



# Lifeco

## DELUGE VALVE

### APPLICATION:

A Deluge Valve is known as a system control valve in a deluge system, which is used for fast application of water in a spray system. They are used to protect areas such as power transformer installation, storage tank, conveyor protection etc. with the addition of foaming agent they do protect aircraft hangar and inflammable liquid fire.



### VALVE OPERATION:

LIFECO Deluge Valve is a quick release, hydraulically operated diaphragm actuated type of valve. It has three chambers, isolated from each other by the diaphragm operated clapper and seat seal. While in SET position, water pressure is transmitted through an external bypass check valve and restriction orifice from the system supply side to the top chamber, so that supply pressure in the top chamber act across the diaphragm operated clapper which holds the seat against the inlet supply pressure because of the 2 : 1 differential pressure design. On detection of fire the top chamber is vented to atmosphere through the outlet port via opened actuation devices. The top chamber pressure cannot be replenished through the restricted inlet port, thus it reaches less than half the supply pressure instantaneously and the upward force of the supply pressure lift the clapper allowing water to enter the system piping network and alarm devices.

### TRIM DESCRIPTION

#### a) BASIC TRIM

The basic trim is required on all LIFECO Deluge valve regardless of release system. It contains those components which are required in all types of installation, such as the main drain valve, priming connection, drip check valve, emergency release valve and pressure gauges.

#### b) DRY PILOT TRIM (PNEUMATIC RELEASE)

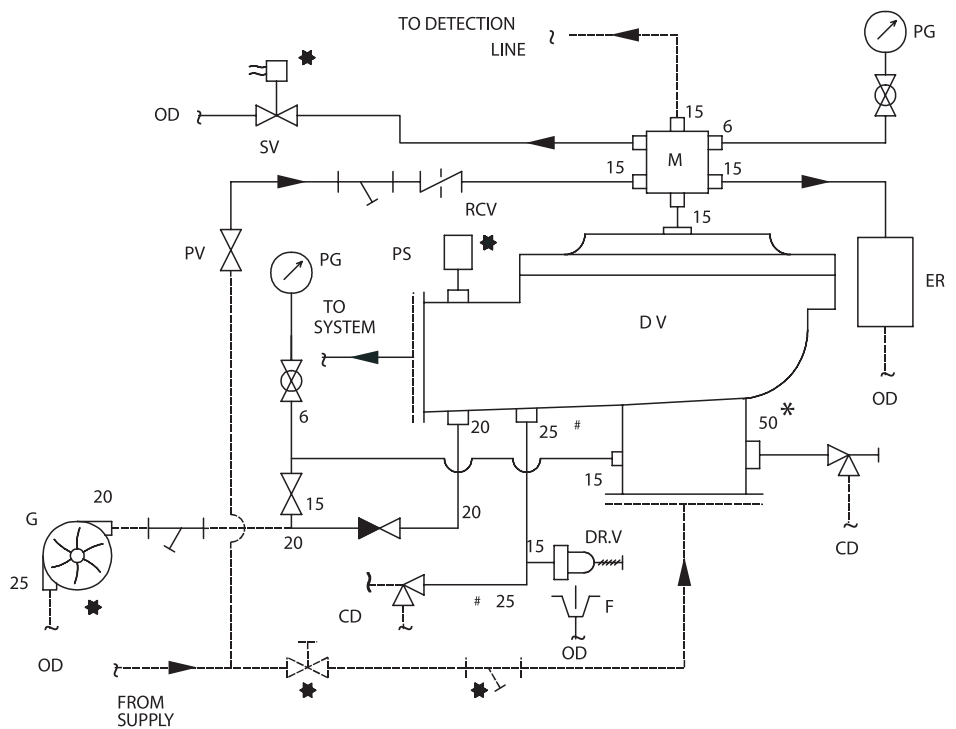
Dry pilot operation uses a pilot line of closed Sprinkler/QB detector containing air under pressure, located in the area to be protected. It requires regulated dry air supply with main supply point through restricted orifice. The pilot line is connected directly on the top of Positive Drain Actuator (PDA). The bottom of PDA is connected to the top chamber of the deluge valve.



