on request.

Type No.	Material	Rupture Disks			
		Material	Rupture Pressure PSIG 72°F Kg/cm ² at 22°C		Max. Temp. °F °C
			Min.	Max.	
22 B or BV	Brass	Nickel	200 14.1	1000 70.3	750 399
		Silver	130 9.1	1000 70.3	250 121
42 D or DV	Brass	316SS or Inconel with fluoropolymer seal	115 8.1	700 49.2	500 260
		Nickel with fluoropolymer seal	77 5.4	700 49.2	500 260
		316SS or Inconel with silver seal	180 12.7	1000 70.3	800 427

MANUFACTURING RANGES FOR SOLID METAL OR COMPOSITE DISKS

Desired Pressure Rating	Test specimens must rupture within limits below of the pressure you specify		Desired Pressure Rating	Test specimens must rupture within limits below of the pressure you specify	
	PSIG	Plus Minus		Kg/CM ²	Plus Minus
2.5- 3.5	1 psig	1 psig	.176- .246	.070 Kg/CM ²	.070 Kg/CM ²
4 - 6	2 psig	1 psig	.281- .422	.141 Kg/CM ²	.070 Kg/CM ²
7 - 10	2.5 psig	1.5 psig	.49 - .70	.176 Kg/CM ²	.105 Kg/CM ²
11 - 16	3 psig	2 psig	.77- 1.13	.211 Kg/CM ²	.141 Kg/CM ²
17 - 25	4 psig	2 psig	1.20- 1.76	.281 Kg/CM ²	.141 Kg/CM ²
26 - 40	5 psig	3 psig	1.83- 2.81	.352 Kg/CM ²	.211 Kg/CM ²
41 - 65	6 psig	4 psig	2.88- 4.57	.422 Kg/CM ²	.281 Kg/CM ²
66 -100	9 psig	5 psig	4.64- 7.03	.633 Kg/CM ²	.352 Kg/CM ²
101 -150	12 psig	6 psig	7.10-10.55	.844 Kg/CM ²	.422 Kg/CM ²
151 -200	16 psig	9 psig	10.62-14.06	1.125 Kg/CM ²	.633 Kg/CM ²
201 -350	23 psig	12 psig	14.14-24.61	1.61 7 Kg/CM ²	.844 Kg/CM ²
351 -500	30 psig	15 psig	24.68-35.16	2.11 Kg/CM ²	1 .055 Kg/CM ²
501 -& up	6 pet.	3 pet.	35.23 - & up	6 pet.	3 pet.



Assembly AC-1
1/4" MPT inlet • Free outlet



Assembly AC-2
1/2" MPT inlet • Free outlet



Assembly A-3
3/8" MPT inlet • 3/8" SAE outlet



Assembly A-4
3/8" MPT inlet • 1/2" SAE outlet



Assembly A-5
3/8" MPT inlet • 1/2" NPT outlet



Assembly A-6
1/2" MPT inlet • 1/2" NPT outlet



Assembly A-7
1/4" MPT inlet • muffled outlet



Assembly A-8
1/2" MPT inlet • muffled outlet



Assembly A-9
3/4" MPT inlet • muffled

Dimensions for STA-KUL Sealed Type Safety Heads

Assembly Number	Connections		Discharge Area	Overall Height	Hex across flat
	Inlet	Outlet			
AC 1	1/4" MPT	FREE	.049	1 3/32	1 1/8
AC 2	1/2" MPT	FREE	.196	1 1/4	1 1/8
A3	3/8" MPT	3/8" SAE	.062	1 7/8	1 1/8
A4	3/8" MPT	1/2" SAE	.110	1 15/16	1 1/8
A5	3/8" MPT	1/2" MPT	.110	1"	1 1/8
A6	1/2" MPT	1/2" MPT	.196	2 1/16	1 1/8
A7	1/4" MPT	Muffled	.049	1 9/16	1 1/8
A8	1/2" MPT	Muffled	.196	1 3/4	1 1/8
A9	3/4" MPT	Muffled	.307	2 11/64	1 1/8

when requesting quotation, specify:

