



LFC™_1B Pilot Operated Surge Relief Valve

Overview:

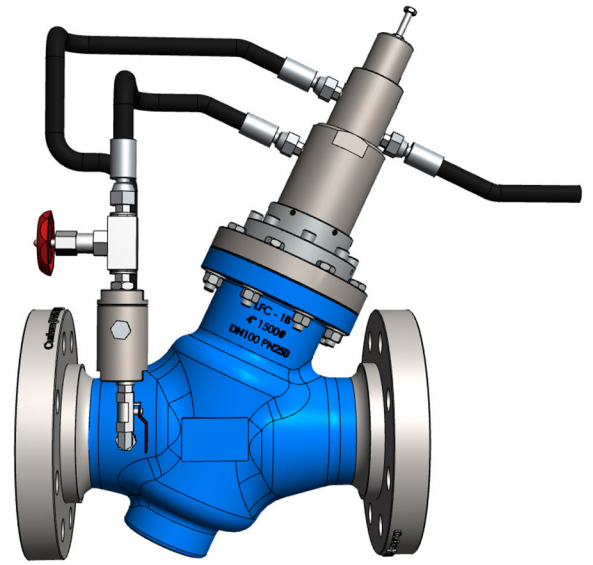
A pilot operated surge relief valve is designed to open when an over pressure situation occurs and has an easily adjustable set pressure.

The LFC™_1B pilot operated surge relief valve has been developed to present a robust and simple and cost-effective solution to fluid handling issues in any industrial sector.

Simplicity:

The LFC™_1B pilot operated surge relief valve is designed to minimize wearing parts and in effect only has one moving part called the plug assembly. The plug assembly is a piston that is engineered to be unbalanced. The unbalanced plug is designed to use inline fluid pressure inside the valve, as well as top of the plug assembly, to keep the valve in a closed position.

With the assistance of an external pilot the pressure on top of the plug assembly can be released and the valve will open up. Upstream pressure (P_u) would act to open the valve, the pilot releases pressure from the top of the plug assembly. As the P_u increases, the opening force increases proportionally and the pilot will release more pressure. Due to this a greater volume of water being released from the top of the plug assembly, the valve is forced to move proportionally to a greater open position. This in turn causes the valve to release more upstream pressure. If P_u is reduced, the valve will close proportionally in an effort to maintain the set pilot pressure, until normal conditions are restored.

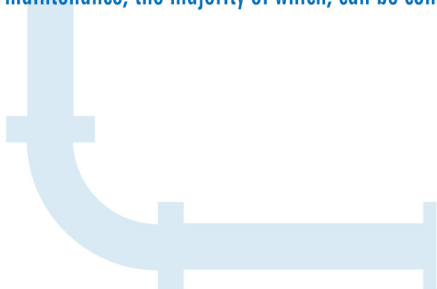


Materials of Construction:

| Part Name | Material Specification |
|----------------------------|--------------------------------|
| Body - DN50 to DN100 | Casting - 431 S/Steel |
| Body - DN150 to DN400 | Casting - BS3100 Grade A2 |
| Body seat | 431 S/Steel |
| Flanges | ASTM A105 |
| Plug | 431 S/Steel |
| V-Port | 431 S/Steel |
| Shaft | 431 S/Steel |
| Piston | 431S/ Steel |
| Plug seat - 0 to 2,5 MPa | Polyurethane |
| Plug seat - above 2, 5 MPa | UHMWPE |
| Cylinder | 431 S/Steel |
| Cylinder holder | Carbon steel or 431 S/Steel |
| Seals | Nitrile (Buna) |
| O-Rings | Nitrile (Buna) |
| Pilot | 431 S/Steel |
| Hoses | Single braided |
| Ball valve | Carbon steel with zinc coating |
| Needle valve | 316 S/Steel |
| Strainer | 431 S/Steel |

Low Maintenance Requirement:

All the moving parts of LFC™_1B surge relief valve are manufactured from stainless steel which increases reliability and durability. The LFC™_1B requires minimal maintenance, the majority of which, can be conducted with the valve remaining in situ.





