



## HYDROMINE™ LFC\_1B Water Hydraulic Actuated Isolation Valves

### Overview:

The HYDROMINE™ LFC\_1B Water hydraulic actuated isolation valves is based on the same design as the HYDROMINE™ LFC\_1B pressure regulating valve. Water hydraulic actuated valves are more cost effective than the HYDROMINE™ LFC\_1B electrical actuated valves. The upstream water hydraulic power are used to actuate the HYDROMINE™ LFC\_1B isolation valve. The speed of the valve can be adjusted to any desired speed fairly quickly and easily.

The HYDROMINE™ LFC\_1B Water hydraulic actuated isolation valve are generally used for remote isolation, dissipator isolation/ level control valves. Using line fluids removes the need for any gearboxes or handwheels which makes them ideal for applications where tampering is a problem.

### Low Operating Torque:

The HYDROMINE™ LFC\_1B Water hydraulic isolation valves are hydrostatically un-balanced to enable easy opening and closing at any pressure and differential conditions. It does not require the use of a gearbox or a by-pass valve to balance pressure between the inlet and outlet.

### Operating Conditions:

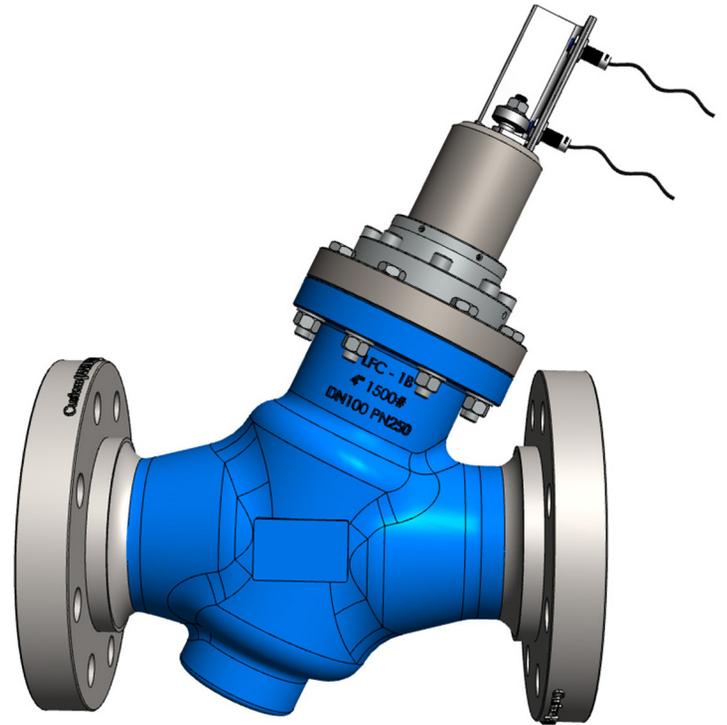
These valves are designed to operate in systems with relatively clean media like water or other liquids with a low percentage of suspended solids and chlorides. The valve's operating pH range is 2 - 14 pH.

### Simplicity:

The HYDROMINE™ LFC\_1B Water hydraulic 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 un-balanced. The un-balanced plug uses the inline fluid pressure to remove the influence of differential pressure on operating torque. As such, the valve operating torque is the torque required to overcome the sum of the friction forces generated between the valve body, seals and the cylinder plus the weight of the plug (depending on the installation configuration). This torque requirement is not affected by inline pressure variants and therefore makes these valves extremely good for actuation applications as well as for isolation valves where manual operation is required. Removal of gearboxes reduces maintenance requirements and improves troubleshooting times. The water hydraulic actuators/ control panels are simple in comparison with an electrical actuator. The HYDROMINE™ LFC\_1B Water hydraulic valve can easily be fitted with limit switches to give open and closed indication.