1. Quantity
2. Type of unit—22 or 42
3. Assembly number
AC-1 thru A-9
4. Rupture disk
5. Temperature
6. Material

SCREW TYPE SAFETY HEADS

BS&B Screw Type Safety Heads are widely used on autoclaves, laboratory pressure equipment, aerospace ground support equipment, bottled gases, cryogenic systems and compressed air or liquid systems. The standard BS&B Screw Type Safety Head utilizes a single body with 15,000# maximum rating that is designed to accept four different holddown rings. Three rings have a flat seat design, the fourth an angular seat.

One flat seat ring has a 11/16" burst diameter and will accept low pressure Types B, D and DV disks up to 1000 psi maximum pressure. The angular seat ring has a 1/2" burst diameter and is used for Type B disks only up to 3000 psi maximum pressure. The second flat seat ring also has 1/2" diameter and uses Type B disks from 3000 to 10000 psi maximum. The fourth ring has a 7/16" flat seat and is used for disks from 7500 to 15,000 psi.

Standard rupture disks for BS&B Screw Type Safety Heads are listed on the following pages. In addition to the four sizes described above, 3/16" flat seat rupture disks and 1/4" angular seat rupture disks are also available in standard disk metals and bursting pressures. These are designed to fit autoclave equipment. The 7/16" and 1/2" flat seat rupture disks will also fit

Standard material for inlet connection, holddown ring and outlet connection: 303 stainless steel. Other materials available on request.

Screw Type Safety Heads with rupture disk bursting pressures from 15,000 to 100,000 psi are available in a special design. Consult factory.

1/4" MPT inlet
free outlet
Assemblies
SA-7
SF-47
SF-57
SF-67



1/4" MPT Inlet
1/2" MPT outlet
Assemblies
SA-9
SF-49
SF-59
SF-69



V4" MPT inlet
muffled outlet
Assemblies
SA-11
SF-51
SF-61
SF-71



DIMENSIONS for Screw Type Safety Heads

Assembly Number & Disk Size				Connections		Inlet Bore Size (Dia.)* in mm	Overall Height in. mm	Hex across flats	
MIN-3000 PSI	MIN-1000 PSI	3000-10000 PSI	7500-15000 PSI	Inlet in. mm	Outlet			Inlet in mm	Outlet in mm
1/2(A) 12.7	11/16 (F) 17.4	1/2 (F) 12.7	7/16 (F) 11.1						
SA-7	SF-47	SF-57	SF-67	1/4 MPT 6.4	Free	1/4 6.4	2 1/16 52.4	1 1/4 31.8	1 1/8 28.6
SA-8	SF-48	SF-58	SF-68	1/2 MPT 12.7	Free	13/32 10.3	2 3/16 55.6	1 1/4 31.8	1 1/8 28.6
SA-9	SF-49	SF-59	SF-69	1/4 MPT 6.4	1/2 MPT 12.7	1/4 6.4	2 7/8 73.0	1 1/4 31.8	1 1/8 28.6
SA-10	SF-50	SF-60	SF-70	1/2 MPT 12.7	1/2 MPT 12.7	13/32 10.3	3 76.2	1 1/4 31.8	1 1/8 28.6
SA-11	SF-51	SF-61	SF-71	1/4 MPT 6.4	Muffled	1/4 6.4	2 3/8 60.3	1 1/4 31.8	1 1/8 28.6
SA-12	SF-52	SF-62	SF-72	1/2 MPT 12.7	Muffled	13/32 10.3	2 1/2 63.5	1 1/4 31.8	1 1/8 28.6

Pressure/Temperature Ratings For Screw Type Safety Head Fittings

Service Temp. °F °C	Maximum Rating PSIG kg/cm ²
-20 to +100 -29 to +38	15,000 1,055
200 93	14,625 1,028
300 149	14,175 997
400 204	13,875 976
500 260	13,050 918
600 316	11,550 812
700 371	10,275 722
800 427	9,300 654
900 482	8,400 590
1000 538	7,925 557

*1/2" inlet bore available on All Assemblies with 1/2" MPT inlet when disk rating is below 7500 psi @ 72° F.

