

## BURSTING DISCS

# Data Sheet

### 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-bulking 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.

#### 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
- 3-A 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 3<sup>rd</sup> 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 relief 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)

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## 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" |

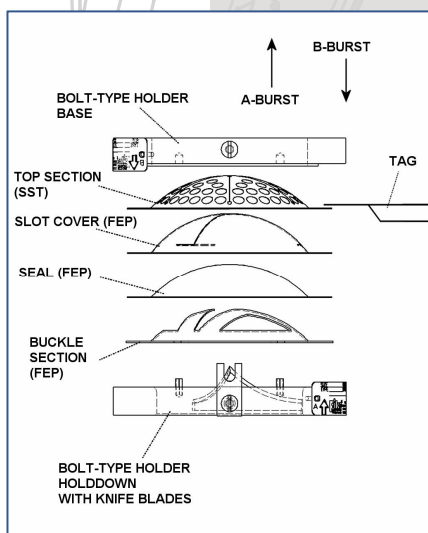
## Recommended temperature limits

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

Note:

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 pressures (barg) @ 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   | 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           |
| 0,41 - 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 pressures and tolerances

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

Note:

Minimum burst pressure required for use of a burst indicator is 150 mm H<sub>2</sub>O for all sizes.

## “B” direction operating ratio

|  |
|--|
| ≤ 255 mm H <sub>2</sub> O = (initial relief rating – 25 mm H <sub>2</sub> O) |
| > 255 mm H <sub>2</sub> O = (initial relief rating x 0,90)                   |







## Relief Area Specifications

| Disc Size  | "A" Direction Flow Area                                       |       |                         |
|------------|---|-------|-------------------------|
|            | Specified Buckle Section Bu st Pressu e (mm H <sub>2</sub> O) |       |                         |
|            | From  | Up to | Area (cm <sup>2</sup> ) |
| DN80 / 3"  | 102   | 381   | 41,22                   |
|            | 381   | 660   | 41,61                   |
|            | 661   | 863   | 43,48                   |
| DN100 / 4" | 102   | 431   | 72,32                   |
|            | 432   | 863   | 70,25                   |
| DN150 / 6" | 26  | 254   | 169,80                  |
|            | 254   | 508   | 168,19                  |
|            | 508   | 863   | 165,87                  |
| DN200 / 8" | 26  | 304   | 288,45                  |
|            | 305   | 863   | 265,28                  |

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

| Requested "B" Burst Pressure (mm H <sub>2</sub> O) | "B" Direction Flow Area (mm <sup>2</sup> ) by size <sup>(1)</sup><br>at maximum relieving pressure (i.e. requested BP + 150 mm H <sub>2</sub> 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  | 68,38  | 251,61     | 1328,38    | 2772,25    |
| 203  | 77,41  | 272,90     | 1438,70    | 2956,76    |
| 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    |

Note:  
(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   | Disc Holders   |   |
|---|---|---|---|--|---|
| Operating ratio   | Non-fragmenting   | Sanitary  | Vapour / gas  | Bolted type  | Ferrules  |
|  |  |  |  |  |  |
| A - 85%<br>B - 95%  | Yes   | Yes   | Yes   | Yes  | Yes   |