

TANK-SAFE

FORWARD ACTING COMPOSITE RUPTURE DISC

Reliable corrosion-resistant protection for rail cars and intermodal containers. Unique design to meet international requirements for the transportation of dangerous goods.



Tank-Safe is specifically designed for rail cars and intermodal/tank containers. It is non-fragmenting for installation below the relief valve. It can withstand full vacuum, and complies with safety measures for transporting dangerous goods in arduous conditions.

Tank-Safe is available as either a flat or domed design (TSF/TSD). The composite construction features a slotted top section, a seal membrane and a vacuum support. Full bore relief is achievable on burst as the disc petals open fully. A holderless version with a gasket allows for direct installation between industry-standard flanges.

Size	50, 65, 80mm
Burst Pressure	3.75-4.4 barg
Temperature	-200°C to 450°C
Operating Ratio	Domed: 85%; Flat: 40%
Performance Tolerance	+/-5%
Manufacturing Range	0%

**Let us help you with all
your pressure relief questions.**

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TECHNICAL SPECIFICATIONS



Size range	25 - 800mm (1" - 32") Standard sizes for railcar protection: 50, 65, 80mm (2", 2.5", 3")
Burst pressure range	0.07 - 18 barg (1 - 261 psig) Standard range for railcar protection: 3.75 barg - 4.4 barg (54.4 psig - 63.8)
Temperature range	-200°C to 450°C (-328°F to 842°F)
Standard materials	316 Stainless Steel, Nickel, Inconel. Fluoropolymer seals.
K _R Value	n/a
Max. Operating Ratio	Domed: 85% of minimum burst pressure Flat: 40% of minimum burst pressure
Performance Tolerance	+/-5%
Manufacturing Range	0%
Fragmentation	Non-fragmenting design
Vacuum Service	Additional vacuum support required to withstand full vacuum
Fluid compatibility	Liquid or gas service
Torque requirements	Not torque sensitive
Cycling or static service	Domed: Cycling service Flat: Static service
Protective linings	Available on flat discs
Relief Valve Isolation	Designed for installation below relief valves
Design Standards	Designed to meet ISO 4126-2:2019

Certifications

SIL

Related Products

Holders

STANDARD (FORWARD) HOLDER

Burst Pressure Ranges

Tank-Safe Min/Max Burst Pressure @ 15-30°C (59-86°F)



SIZE		TOP SECTION MATERIAL (all with fluoropolymer seal)	FLAT (TSF)		DOMED (TSD)	
DN (mm)	inches		MIN barg (psig)	MAX barg (psig)	MIN barg (psig)	MAX barg (psig)
25	1	Nickel Stainless Steel/Inconel	0.21 (3) 0.42 (6)	1.04 (15) 2.07 (30)	1.04 (15) 2.1 (30)	6.9 (100) 13.8 (200)
40	1.5	Nickel Stainless Steel/Inconel	0.14 (2) 0.28 (4)	0.7 (10) 1.38 (20)	0.7 (10) 1.4 (20)	6.9 (100) 13.8 (200)
50	2	Nickel Stainless Steel/Inconel	0.14 (2) 0.28 (4)	0.7 (10) 1.38 (20)	0.7 (10) 1.4 (20)	6.9 (100) 13.8 (200)
65	2.5	Nickel Stainless Steel/Inconel	0.14 (2) 0.28 (4)	0.7 (10) 1.38 (20)	0.7 (10) 1.4 (20)	6.9 (100) 13.8 (200)
80	3	Nickel Stainless Steel/Inconel	0.14 (2) 0.28 (4)	0.7 (10) 1.38 (20)	0.7 (10) 1.4 (20)	5.2 (75) 18 (261)
100	4	Nickel Stainless Steel/Inconel	0.14 (2) 0.28 (4)	0.7 (10) 1.38 (20)	0.7 (10) 1.4 (20)	5.2 (75) 17 (247)
150	6	Nickel Stainless Steel/Inconel	0.07 (1) 0.14 (2)	0.35 (5) 0.7 (10)	0.35 (5) 0.7 (10)	5.2 (75) 13 (189)
200	8	Nickel Stainless Steel/Inconel	0.07 (1) 0.14 (2)	0.35 (5) 0.7 (10)	0.35 (5) 0.7 (10)	5.2 (75) 10 (145)
250	10	Nickel Stainless Steel/Inconel	0.07 (1) 0.14 (2)	0.35 (5) 0.7 (10)	0.35 (5) 0.7 (10)	3.45 (50) 8.5 (123)
300	12	Nickel Stainless Steel/Inconel	0.07 (1) 0.14 (2)	0.35 (5) 0.7 (10)	0.35 (5) 0.7 (10)	3.45 (50) 5.5 (80)
350	14	Nickel Stainless Steel/Inconel	- 0.07 (1)	- 0.6 (8.7)	0.35 (5) 0.7 (10)	4 (58) 5.5 (80)
400	16	Nickel Stainless Steel/Inconel	- 0.07 (1)	- 0.5 (7.25)	0.3 (4.4) 0.55 (8)	3.8 (55) 5.5 (80)
450	18	Nickel Stainless Steel/Inconel	- 0.07 (1)	- 0.5 (7.25)	0.3 (4.4) 0.55 (8)	3.8 (55) 5.5 (80)
500	20	Nickel Stainless Steel/Inconel	- 0.07 (1)	- 0.5 (7.25)	0.3 (4.4) 0.55 (8)	3.8 (55) 5.5 (80)
600	24	Nickel Stainless Steel/Inconel	- 0.07 (1)	- 0.5 (7.25)	0.3 (4.4) 0.5 (7.3)	3 (44) 5.5 (80)
700	28	Nickel Stainless Steel/Inconel	- 0.07 (1)	- 0.5 (7.25)	0.3 (4.4) 0.5 (7.3)	2.7 (39) 4.7 (68)
800	32	Nickel Stainless Steel/Inconel	- 0.07 (1)	- 0.5 (7.25)	0.3 (4.4) 0.5 (7.3)	2.5 (36) 4.3 (62)



