



Description

The **LIFECO Deluge Valve Model LF-DIPA** is a system control valve designed for use in deluge systems, enabling the fast application of water in a spray system. This valve is ideal for protecting high-hazard areas such as power transformer installations, storage tanks, conveyor systems, and other industrial applications. When used with a foaming agent, the LF-DIPA can also protect aircraft hangars and facilities managing inflammable liquids.



Valve Operation

The LF-DIPA is a quick-release, hydraulically operated diaphragm valve. It features three chambers isolated by a diaphragm-operated clapper and seat seal.

- **SET Position:** In its normal state, water pressure is transmitted from the system supply through an external bypass check valve and restriction orifice into the top chamber. The supply pressure in the top chamber acts across the diaphragm, creating a differential pressure that holds the clapper firmly against the seat, sealing the valve against the inlet supply pressure.
- **OPERATION:** Upon fire detection, an actuation device opens, venting the top chamber to the atmosphere. The pressure in the top chamber drops rapidly as it cannot be replenished quickly enough through the restricted inlet. The upward force of the supply pressure then lifts the clapper, opening the valve and allowing water to flow into the system piping network and to alarm devices.



Technical Data

Specification	Details
MODEL	LF-DIPA - Ductile Iron (ASTM A 536-77 GRADE 65-45-12)
NOMINAL SIZE (mm (inches))	200, 150, 100, 80 & 50 mm (8", 6", 4", 3", & 2")
SERVICE PRESSURE (PSI/BAR)	20 to 250 PSI / 1.38 to 17.2 BAR
END CONNECTION	Flange x Flange (Standard Supply) Groove x Groove (Optional Supply)
FLANGE CONNECTION	ANSI B 16.42 #150 RF (Standard Supply) • Other Flanges Types are available upon request



THREADED OPENING	BSPT
MOUNTING	Vertical or Horizontal
FACTORY HYDROSTATIC TEST PRESSURE	500 PSI / 34.5 BAR
WET PILOT SPRINKLER HEIGHT LIMITATION	As per graph in the catalogue
FINISH	Red (RAL 3001)
APPROVAL	UL Listed

Net Weight (Without Trim)

NOMINAL SIZE	FLANGE (FXF)	GROOVE (GXG)
200mm (8")	153 kg	143 kg
150mm (6")	79 kg	68 kg
100mm (4")	50 kg	42 kg
80mm (3")	35 kg	29 kg
50mm (2")	32 kg	27 kg

Groove Pipe Size Specifications

NOMINAL SIZE	Pipe OD (mm)
50 mm (2")	60.3
80 mm (3")	89.0
100 mm (4")	114.3
150 mm (6")	165.1
150 mm (6")	168.3
200 mm (8")	219.1
<i>Note: For 6" (150 mm), the standard supply is for 168.3mm OD groove pipe. For 165.1mm requirement, please specify in order.</i>	

Trim Descriptions & Models

Trims are functionally termed based on the method of actuation. A solenoid valve for electric remote actuation and a pressure switch for sensing/annunciation are optional for all trim types.

- a) WET PILOT TRIM (HYDRAULIC RELEASE):** Uses a pilot line of closed sprinklers/detectors containing pressurized water. When a detector activates, it releases water from the pilot line, causing a pressure drop in the deluge valve's top chamber, which opens the valve.
- b) ELECTRIC RELEASE TRIM:** A solenoid valve is used to drain water from the top chamber upon receiving an electric signal from a fire detection system.
- c) TEST AND ALARM TRIM:** Includes a test valve to verify the function of the mechanical sprinkler alarm bell without operating the main valve.
- d) DRAIN AND DRIP TRIM:** Consists of main and system drain valves, along with a drip valve to monitor for seat leakage.

Cautions And Warnings

- Do not close the priming valve, downstream, or upstream stop valves while the system is in service.
- The releasing device must be maintained in the open position when actuated to prevent the deluge valve from closure (if an anti-shut-off valve is not provided).
- For wet pilot systems, the height and length of the wet pilot detection line are limited as shown in the wet pilot sprinkler height limitation graph.
- Do not connect the Sprinkler Alarm outlet drain line to a closed common drain, as it may create back pressure and prevent the alarm from functioning.
- The deluge valve installation must have adequate support to absorb vibration shock from sudden opening or closing.
- To avoid water damage, take precautions when opening the water supply main control valve, as water will flow from all open system valves.
- The owner of the system is responsible for the maintenance of the protection system and devices.
- Deluge Valve & its trim shall be maintained at a minimum temperature of 4°C. Heat tracing is not permitted.
- The Deluge Valve must be used in a pressurized system.