RUPTURE DISKS FOR SCREW TYPE SAFETY HEADS

up to
3,000
PSIG

The following BS&B rupture disks for screw type Safety Heads are standard. Those in the most popular materials and bursting pressures are "shelf items" and available for immediate delivery. Consult your local representative for current listing of these disks. Disks with higher or lower bursting pressures than those listed and in other materia's are available on special order.

Minimum/maximum pressure ratings and maximum temperature ratings have two sets of figures. Pressure ratings shown in black are psig @ 72° F., those in red are kg/cm² @ 22° C. Temperatures shown in black are °F., those in red are °C.

Before specifying any disk, see table of manufacturing ranges and notes at bottom of page.

1/2" ANGULAR SEAT SOLID METAL DISKS—3000 PSI MAX: Types B and BV

Disk Material	Unlined Disks			FEP Lined Disks			
	Min. Pres.	Max. Pres.	Max. Temp.	Min. Pres. 1/side	Min. Pres. 2/sides	Max. Pres. 1/2 sides	Max. Temp. FEP
Aluminum	80 5.63	1500 105.5	250 121	235 16.5	380 26.7	1500 105.5	250 121
Silver	175 12.3	3000 211.0	250 121	395 27.8	490 34.5	2000 140.7	250 121
Nickel	280 19.7	3000 211.0	750 399	500 35.2	600 42.2	3000 211.0	400 204
Monel	340 24.0	3000 211.0	800 427	500 35.2	600 42.2	3000 211.0	400 204
Inconel	440 31.0	3000 211.0	900 482	700 49.2	790 55.6	3000 211.0	400 204
316 S.S.	625 44.0	3000 211.0	900 482	820 57.7	910 64.0	3000 211.0	400 204

11/16" FLAT SEAT SOLID METAL DISKS 1000 PSI MAX: Types B and BV

Disk Material	Unlined Disks			FEP Lined Disks		
	Min. Pres.	Max. Pres.	Max. Temp.	Min. Pres. 1 Side FEP	Max. Pres. 1 Side	Max. Temp. FEP
Aluminum	55 3.87	650 45.7	250 121	225 15.8	650 45.7	250 121
Silver	130 9.1	1000 70.3	250 121	300 21.1	1000 70.3	250 121
Nickel	200 14.1	1000 70.3	750 399	370 26.0	1000 70.3	400 204
Monel	250 17.6	1000 70.3	800 427	420 29.5	1000 70.3	400 204
Inconel	325 22.8	1000 70.3	900 482	500 35.2	1000 70.3	400 204
316 S.S.	455 32.0	1000 70.3	900 482	650 45.7	1000 70.3	400 204

notes

- If 1/2" angular Type B disk will be exposed to vacuum or back pressure, check Type B catalog for minimum burst pressures that will withstand full vacuum. If vacuum support is required, specify Type BV. If Type D disk will be exposed to vacuum, specify Type DV.
- If 11/16" flat seat Type B disk will be exposed to vacuum or back pressure, vacuum support is not required. If disk rating exceeds the following.
 Monel.....500 psi aluminum.....200 psi
 Inconel.....750 psi silver.....200 psi
 316 stainless steel.....750 psi nickel.....375 psi
- If vacuum support is required, specify Type BV. Vacuum supports for 1/2" seat angular and 11/16" flat seat Type BV disks are not attached. Standard material for vacuum support is 316 stainless steel. Materials available on special order include Inconel, Nickel, Monel, Hastelloy B and C, titanium and tantalum.
- Linings on Type B disks have very little creep resistance. Operating margin for lined disks must be greater than for unlined disks.
- Linings are sheet form bonded to disk metal. All liners have passed spark test to assure pinhole-free condition.