# DELUGE VALVE

## ELECTRIC & HYDRAULIC RELEASE TRIM - SCHEMATIC DELUGE VALVE MODEL - A SIZE 200 / 150 / 100 / 80 / 50 NB

⊗	VALVE
⊗	GAUGE VALVE
▶	NON RETURN VALVE
	STRAINER
/	ANGLE VALVE
+	STOP VALVE
★	OPTIONAL
- - - -	BY USER
DR. V	DRIP VALVE
F	FUNNEL
PS	PRESSURE SWITCH
*	32 NB FOR DV 80 & 50 NB
#	20 NB FOR DV 80 & 50 NB
OD	OPEN DRAIN
CD	COMMON DRAIN
DV	DELUGE VALVE
ER	EMERGENCY RELEASE BOX
M	SIX WAY MANIFOLD
RCV	RESTRICTION CHECK VALVE
PDA	POSITIVE DRAIN ACTUATOR
PG	PRESSURE GAUGE
SV	SOLENOID VALVE
PV	PRIMING VALVE



**TABLE-1**

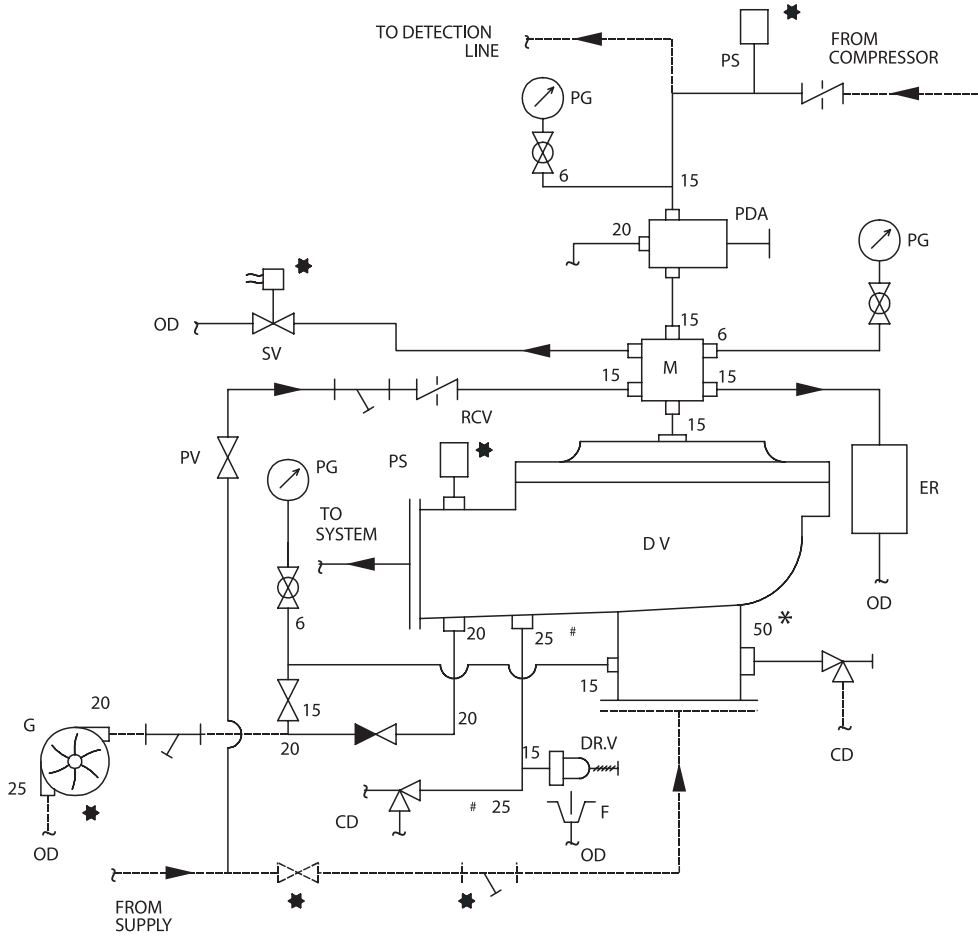
When the air pressure drop, due to release of any of the release devices on detection of fire, the diaphragm of PDA is lifted and allows the water to drain. This reduces the water pressure in the top chamber of the deluge valve and when the pressure in the top chamber reaches 50% of the supply pressure of the deluge valve opens. The direct drain of PDA start when the top chamber pressure of deluge valve reaches approximately 0.5 Kg/sq.cm. This positive drain will not permit the deluge valve to close unless the PDA is set manually. The recommended air supply pressure is as per TABLE-1.

