



# HYDROMINE™ LFC\_3B Pressure Control Valve

## Overview:

A pressure control valve is designed to maintain a desired downstream pressure irrespective of the flow requirement. The HYDROMINE™ LFC\_3B pressure control valve is fitted with a modulating intelligent electrical actuator. Any make of electrical actuator can be fitted to the pressure control valve. The HYDROMINE™ LFC\_3B pressure control valve has been developed to present a robust, simple and cost-effective low pressure (up to 2.5 MPa / 363 psi) solution to fluid handling issues in any industrial sector.

## Features:

- Reduced cavitation
- Low noise levels
- Low vibration
- One moving part
- Long lasting

## Low Maintenance Requirement:

All the moving parts of HYDROMINE™ LFC\_3B pressure control valve are manufactured from stainless steel which increases reliability and durability. The HYDROMINE™ LFC\_3B requires minimal maintenance, the majority of which, can be conducted with the valve remaining in situ.

## Materials of Construction & Dimensions:

Part Name	Material Specification	Face To Face Dimensions (ANSI B16.10)		
		Valve size	Face To Face #150	
Body	Casting - Ductile iron	Unit	(mm)	(Inch)
Body seat	431 / 304 S/ Steel	DN50 / 2"	303	8
Plug	431 / 304 S/ Steel	DN80 / 3"	241	9 1/2
V-Port	431 / 304 S/ Steel	DN100 / 4"	292	11 1/2
Spindle / Shaft	431 / 304 S/ Steel	DN150 / 6"	356	14
Plug seat	Polyurethane	DN200 / 8"	495	19 1/2
Sleeve	431 / 304 S/ Steel	DN250 / 10"	622	24 1/2
Body Cover	Ductile iron or Carbon steel	DN300 / 12"	699	27 1/2
O-Rings	Nitrile (Buna)	DN350 / 14"	787	31
Tripod rods	Carbon steel	DN400 / 16"	914	36
Bush holder	Ductile iron / Carbon steel			
Seals / O-Rings	Nitrile (Buna)			
Sleeve cover	Ductile iron or Carbon steel			
Shaft seal	Polyurethane			
Wiper seal	Polyurethane			

All face to face dimensions are in accordance with ANSI B16.10 Class 150.

## Simplicity:

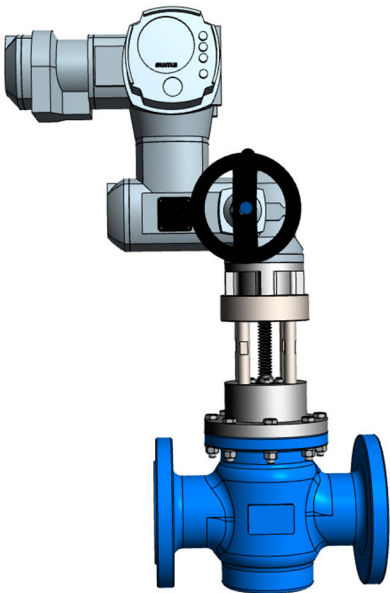
The HYDROMINE™ LFC\_3B pressure control valve is designed to offer increased efficiency and accuracy as well as improve on ease of maintenance and in effect only has one moving part called the plug. The plug is a piston that is engineered to be balanced. The balanced plug enables easy opening and closing at any pressure and differential condition. The differential pressures do not affect the operating torque which results in a relatively flat torque curve allowing for the fitment of smaller actuators.

## Robust, Reliable & Efficient

Due to the minimal number of moving parts to affect the fluid control, the number of potential failures are minimized.

## Valve Sizing

Please consult with HYDROMINE™ Projects International for clarification of correct sizing for your requirements.





