



HYDROMINE™ LFC_1B Pilot Operated Surge Relief Valves

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 HYDROMINE™ 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 the mining sector and other industrial sectors.

Simplicity:

The HYDROMINE™ 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, that can be released, and the valve will open. 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 and the valve closes.

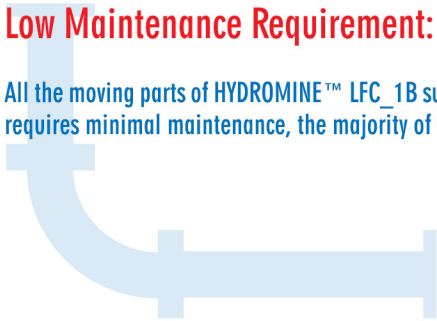


Materials of Construction:

Part Name	Material Specification
Body - DN50 to DN100	Casting - 431 S/Steel
Body - DN150 to DN400	Casting - BS3100 Grade A5 / A6 / BT2
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 Body	431 S/Steel
Pilot spring	Spring steel
Pilot cap	LG2
Hoses	Single braided
Ball valve	Carbon steel with zinc coating
Needle valve	316 S/Steel
Strainer	304 S/Steel

Low Maintenance Requirement:

All the moving parts of HYDROMINE™ LFC_1B surge relief valve are manufactured from stainless steel which increases reliability and durability. The HYDROMINE™ 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 (ANSI B16.10)								Height	
	#300		#600		#900		#1500		Centre line to Top & bottom	
	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)
DN50 / 2"	267	10 1/2	292	11 1/2	368	14 1/2	368	14 1/2		
DN80 / 3"	318	12 1/2	356	14	381	15	470	18 1/2		
DN100 / 4"	356	14	432	17	457	18	546	21 1/2		
DN150 / 6"	445	17 1/2	559	22	610	24	705	27 3/4		
DN200 / 8"	559	22	660	26	737	29	832	32 3/4		
DN250 / 10"	622	24 1/2	787	31	838	33	991	39		
DN300 / 12"	711	28	838	33	965	38	1130	44 1/2		
DN350 / 14"	762	30	889	35	1029	41	1257	49 1/2		
DN400 / 16"	838	33	991	39	1130	44	1384	45 1/2		

Flow Rates:

Flow (ℓ/sec)	5	10	25	35	50	60	100	150	200	250	
Pressure drop (kPa)	DN50	17	81								
	DN80	3	10	27	80						
	DN100		2,2	14,3	53	76	91				
	DN150			2,5	4,5	10	13	38	87		
	DN200					3,4	4,5	14	32	55	
	DN250							7	17	27	42
	DN300							5	11	18	28
Flow US gallon / min	79,25	158,50	396,26	554,76	792,52	951,018	1585,03	2377,545	3170,06	3962,575	
Pressure drop (psi)	2"	2,47	11,75								
	3"	0,44	1,45	3,92	11,60						
	4"		0,32	2,07	7,69	11,02	13,20				
	6"			0,36	0,65	1,45	1,89	5,51	12,62		
	8"					0,49	0,65	2,03	4,64	7,98	
	10"							1,02	2,47	3,92	6,09
	12"							0,73	1,60	2,61	4,06

Kv / Cv VALUES		
Unit	Kv	Cv
DN50 / 2"	42	49
DN80 / 3"	140	162
DN100 / 4"	237	274
DN150 / 6"	579	669
DN200 / 8"	969	1120
DN250 / 10"	1382	1599
DN300 / 12"	2688	3118

Valve Sizing:

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

Design & Manufacturing Standards:

The HYDROMINE™ 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 API 598

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, HYDROMINE™ U-Coupling, HYDROMINE™ HMP-TE tapered couplings and other as per clients requirement.