Flat Tank-Safe (TSF)

NOMINAL BORE		MNFA with no vacuum support (XXX)		MNFA with non-opening vacuum support (NVS)	
DN (mm)	inches	mm ²	Sq. Inch	mm ²	Sq. Inch
25	1	448	0.607	270	0.42
40	1.5	1,164	1.655	721	1.12
50	2	1,908	2.774	1,199	1.86
65	2.5	3,166	4.678	1,912	2.96
80	3	4,839	7.216	3,412	5.29
100	4	7,869	11.81	4,736	7.34
150	6	17,319	26.246	9,253	14.34
200	8	30,946	47.19	17,182	26.63
250	10	48,500	74.22	28,084	43.53
300	12	69,980	107.4	-	-
350	14	64,569	146.5	-	-
400	16	123,785	191.9	-	-
450	18	156,929	243.2	-	-
500	20	188,574	292.3	-	-
600	24	273,397	422.6	-	-
700	28	373,928	578.9	-	-
800	32	490,167	764.77	-	-

Burst Tolerance

+/- 0.026 barg ≤ 0.24 barg
 +/- 0.053 barg > 0.24 - ≤ 0.5 barg
 +/- 5% > 0.5 barg

+/- 0.375 psig ≤ 3.5 psig
 +/- 0.75 psig > 3.5 - ≤ 7.25 psig
 +/- 5% > 7.25 psig



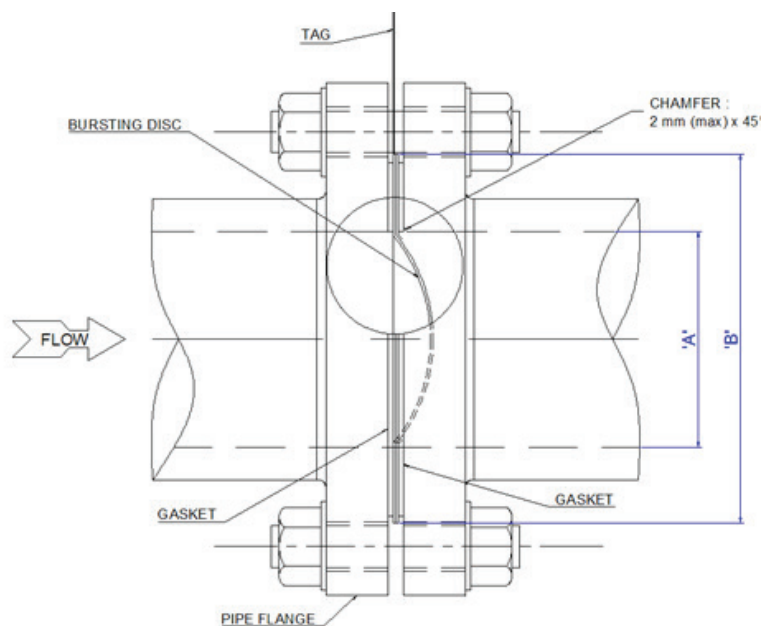
Domed Tank-Safe (TSD)

NOMINAL BORE		MNFA with no vacuum support (XXX)		MNFA with non-opening vacuum support (NVS)		MNFA with opening vacuum support (OVS)	
DN (mm)	inches	mm ²	Sq. Inch	mm ²	Sq. Inch	mm ²	Sq. Inch
25	1	448	0.607	270	0.42	376	0.58
40	1.5	1,164	1.655	721	1.12	1,046	1.62
50	2	1,908	2.774	1,199	1.86	1,611	2.49
65	2.5	3,166	4.678	1,912	2.96	2,780	4.30
80	3	4,839	7.216	3,412	5.29	4,359	6.75
100	4	7,869	11.81	4,736	7.34	7,253	11.24
150	6	17,319	26.246	9,253	14.34	16,399	25.41
200	8	30,946	47.19	17,182	26.63	29,711	46.05
250	10	48,500	74.22	28,084	43.53	46,951	72.77
300	12	69,980	107.4	-	-	68,118	105.6
350	14	64,569	146.5	-	-	91,863	142.39
400	16	12,3785	191.9	-	-	120,687	187.07
450	18	15,6929	243.2	-	-	153,438	237.83
500	20	18,8574	292.3	-	-	184,745	286.36
600	24	27,3397	422.6	-	-	268,782	416.61
700	28	37,3928	578.9	-	-	368,528	571.22
800	32	49,0167	764.77	-	-	430,083	666.63

Burst Tolerance

+/- 0.1 barg ≤ 2 barg
+/- 5% > 2 barg

+/- 1.45 psig ≤ 29 psig
+/- 5% > 29 psig



NOMINAL BORE (A)		Disc thickness mm	Disc outside ø mm
mm	inches		
25	1	1.5 - 6	43
32	1.2		56
40	1.5		66
50	2		79
65	2.5		90
80	3		120
100	4		132.5
125	5		168
150	6		199.5
200	8		254.5
250	10		309.5
300	12		365
350	14		415
400	16		465
450	18		520
500	20		570
600	24		670
700	28		777
750	30		-
800	31		-
850	33		-
900	35		1,018
1,000	39		1,100