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Dimensions:

| Unit | Face to face Dimensions: | | | | | | | | Height | |
|-------------|--------------------------|--------|------|--------|------|--------|-------|--------|-----------------------------|--------|
| | #300 | | #600 | | #900 | | #1500 | | Centre line to Top of valve | |
| | (mm) | (inch) | (mm) | (inch) | (mm) | (inch) | (mm) | (inch) | (mm) | (inch) |
| DN50 / 2" | 292 | 11.50 | 292 | 11.50 | 368 | 14.49 | 368 | 14.49 | | |
| DN80 / 3" | 356 | 14.02 | 356 | 14.02 | 381 | 15.00 | 470 | 18.50 | | |
| DN100 / 4" | 432 | 17.01 | 432 | 17.01 | 457 | 17.99 | 546 | 21.50 | | |
| DN150 / 6" | 559 | 22.01 | 559 | 22.01 | 610 | 24.02 | 705 | 27.76 | | |
| DN200 / 8" | 660 | 25.98 | 660 | 25.98 | 737 | 29.02 | 832 | 32.76 | | |
| DN250 / 10" | 787 | 30.98 | 787 | 30.98 | 838 | 32.99 | 991 | 39.02 | | |
| DN300 / 12" | 838 | 32.99 | 838 | 32.99 | 965 | 37.99 | 1130 | 44.49 | | |
| DN350 / 14" | 889 | 35.00 | 889 | 35.00 | 1029 | 40.51 | 1257 | 49.49 | | |
| DN400 / 16" | 991 | 39.02 | 991 | 39.02 | 1130 | 44.49 | 1384 | 54.49 | | |

Flow Rates:

| Flow (ℓ/sec) | 5 | 10 | 25 | 40 | 50 | 100 | 150 | 200 | 250 | 300 |
|---------------------|-------|--------|--------|--------|--------|---------|---------|---------|----------|---------|
| Pressure Drop (kPa) | DN50 | 17 | 81 | | | | | | | |
| | DN80 | 5 | 35 | 90 | | | | | | |
| | DN100 | | 1,5 | 30 | 45 | 98 | | | | |
| | DN150 | | | 2,5 | 6,5 | 15 | 57 | | | |
| | DN200 | | | | | 2,5 | 14 | 42 | 76 | |
| | DN250 | | | | | | 7 | 17 | 27 | 46 |
| | DN300 | | | | | | | | | 46 |
| Flow US gallon/ min | 79.25 | 158.50 | 396.26 | 634.01 | 792.52 | 1585.03 | 2377.55 | 3170.06 | 3962.575 | 4755.09 |
| Pressure Drop (psi) | 2" | 2.47 | 11.75 | | | | | | | |
| | 3" | 0.73 | 5.08 | 13.05 | | | | | | |
| | 4" | | 0.22 | 4.35 | 6.53 | 14.21 | | | | |
| | 6" | | | 0.36 | 0.94 | 2.18 | 8.27 | | | |
| | 8" | | | | | 0.36 | 2.03 | 6.09 | 11.02 | |
| | 10" | | | | | | 1.02 | 2.47 | 3.92 | 6.67 |
| | 12" | | | | | | | | | 6.67 |

Valve Sizing:

Please consult with Hydromine for clarification of correct sizing for your requirements.

Design & Manufacturing Standards:

The LFC™_1B pilot operated surge relief valve has been designed in accordance with various international standards as set out below:

ASME Boilers and pressure vessels design code

ANSI B16.10 ANSI B16.3

ANSI B16.34 ANSI B16.37

ANSI B16.5 ANSI N278.1

Available sizes: DN50 / 2" to DN400 / 16"

Face to face dimensions to ANSI B16.10

Pressure rating: up to 25MPa / 3 626 psi

Available end connections: ANSI B16.5, BS4504, BS10, AS/NZS 4331.1 (ISO 7005-1) DIN, all makes of grooved or ring joint couplings, HMP™ Coupling, HMP™-TE tapered couplings and other as per clients requirement.

