

TWO-WAY, LOW BURST PRESSURE TYPE LO-V

DESCRIPTION

The Fike Lo-V is a bi-directional bursting disc that is designed to relieve undesired pressure conditions in two different directions. Certain types of applications, such as storage tanks, need protection from vacuum pressure as well as from potential overpressure. The primary relief can be via the reverse-buckling section, which is typically extremely low vacuum pressure, or the higher pressure-activated, forward-acting section. Depending on how the holder is oriented, the Lo-V can perform the tasks of two different bursting discs!

NEGATIVE PRESSURE RELIEF

In a typical storage tank application, when there is negative system pressure that is nearing the marked reverse-acting burst pressure of the disc, the buckle section begins to reverse, and the disc seal is contacted by the knife blades located in the holder inlet. This contact causes the seal to be penetrated at the touch point and a triangular pattern is cut to relieve the negative pressure. The buckle section controls the minimum to maximum vacuum relieving pressures. After reversing, the pre-punched holes in the perforated metal top section provide flow through the disc.

POSITIVE PRESSURE RELIEF

The perforated metal top features 6 holes at the apex of the disc. These holes control the burst pressure in a forward-acting burst scenario. The bursting disc itself has 6 pre-cut sections that, in relieving positive overpressure, will open in a flower petal arrangement allowing quick relief. The Lo-V is a non-fragmenting bursting disc and will withstand an 85% operating to stamped burst pressure ratio in the positive direction.



APPROVALS:

- 3A



FEATURES AND BENEFITS

- Bi-directional bursting disc: one disc, two jobs
- Optional single-direction burst
- Unique blade design offers superior opening and flow relief – patent pending
- Sanitary and bolt-type configurations
- Non-fragmenting
- 3A approved by independent auditors
- Available with integral burst indicator (optional)

ACCESSORIES

Both options mentioned below come with the unique Fike Lo-V holder design which provides superior flow relief in the B-Burst direction. By removing the 3rd blade, the Lo-V holder actually becomes a single blade that is bent in the middle. Less blade in contact with the seal material means that there is less resistance to cutting and testing shows that this unique blade design relieves pressure up to 3 times more effectively than conventional 3-blade models. Fike's ferrule-style Lo-V holder has the most current 3-A authorization and is an excellent choice for your special applications.

- Up to 3 times better flow in the "B-burst" or reverse direction
- Patents-pending blade design offers less resistance to cutting
- Sanitary-style holder and disc combination is 3-A authorized
- Two Lo-V holder options are available depending on your application(s)

BOLTED TYPE HOLDERS

Designed for installation between ANSI, JIS or EN/DIN class flanges and available in sizes 3" to 8". Proper bursting disc alignment is secured with the use of locator pins and the knife blade assembly is permanently affixed in the holder inlet. This holder is available in 316 Stainless Steel.



SANITARY / HYGIENIC FERRULE TYPE HOLDERS

The first of the knife blade bursting disc holders to be designed specifically with no crevices or ledges, making it one of the most current 3-A authorized devices in its class. This holder is designed to operate leak-free, helping to protect your process from contamination and the release of hazardous product into the surrounding environment. The included sanitary-type quick disconnect clamp allows for fast installation and bursting disc replacement. This holder is available in 316 Stainless Steel.

The Lo-V bursting disc and Lo-V sanitary holder match up to the corresponding ferrule sizes shown in the table below:

Disc Sizing	DN80 / 3"	DN100 / 4"	DN150 / 6"	DN200 / 8"
Corresponding Sanitary Ferrule Sizing	DN100 / 4"	DN150 / 6"	DN200 / 8"	DN250 / 10"

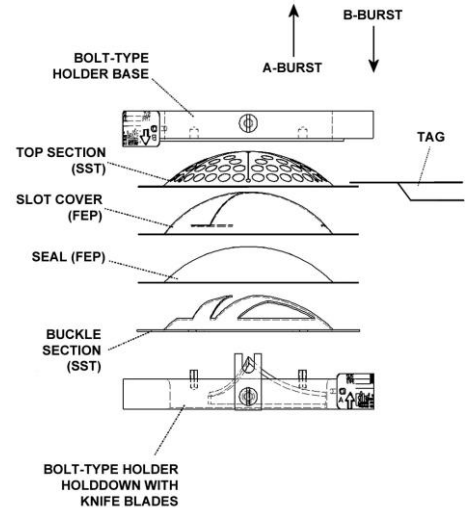
RECOMMENDED TEMPERATURE LIMITS ¹

Buckle Section	Temperature Limits
1.4401 (316 SST)	-40°C / 93°C

(1) For higher temperatures, please contact Fike.