11/16" FLAT SEAT COMPOSITE DISKS 1000 PSI MAX.: Types D and DV

Seal Material	Top Section Material				
	Minimum Pressure			Max. Pres. All Mails.	Max. Temp.
	Inconel 316 S.S.	Nickel	Alum.		
TFE .003" thick	—	—	40 2.81	—	250 121
TFE (Teflon/Halon)	115 8.1	77 5.41	—	700 49.2	500 260
FEP (Teflon)	115 8.1	—	—	700 49.2	400 204
Aluminum	150 10.5	—	—	800 56.3	800 427
Silver	180 12.7	—	—	1000 70.3	800 427
Nickel	300 21.1	—	—	1000 70.3	1000 538
Monel	400 28.1	—	—	1000 70.3	1000 538
Inconel	600 42.2	—	—	1000 70.3	1000 538
316 S.S.	700 49.2	—	—	1000 70.3	1000 538

MANUFACTURING RANGES FOR SOLID METAL OR COMPOSITE DISKS

Desired Pressure Rating	Test specimens must rupture within limits below of pressure you specify		Desired Pressure Rating	Test specimens must rupture within limits below of the pressure you specify			
	PSIG	Plus		Minus	Plus	Minus	
26 — 40	5	psig	3	psig	1.83 — 2.81	.352 Kg/CM ²	.211 Kg/CM ²
41 — 65	6	psig	4	psig	2.88 — 4.57	.422 Kg/CM ²	.281 Kg/CM ²
66 — 100	9	psig	5	psig	4.64 — 7.03	.633 Kg/CM ²	.352 Kg/CM ²
101 — 150	12	psig	6	psig	7.10 — 10.55	.844 Kg/CM ²	.422 Kg/CM ²
151 — 200	16	psig	9	psig	10.62 — 14.06	1.125 Kg/CM ²	.633 Kg/CM ²
201 — 350	23	psig	12	psig	14.14 — 24.61	1.617 Kg/CM ²	.844 Kg/CM ²
351 — 500	30	psig	15	psig	24.68 — 35.16	2.11 Kg/CM ²	1.055 Kg/CM ²
501 & Up	6	pet.	3	pet.	35.23 & Up	6 pet.	3 pet.

Standard sizes of 7/16 and 1/2 Flat Seat Rupture Disks are shown on next page.

RUPTURE DISKS FOR SCREW TYPE SAFETY HEADS

The following BS&B rupture disks for autoclave equipment are standard. Those in the most popular materials and bursting pressures are "shelf items" and available for immediate delivery. Consult your local representative for current listing of these disks. Disks with higher and lower bursting pressures than those listed and in other materials are available on special order.

**3000
to
15000
PSIG**

Minimum/maximum pressure ratings and maximum temperature ratings have two sets of figures Pressure ratings shown in black are psg @72° F., those in red are kg/cm² @ 220 C. Temperatures shown in black are °F., those in red are °C.

Before specifying any disk, see table of manufacturing ranges and notes.

notes

- Vacuum supports are not available for 3/16", 1/8", 7/16" or 1/2" flat seat Type B disks. All disks in these groups with ratings greater than 1 1/2 times the unlined minimums will stand full vacuum without a vacuum support.
- Linings on Type B Disks have very little creep resistance. Operating margin for lined disks must be greater than for unlined disks.
- Liners are sheet form bonded to disk metal. All liners have passed spark test to assure pinhole-free condition.