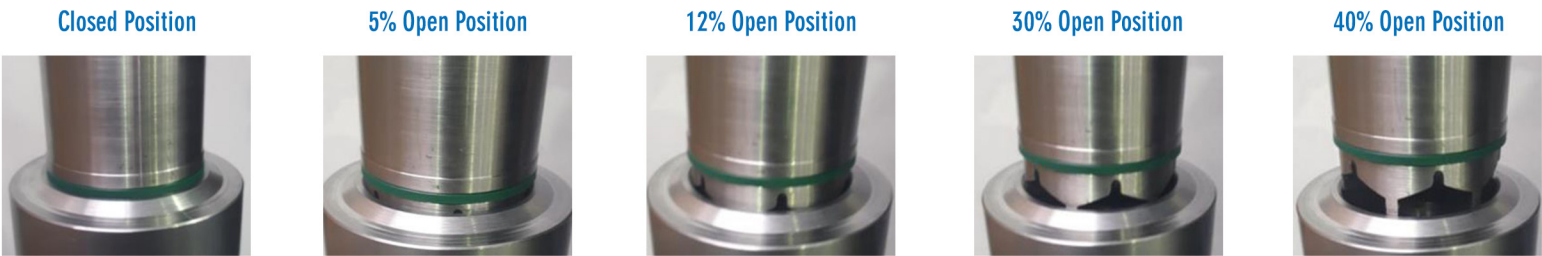
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## Flow Rates:

Flow (ℓ/sec)		5	10	25	40	50	100	150	200	250	300	350	400	450	500
Pressure drop (kPa)	DN50	46	93												
	DN80	17	34	86											
	DN100		22	56	89										
	DN150			25	40	51	101								
	DN200				22	28	56	83	111						
	DN250					18	36	54	72	90	108				
	DN300						25	37	50	62	75	87	100		
	DN350							27	37	46	55	64	73	82	
	DN400								26	33	39	46	52	59	65
Flow US gallon / min		79,25	158,50	396,26	634,01	792,52	1585,03	2377,55	3170,06	3962,58	4755,09	5547,61	6340,12	7132,64	7925,15
Pressure drop (psi)	2"	6,74	13,47												
	3"	2,48	4,97	12,42											
	4"		3,24	8,11	12,97										
	6"			3,67	5,87	7,34	14,68								
	8"				3,22	4,03	8,06	12,09	16,12						
	10"					2,62	5,24	7,85	10,47	13,09					
	12"						3,62	5,43	7,24	9,05	10,86	12,67	14,48		
	14"							3,98	5,31	6,64	7,97	9,29	10,62	11,95	
	16"								3,79	4,74	5,69	6,64	7,58	8,53	9,48

Kv / Cv Values		
Unit	Kv	Cv
DN50 / 2"	39	45
DN80 / 3"	104	122
DN100 / 4"	160	187
DN150 / 6"	354	413
DN200 / 8"	644	752
DN250 / 10"	992	1158
DN300 / 12"	1435	1675
DN350 / 14"	1955	2283
DN400 / 16"	2739	3198

## Plug Assembly, V-Port And Dealing With Cavitation:



As displayed, the HYDROMINE™ LFC\_3B pressure control valve plug assembly and movements.

**Closed Position:** Shows the plug assembly on the body seat in a fully closed valve position.

**5% Open Position:** Shows the plug assemble in a 5% open position. It can clearly be seen that only the top of the V-Port opens and creates a flow path. This reduces cavitation and helps with fine control at low flow conditions.

**12% Open Position:** Shows the plug assembly in the 12% open position. Now it can be observed how the V-Port moved away from the seat and the openings are increasing proportionally. At this point the top of the V-Ports is now being exposed to the flow path.

**30% Open Position:** Shows the plug assembly in the 30% opened position. Now it can clearly be seen that the full V-Port is creating a larger orifice in the flow path. Up to this point, cavitation needs to be dealt with to increase the life expectancy of the valve. The V-port trim ensures that the seating elements are further apart from each other during low flow allowing the cavitation to take place on noncritical components of the valve.

**40% Open Position:** Shows the plug assembly in the 40% open position. Now it can clearly be seen that the V-Port is completely away from the seat and the flow path is now relatively large. At this point the flow is approaching its medium demand flow rate and the V-Port has little to no function.



# HYDROMINE™ LFC\_3B Pressure Control Valve

## Design & Manufacturing Standards:

The HYDROMINE™ LFC\_3B pressure control valve has been designed in accordance with various international standards as set out below:

ASME Boilers and pressure vessels design code

ANSI B16.10      API598

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 2.5 MPa / 363 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 and other as per client's requirement.