Resetting Procedure

The procedure depends on the priming connection:

A. When priming connection is below the upstream valve (Stop Valve):

1. Close the upstream stop valve to cease water flow.
2. Open both drain valves/plugs; close them when the flow of water has ceased.
3. Close the release device or replace the activated sprinkler/detector.
4. Inspect and restore the detection system.

B. When priming connection is from the inlet of Deluge Valve (Auto-resetting):

1. The valve will reset automatically when the activating release devices are closed or restored. The reset time may be long or cause vibration depending on system back pressure.



Inspection And Maintenance

WEEKLY: Verify control valves are in the proper position, check for leaks, test alarms using the test valve, and check the drip valve for seat leakage.

MONTHLY: Conduct a water flow test as per the system testing procedure.

QUARTERLY: Conduct a full water flow test by actuating a release device. Clean all strainers and line restriction nipples.

Important Notes

1. **UL Listing** is valid only when the Deluge Valve is installed with the specified trim set as per the trim drawing.
2. The trip time of the deluge valve will depend on the volume of the detection network. It can be reduced by installing check valves in the branches of the release line.
3. Standard supply Pressure Gauges are rated for 300 psi. If system pressure exceeds 175 psi, order 600 psi gauges.

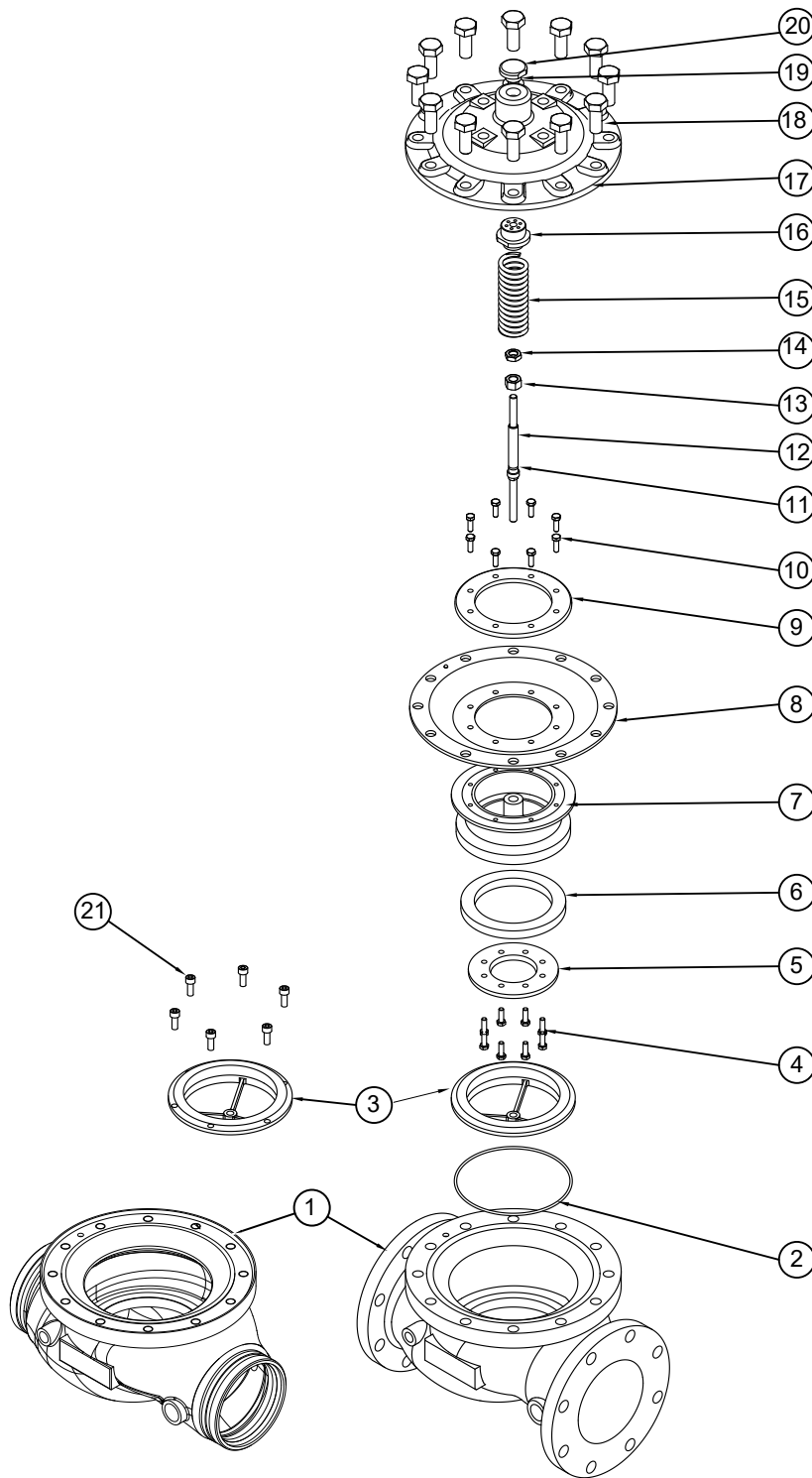
Ordering Information

Please specify the following when ordering:

1. Valve Size (e.g., 150 NB / 6")
2. End Connection Type and Specification (e.g., Flanged RF or FF or Grooved for specific pipe OD)
3. Valve Mounting Orientation (Horizontal or Vertical)