3/16" FLAT SEAT SOLID METAL DISKS—20,000 PSI MAX: Type B

Disk Material	Unlined Disks			FEP Lined Disks			
	Min. Pres.	Max. Pres.	Max. Temp.	Min. Pres. 1 Side	Min. Pres. 2 Sides	Max. Pres. FEP 1/2 Sides	Max. Temp. FEP
Aluminum	220 15.5	1750 123.0	250 121	940 66.1	1190 83.7	1750 123.0	250 121
Silver	500 35.2	4500 316.2	250 121	1200 84.4	1450 102.0	3000 211.0	250 121
Nickel	770 54.1	20000 1407	750 399	1480 104.0	1730 121.7	10000 703	400 204
Monel	960 67.5	20000 1407	800 427	1760 123.8	2000 140.7	12000 844	400 204
Inconel	1250 88.0	20000 1407	900 482	2250 158.2	2500 175.8	13200 929	400 204
316 S.S.	1750 123.0	20000 1407	900 482	3000 211.0	3250 228.4	13200 929	400 204

MANUFACTURING RANGES FOR SOLID METAL DISKS

Desired Pressure Rating	Test specimens must rupture within limits below of the pressure you specify	
	PSIG	Plus Minus
66 —100	9 psig	5 psig
101 —150	12 psig	6 psig
151 —200	16 psig	9 psig
201 —350	23 psig	12 psig
351 —500	30 psig	15 psig
501 & Up	6 pet.	3 pet.

Desired Pressure Rating	Test specimens must rupture within limits below of the pressure you specify	
	Plus	Minus
4.64 — 7.03	.633 Kg/CM ²	.352 Kg/CM ²
7.10 —10.55	.844 Kg/CM ²	.422 Kg/CM ²
10.62 —14.06	1.125 Kg/CM ²	.633 Kg/CM ²
14.14 —24.81	1.617 Kg/CM ²	.844 Kg/CM ²
24.68 —35.16	2.11 Kg/CM ²	1.055 Kg/CM ²
35.23 & Up	6 pet.	3 pet.

V4" ANGULAR SEAT SOLID METAL DISKS—50,000 PSI MAX: Type B

Disk Material	Unlined Disks			FEP Lined Disks			
	Min. Pres.	Max. Pres.	Max. Temp.	Min. Pres. 1 Side	Min. Pres. 2 Sides	Max. Pres. FEP 1/2 Sides	Max. Temp. FEP
Aluminum	160 11.2	2000 140.7	250 121	470 33.0	675 4/5	2000 140.7	250 121
Silver	360 25.3	6000 422	250 121	790 55.5	1000 70.3	2500 175.7	250 121
Nickel	550 38.6	35000 2460	750 399	1000 70.3	1200 84.4	10000 703	400 204
Monel	690 48.5	40000 2813	800 427	1190 83.7	1390 97.8	10000 703	400 204
Inconel	900 63.3	45000 3164	900 482	1500 105.5	1700 119.5	15000 1055	400 204
316 S.S.	1250 88.0	50000 3516	900 482	1950 137.1	2150 151.2	15000 1055	400 204

7/16" FLAT SEAT SOLID METAL DISKS 20,000 PSI MAX: Type B

Disk Material	Unlined Disks		
	Min. Pres.	Max. Pres.	Max. Temp.
Nickel	7,500 527	15,000 1,055	750 399
Monel	7,500 527	18,000 1,266	800 427
Inconel	10,000 703	20,000 1,407	900 482
316 S.S.	10,000 703	20,000 1,407	900 482

FLAT SEAT SOLID METAL DISKS—10,000 PSI MAX: Type B

Disk Material	Unlined Disks			FEP Lined Disks			
	Min. Pres.	Max. Pres.	Max. Temp.	Min. Pres. 1 Side	Min. Pres. 2 Sides	Max. Pres. FEP 1 Side	Max. Temp. FEP
Aluminum	90 6.33	1000 70.3	250 121	275 19.3	380 26.7	1000 70.3	250 121
Silver	190 13.4	1700 119.5	250 121	400 28.1	510 35.8	1700 119.5	250 121
Nickel	300 21.1	7500 527	750 399	500 35.2	610 42.8	3750 263.8	400 204
Monel	375 26.4	7500 527	800 427	575 40.4	685 48.1	4500 316.2	400 204
Inconel	500 35.2	10000 703	900 482	725 51.0	835 58.7	5000 352	400 204
316 S.S.	700 49.2	10000 703	900 482	950 66.8	1060 74.6	5000 352	400 204



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