### Materials of Construction:

Part Name	Material Specification
Body - DN50 to DN150	Casting - 431 S/ Steel
Body - DN200 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	431 S/ Steel
Plug seat - 0 to 2,5 MPa	Polyurethane
Plug seat - 2,5 to 4 MPa	UHMWPE
Plug seat - above 4 MPa	431 S/ Steel
Cylinder	304 or 431 S/ Steel
Cylinder holder	Carbon steel or 431 S/Steel
Cylinder cover	Carbon steel
Limit switch rod	431 S/ Steel
Limit switch bracket	Carbon steel
Seals	Polyurethane
O-Rings	Nitrile (Buna)
Hoses	Single braided





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### Flow Rates:

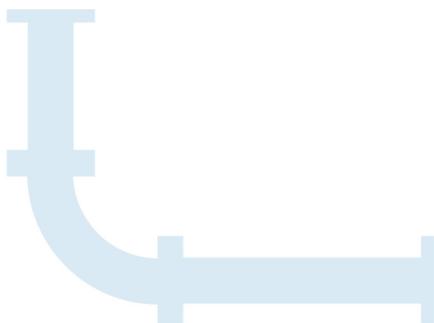
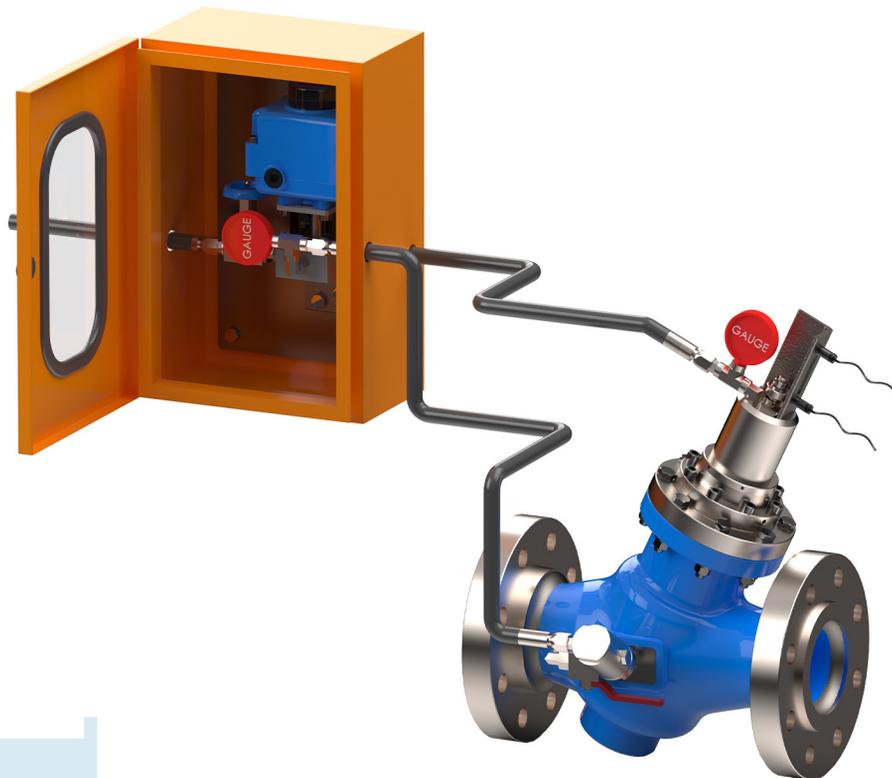
Flow (ℓ/sec)	5	10	25	35	50	60	100	150	200	250	
Pressure drop (kPa)	DN50	17	81								
	DN80	3	10	27	80						
	DN100		2,2	14,3	53	76	91				
	DN150			2,5	4,5	10	13	38	87		
	DN200					3,4	4,5	14	32	55	
	DN250							7	17	27	42
	DN300							5	11	18	28
Flow US gallon / min	79,25	158,50	396,26	554,76	792,52	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.

### HYDROMINE™ LFC\_1B Water Hydraulic Actuated Valve With Control Panel And Limit Switches:





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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		

## Low Maintenance Requirement:

All the moving parts of the HYDROMINE™ LFC\_1B water hydraulic actuated isolation valves 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.

## Design & Manufacturing Standards:

The HYDROMINE™ LFC\_1B water hydraulic actuated isolation 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"  
 Pressure rating: up to 25MPa / 3 626 psi  
 Face to face dimensions: ANSI B16.10 or other

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