4. Required Trim Type (Wet Pilot Trim or Electrical Trim)

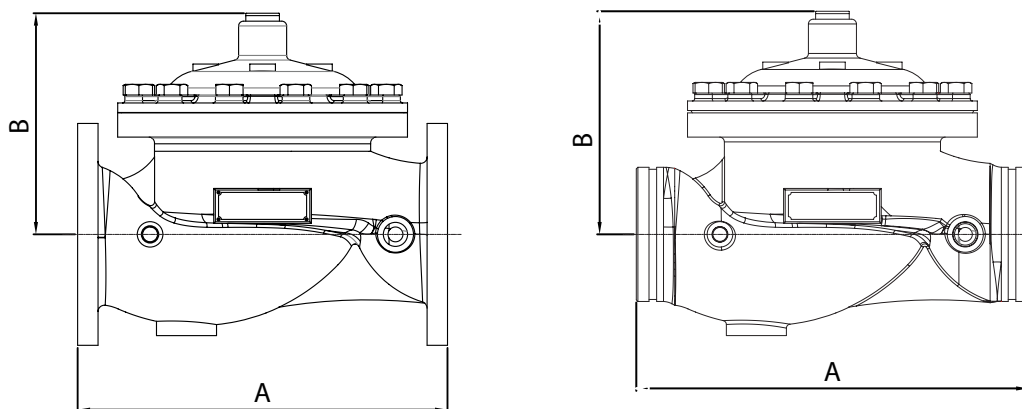


DELUGE VALVE MODEL: LF-DIPA



Groove x Groove

Flange x Flange

DELUGE VALVE MODEL: LF-DIPA


DIMENSION in millimeter (Approximate)

VALVE NOMINAL SIZE	A		B
	F x F	G x G	
200 mm	552	580	332
150 mm	462	490	282
100 mm	412	440	245
80 mm	372	400	232
50 mm	320	350	232

ITEM NO.	PART NO.					DESCRIPTION	QTY				MATERIAL SPECIFICATION
	200 NB	150 NB	100 NB	80 NB	50 NB		200 NB	150 NB	100 NB	80/ 50 NB	
1	NA	NA	NA	NA	NA	HOUSING	1	1	1	1	DUCTILE IRON
2	8561	9783	9784	9791	9791	"O" RING	1	1	1	1	NEOPRENE RUBBER
3	3937	3936	3935	3934	3934	SEAT	1	1	1	1	STAINLESS STEEL *
4	9151	9112	9112	-	-	BOLT	8	4	4	-	STAINLESS STEEL
5	3546	3545	3544	3543	3543	RUBBER CLAMP	1	1	1	1	DUCTILE IRON **
6	117466	117465	117464	117463	117463	RUBBER SEAT	1	1	1	1	EPDM ***
7	4034	3990	4011	4041	4041	CLAPPER	1	1	1	1	DUCTILE IRON **
8	117462	117461	117460	117459	117459	DIAPHRAGM	1	1	1	1	EPDM ***
9	3542	3541	3540	3539	3539	CLAMP RING	1	1	1	1	DUCTILE IRON **
10	8806	9151	9151	9151	9151	BOLT	12	8	8	8	STAINLESS STEEL
11	114221	114221	114221	114221	114221	"O" RING	1	1	1	1	NEOPRENE RUBBER
12	4029	3996	4007	4020	4020	SPINDLE	1	1	1	1	STAINLESS STEEL
13	8838	8838	8838	8838	8838	NUT	1	1	1	1	STAINLESS STEEL
14	9184	9184	9184	9184	9184	LOCK NUT	1	1	1	1	STAINLESS STEEL
15	2980	2979	2978	2977	2977	SPRING	1	1	1	1	STAINLESS STEEL
16	4033	3998	4010	3983	3983	ADAPTOR	1	1	1	1	BRASS
17	NA	NA	NA	NA	NA	COVER	1	1	1	1	DUCTILE IRON
18	9008	9049	9051	9027	9027	BOLT	16	12	12	12	CARBON STEEL
19	9982	9982	9982	9982	9982	"O" RING	1	1	1	1	NEOPRENE RUBBER
20	2514	2514	2514	2514	2514	PLUG	1	1	1	1	STEEL PLATED
21	8843	-	-	-	-	ALLEN BOLT	6	-	-	-	STAINLESS STEEL