EXPLODED VIEW OF LO-V DISC AND BOLT-TYPE HOLDER

A-Burst	High pressure direction
B-Burst	Low pressure direction
Top Section	The controlling element in the 'A-Burst' direction. Process pressure is applied to the top section through the seal.
Slot Cover	Protects seal from abrasion on the hole edges of the top section. Pre-slit so it adds no strength to the burst pressure in either direction.
Seal	The seal transfers differential pressure to either the top or the buckle section.
Buckle Section	The controlling element in the 'B-Burst' direction. Pressure applied through the seal to the buckle section eventually results in reversal.





'A' DIRECTION (TOP SECTION) BURST PRESSURE (BARG) AT 22°C

'A' Direction Burst Pressure Range				
DN	80	100	150	200
Inch	3"	4"	6"	8"
Min. BP	0.55	0.48	0.28	0.21
Max. BP bolted holder	10.0	8.6	6.9	5.2
Max. BP sanitary holder	6.9	5.2	3.4	2.8

'A' DIRECTION PERFORMANCE TOLERANCES

Burst Pressure (barg)	Performance Tolerance
0.21 – 0.41	± 0.14 barg
0.42 – 0.61	
0.62 – 0.89	
0.90 – 1.02	
1.03 – 1.37	
1.38 – 2.75	± 10%
2.76 – 3.51	
3.52 – 6.96	
6.97 – 11.72	

'B' DIRECTION (BUCKLE SECTION) BURST PRESSURE (BARG) AND TOLERANCES

Disc Size	'B' Direction Burst Pressure Ranges and Tolerances		
	Initial Relief in mm H ₂ O at 22°C		Tolerance
	316 SST Buckle Section Recommended Temperature Limits: -40°C / 93°C		
	MIN	MAX	
DN80 / 3"	102	762	+ 150 mm H ₂ O from initial relief rating
DN100 / 4"	102	762	
DN150 / 6"	26	762	
DN200 / 8"	26	762	

Minimum burst pressure required for use of a burst indicator is 150 mm H₂O for all sizes.

'B' DIRECTION OPERATING RATIO

≤ 255 mm H ₂ O = initial relief rating – 25 mm H ₂ O
> 255 mm H ₂ O = initial relief rating x 0.90



RELIEF AREA SPECIFICATIONS

Disc Size	'A' Direction Flow Area		
	Specified Buckle Section Burst Pressure (mm H ₂ O)		
	From	Up to	Area (cm ²)
DN80 / 3"	102	381	41.22
	382	660	41.61
	661	≥ 863	43.48
DN100 / 4"	102	431	72.32
	432	≥ 863	70.25
DN150 / 6"	26	254	169.80
	255	508	168.19
	509	≥ 863	165.87
DN200 / 8"	26	304	288.45
	305	≥ 863	266.28

Sanitary holder uses one disc size smaller than the mating ferrule size.

Requested 'B' Burst Pressure (mm H ₂ O)	'B' Direction Flow Area (mm ²) by size ¹ at maximum relieving pressure (i.e. requested BP + 150 mm H ₂ O)			
	DN80 / 3"	DN100 / 4"	DN150 / 6"	DN200 / 8"
25	N/A	N/A	267.09	1003.22
50	N/A	N/A	525.80	1434.19
76	N/A	N/A	736.77	1785.80
101	34.19	170.96	741.28	2083.86
127	46.45	201.28	1070.32	2341.28
152	58.06	227.74	1206.44	2569.02
177	63.38	251.61	1328.38	2772.25
203	77.41	272.90	1438.70	2569.76
228	85.80	292.90	1539.35	3124.51
254	92.90	310.96	1632.25	3279.34
279	100.64	327.74	1718.06	3421.92
304	107.09	343.22	1798.06	3555.47
330	112.90	357.41	1872.89	3679.99
355	118.70	371.61	1943.22	3797.41
381	124.51	384.51	2009.02	3907.73
406	129.67	396.77	2071.69	4011.65
431	134.19	408.38	2130.96	4110.96
457	139.35	419.35	2187.73	4205.15
482	143.87	429.67	2241.28	4294.83
508	147.74	439.35	2292.89	4380.63
533	152.25	449.03	2342.57	4463.21
558	156.12	458.70	2389.67	4541.92
584	159.35	467.09	2434.83	4617.41
609	163.22	476.12	2478.70	4690.31
635	166.45	483.87	2520.64	4760.63
660	170.32	492.25	2561.28	4828.37
685	173.54	499.35	2600.64	4893.53
711	176.77	507.09	2638.70	4957.40
736	179.35	514.19	2675.47	5018.70
762	182.58	521.28	2710.96	5078.05

(1) The "A" direction flow is limited by the open area of the buckle section which is variable based on the "B" direction burst pressure.

Performance Attributes			Process Media	Bursting Disc Holders	
Operating Ratio	Non-Fragmenting	Sanitary	Vapour / Gas	Bolted Type	Ferrule
A – 85% B – 95%	Yes	Yes	Yes	Yes	Yes