



# LFC<sup>TM</sup>\_1B Manual Isolation Valves

## Overview:

The LFC<sup>TM</sup>\_1B Manual isolation valve is manually operated via a handwheel and mechanical spindle arrangement. The spindle arrangement also functions as an indication mechanism, and based on the position of the spindle, it can be clearly seen if the valve is in an open or closed position.

The Isolating valve ranges were designed to be energy efficient with a low flow co-efficient (Cv), simple and easy to operate.

## Low Operating Torque:

The LFC<sup>TM</sup>\_1B manual isolation valve is hydrostatically 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. The differential pressures do not affect the operating torque which results in a relatively flat torque curve allowing for the fitment of smaller actuators.

## Cv Value & Energy Efficiency (Reduced Operating Costs):

One of the primary costs after the initial capital outlay is running costs, especially in a pump station. A valve's Cv refers to the number of US gallons of water per minute at 60F that will flow through a valve with a pressure drop of one psi and is indirectly proportional to the amount of energy consumed to drive water through the valve. Cv should therefore be factored into the running cost of the system as it directly affects pumping cost and energy expense incurred to achieve the pumping volume requirements. Valves with better Cv values offer quantifiable energy savings over time.

## Operating Conditions:

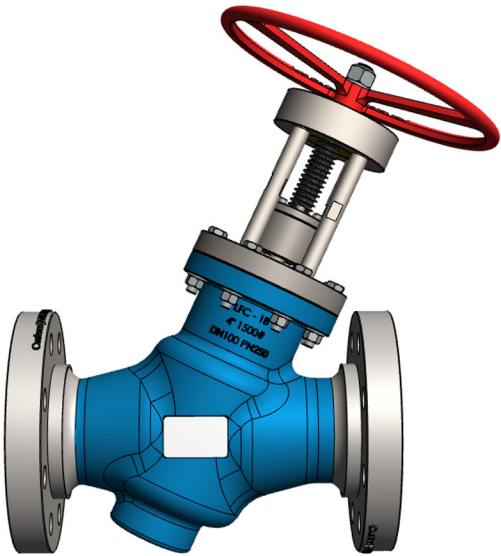
These valves are designed to operate in systems with relatively clean media like water or other liquids with a low percentage of suspended solids and chlorides. The valve's operating pH range is 2 - 14 pH.

## Simplicity:

The LFC<sup>TM</sup>\_1B valve is designed to minimize wearing parts 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 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 seals and the sleeve plus the weight of the plug (depending on the installation configuration). This torque requirement is not affected by inline pressure variants and as such makes the balanced 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.

## Flow Rates:

Flow (ℓ/sec)		5	10	25	35	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	65
	DN300										
Flow US gallon / min		79.25	158.50	396.26	554.76	792.52	1585.03	2377.55	3170.06	3962.58	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	9.43
	12"										





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## Materials Of Construction & Dimensions:

Part Name	Material Specification	Unit	Face To Face Dimensions					
			#600		#900		#1500	
			(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)
Body - DN50 to DN100	Casting - 431 S/ Steel	DN50 / 2"	292	11.50	368	14.49	368	14.49
Body - DN150 to DN400	Casting - BS3100 Gr. A2		356	14.02	381	15.00	470	18.5
Body seat - #1	431 S/ Steel	DN100 / 4"	432	17.01	457	17.99	546	21.50
Body seat - #2	F6	DN80 / 3"	356	14.02	381	15.00	470	18.5
Body seat - #3	F12	DN100 / 4"	432	17.01	457	17.99	546	21.50
Flanges	ASTM A105	DN150 / 6"	559	22.01	610	24.02	705	27.76
Plug	431 S/ Steel	DN200 / 8"	660	25.98	737	29.02	832	32.76
Plug Seat - #1	UHMWPE	DN250 / 10"	787	30.98	838	32.99	991	39.02
Plug Seat holder - #1	431 or 304 S/Steel	DN300 / 12"	838	32.99	965	37.99	1130	44.49
Plug Seat - #2	431 S/Steel							
Shaft	431 S/Steel							
Seal clamp	431 or 304 S/Steel							
Sleeve - DN150 to DN400	431 or 304 S/Steel							
Top cover	Carbon steel							
Spindle	431 S/Steel							
Drive bush	LG 2							
Bush holder	Carbon steel							
Bearing housing	431 or 304 S/Steel							
Bearing housing cover	431 or 304 S/Steel							
Bearings	Trust bearings							
Tripod rods	Carbon steel							
Handwheel	Cast iron							
Plug Seals	Polyurethane							
Shaft Seal	Polyurethane							
Wiper Seal	Polyurethane							
O-Rings	Nitrile (Buna)							

## Low Maintenance Requirement:

All the moving parts of the LFC™\_1B manual isolation valves 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.

The Manual isolation valve has an external bearing housing. The bearings can be greased via the installed grease nipple using a manual or automatic grease pump, while the valve is in service. Should the bearings get worn or damaged, they can be changed with the valve in an open position only, while the valve is in service.

## Design & Manufacture Standards:

The LFC™\_1B manual isolation valve has been designed in accordance with various international standards as set out below:

ASME Boilers and pressure vessels design code

ANSI B16.10ANSI B16.3

ANSI B16.34ANSI 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, minimum #600

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 client's requirement