* Stainless Steel is standard supply, Bronze is an optional supply.

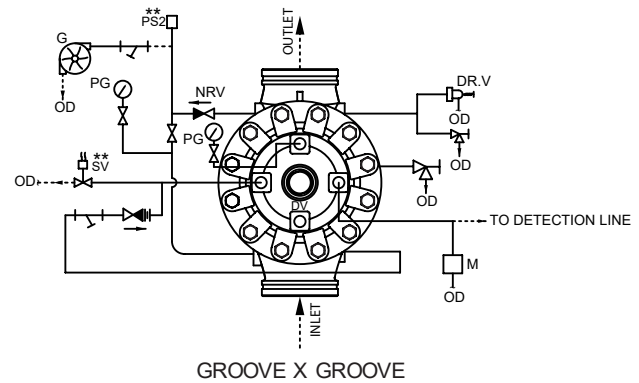
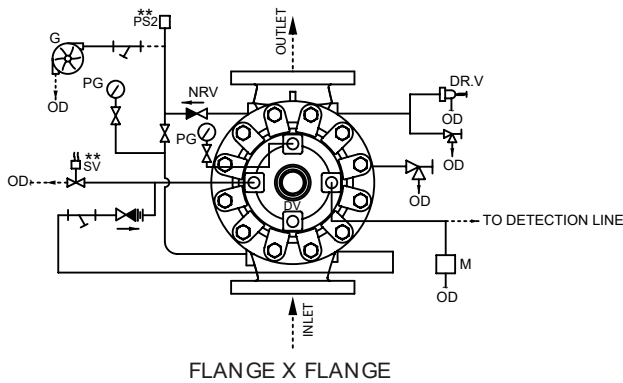
** Ductile Iron is standard supply, Bronze/Stainless Steel is an optional supply.

*** EPDM is standard supply with Stainless Steel Seat, Neoprene is an optional supply with Stainless Steel & Bronze Seat.

NA - PART REPLACEMENT NOT AVAILABLE

**SCHEMATIC FOR BASIC WET PILOT TRIM FOR DELUGE VALVE
VALVE MODEL: LF-DIPA FOR VERTICAL MOUNTING**

NT-W



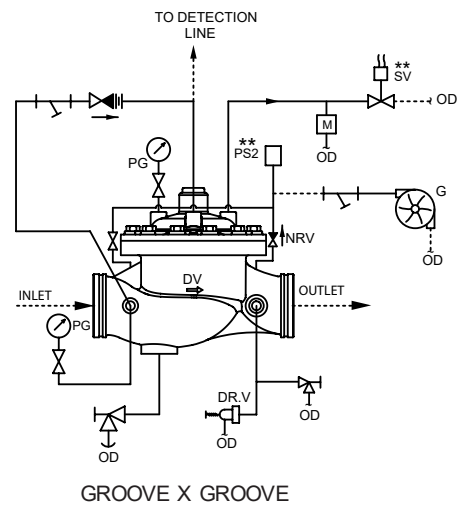
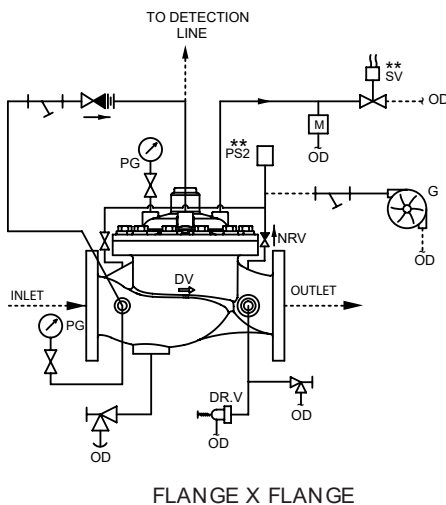
SCHEMATIC 7