LINE WATER PRESSURE Kg./Sq. Cm. MAXIMUM	AIR PRESSURE IN DETECTION LINE Kg./Sq. Cm.	
	MINIMUM	MAXIMUM
2	1.5	3.0
4	2.0	3.5
6	2.5	4.0
8	3.0	4.5
10	3.5	5.0
12	3.5	5.0



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## ELECTRIC & PNEUMATIC RELEASE TRIM - SCHEMATIC DELUGE VALVE MODEL - A SIZE 200 / 150 / 100 / 80 / 50 NB



	VALVE	*	32 NB FOR DV 80 & 50 NB
	GAUGE VALVE	#	20 NB FOR DV 80 & 50 NB
	NON RETURN VALVE	OD	OPEN DRAIN
	STRAINER	CD	COMMON DRAIN
	ANGLE VALVE	DV	DELUGE VALVE
	STOP VALVE	ER	EMERGENCY RELEASE BOX
	OPTIONAL	M	SIX WAY MANIFOLD
	BY USER	RCV	RESTRICTION CHECK VALVE
DR. V	DRIP VALVE	PDA	POSITIVE DRAIN ACTUATOR
F	FUNNEL	PG	PRESSURE GAUGE
PS	PRESSURE SWITCH	SV	SOLENOID VALVE
		PV	PRIMING VALVE



## DELUGE VALVE

### c) WET PILOT TRIM (HYDRAULIC RELEASE)

Wet pilot operation uses a pilot line of closed sprinklers containing pressurized water, supplied through the upstream side of the deluge valve, through a restricted orifice. All the release lines are connected to a common release line. Due to release of any one of the release device, the water pressure in the top chamber of the deluge valve reaches 50% of the supply pressure, the deluge valve opens.

### d) ELECTRIC RELEASE TRIM

to actuate a deluge valve electrically, a solenoid valve is provided to drain the water from the top chamber of the deluge valve. A pressure switch is provided to activate an electric alarm, to shut down the desired equipment or to give "Tripped" indication to the deluge valve. In addition to this a pressure switch can also monitor "Low air pressure" and "Fire condition" when used in dry pilot air line.

### e) TEST AND ALARM TRIM WITH SPRINKLER ALARM

This trim is supplied with the sprinkler alarm bell, which bells on actuation of the deluge valve. A test valve is provided to test the normal operation of the sprinkler alarm bell.

### TECHNICAL DATA:

MODEL	A
NOMINAL SIZE	200, 150, 100, 80 & 50 NB
RATED WORKING PRESSURE	12.3 Kg. / Sq. Cm. (175 psi)
THREADED OPENING	BSPT (NPT - Optional)
MOUNTING	90° pattern inlet to outlet vertical mounting
FACTORY HYDROSTATIC TEST PRESSURE	25 Kg. / Sq. Cm. (350 psi)
FLANGE CONNECTION	ANSI B 16.5
RECOMMENDED FLOW RATE	200 NB-300 to 1150 m <sup>3</sup> /hr 150 NB-170 to 650 m <sup>3</sup> /hr 100 NB-50 to 225 m <sup>3</sup> /hr 80 NB-30 to 110 m <sup>3</sup> /hr 50 NB-10 to 55 m <sup>3</sup> /hr
FRICTIONAL LOSS IN TERMS OF EQUIVALENT LENGTH OF PIPE (C-120)	200 NB-26.00 Mtrs (85.3 Ft) 150 NB-19.00 Mtrs (62.3 Ft) 100 NB-11.00 Mtrs (36.1 Ft) 80 NB-5.50 Mtrs (18.0 Ft) 50 NB-1.80 Mtrs (5.9 Ft)
WET PILOT SPRINKLER HEIGHT LIMITATION	As per graph in the catalogue
NET WEIGHT WITHOUT TRIM	200 NB - 228 Kg. 150 NB - 145 Kg. 100 NB - 78 Kg. 80 NB - 52 Kg. 50 NB - 47 Kg.
FINISH	Fire red epoxy painted
APPROVALS	UL Listed
ORDERING INFORMATION	Size of valve, Flange connection and Trim details.

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