HYDROMINE™
PROJECTS INTERNATIONAL

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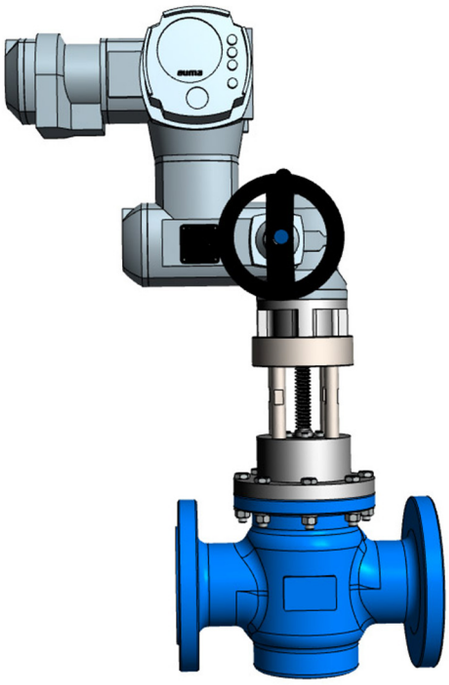
JURISTAX LTD, LEVEL 3, EBENE HOUSE, HOTEL AVENUE,
33 CYBERCITY, EBENE, 72201, REPUBLIC OF MAURITIUS

LFC™_3B Pressure Control Valve



Overview:

A pressure control valve is designed to maintain a desired downstream pressure irrespective of the flow requirement. The 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 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 LFC™_3B pressure control valve are manufactured from stainless steel which increases reliability and durability. The 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		
Body	Casting - Ductile iron	Valve size	Face to face #150	
Body seat	431 / 304 S/ Steel	Unit	(mm)	(Inch)
Plug	431 / 304 S/ Steel	DN50 / 2"	203	7,99
V-Port	431 / 304 S/ Steel	DN80 / 3"	241	9.49
Spindle / Shaft	431 / 304 S/ Steel	DN100 / 4"	292	11.50
Plug seat	Polyurethane	DN150 / 6"	356	14,02
Sleeve	431 / 304 S/ Steel	DN200 / 8"	495	19.49
Sleeve Holder	Ductile iron	DN250 / 10"	622	24,49
O-Rings	Nitrile (Buna)	DN300 / 12"	699	27,52
Tripod rods	Carbon steel	DN350 / 14"	787	30,98
Bush holder	Ductile iron / Carbon steel	DN400 / 16"	914	35.98
Seals / O-Rings	Nitrile (Buna)			
Shaft seal	Polyurethane			
Wiper seal	Polyurethane			

Simplicity:

The 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 effect the fluid control, the number of potential failures are minimized.

Valve Sizing

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

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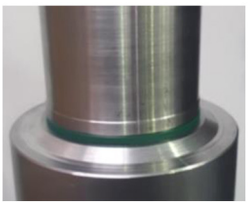
Flow Rates:

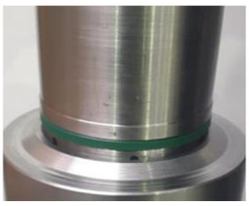
Flow (ℓ/sec)		5	10	25	40	50	100	150	200	250	300	350	400
Pressure Drop (kPa)	DN50	47	94										
	DN80	17	34	86									
	DN100		23	57	79								
	DN150			26	36	51	102						
	DN200					28	56	84	112				
	DN250						37	55	73	91	112		
	DN300						26	37	50	63	75	90	103
Flow US gallon/ min		79.25	158.50	396.26	634.01	792.52	1585.03	2377.55	3170.06	3962.575	4755.09	5547.605	6340.12
Pressure Drop (psi)	2"	6,82	13,63										
	3"	2,47	4,93	12,47									
	4"		3,34	8,27	11,46								
	6"			3,77	5,22	7,4	14,79						
	8"					4,06	8,12	12,18	16,24				
	10"						5,37	7,98	10,59	13,2	16,24		
	12"						3,77	5,37	7,25	9,14	10,88	13,05	14,96

Plug Assembly, V-Port And Dealing With Cavitation:

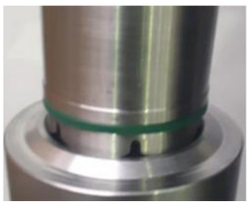
Closed Position



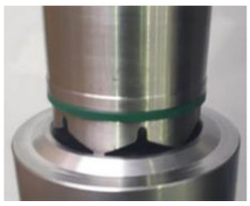
5% Open Position



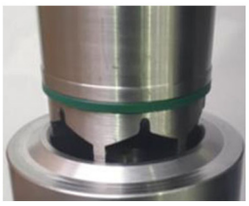
12% Open Position



30% Open Position



40% Open Position



As displayed, the 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 up 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 are 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.

Design & Manufacturing Standards:

The 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 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 BI6.10
Pressure rating: up to 2.5 MPa / 363psi

Available end connections: ANSI BI6.5, 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.