ABBREVIATION & SYMBOLS

DV	DELUGE VALVE	G	SPRINKLER ALARM (WMG)		NRV WITH RESTRICTION HEX NIPPLE
M	EMERGENCY RELEASE STATION	PG	PRESSURE GAUGE		VALVE
RN	RESTRICTION NOZZLE (AIR LINE)	OD	OPEN DRAIN		STRAINER
SV	SOLENOID VALVE	DPA	DRY PILOT ACTUATOR		ANGLE VALVE
PS1	LOW AIR ALARM PRESSURE SWITCH	DR.V	DRIP VALVE	---	BY USER
PS2	WATER FLOW PRESSURE ALARM SWITCH	NRV	NON RETURN VALVE	**	OPTIONAL

**SCHEMATIC FOR BASIC WET PILOT TRIM FOR DELUGE VALVE
MODEL - H3 FOR HORIZONTAL MOUNTING**

NT-W



SCHEMATIC 15

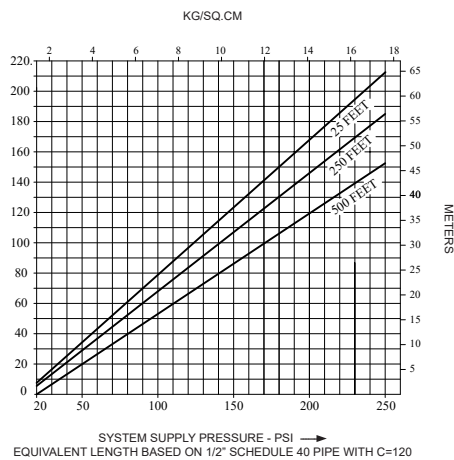


ABBREVIATION & SYMBOLS

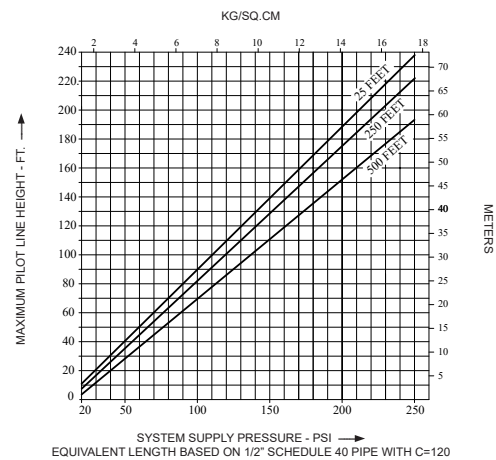
DV	DELUGE VALVE	G	SPRINKLER ALARM (W/MG)		NRV WITH RESTRICTION HEX NIPPLE
M	EMERGENCY RELEASE STATION	PG	PRESSURE GAUGE		VALVE
RN	RESTRICTION NOZZLE (AIR LINE)	OD	OPEN DRAIN		STRAINER
SV	SOLENOID VALVE	DPA	DRY PILOT ACTUATOR		ANGLE VALVE
PS1	LOW AIR ALARM PRESSURE SWITCH	DR.V	DRIP VALVE		BY USER
PS2	WATER FLOW PRESSURE ALARM SWITCH	NRV	NON RETURN VALVE		OPTIONAL

SPRINKLER HEIGHT LIMITATION

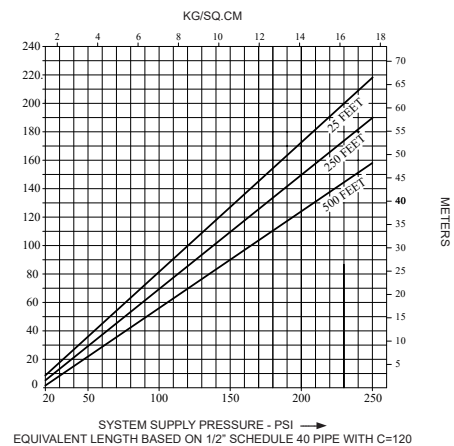
DV 200NB



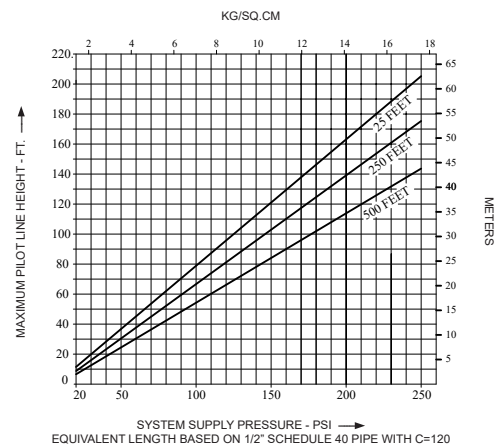
DV 150NB



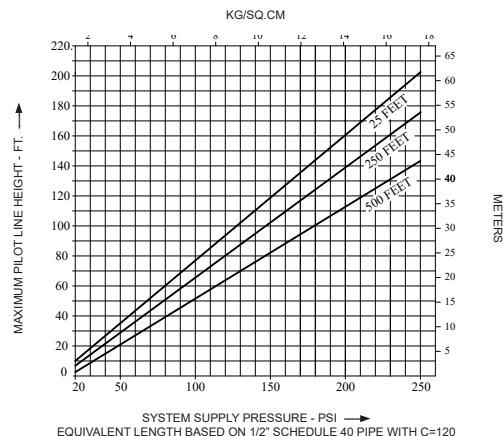
DV 100NB



DV 80NB



DV - 50NB

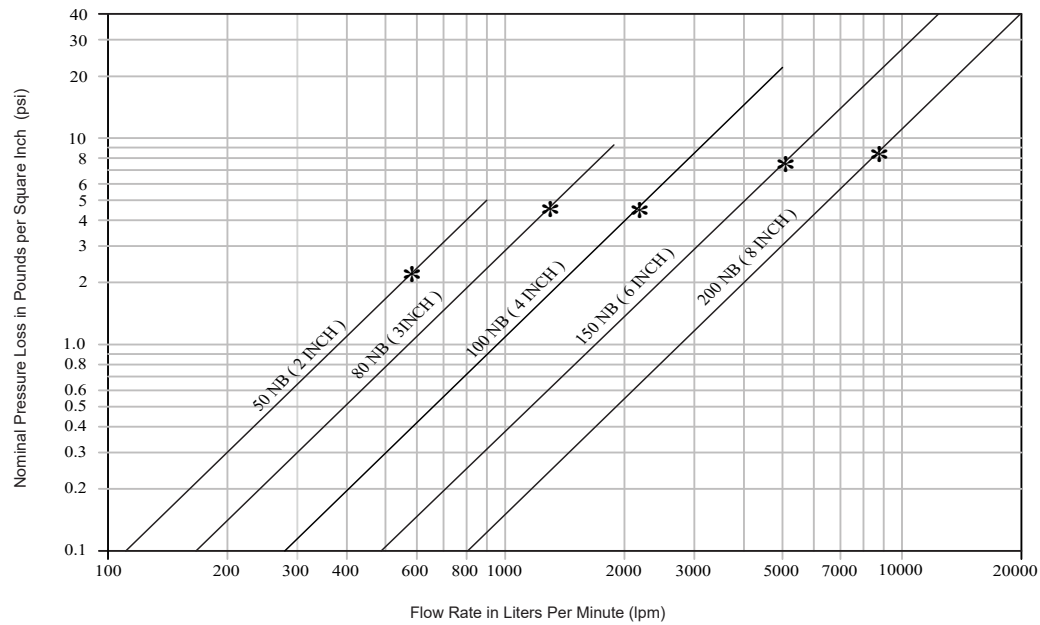




DELUGE VALVE MODEL: LF-DIPA

Nominal Pressure Loss vs Flow

(* Flow at 15 feet per second [4.57 meter per second]) velocity



- * 2.3 PSI Pressure loss @ 15 feet per second (4.57 m/s) velocity having flow of 594 lpm through 50NB DV
- * 4.7 PSI Pressure loss @ 15 feet per second (4.57 m/s) velocity having flow of 1308 lpm through 80NB DV
- * 4.7 PSI Pressure loss @ 15 feet per second (4.57 m/s) velocity having flow of 2255 lpm through 100NB DV
- * 7.5 PSI Pressure loss @ 15 feet per second (4.57 m/s) velocity having flow of 5117 lpm through 150NB DV
- * 8.4 PSI Pressure loss @ 15 feet per second (4.57 m/s) velocity having flow of 8854 lpm through 200NB DV