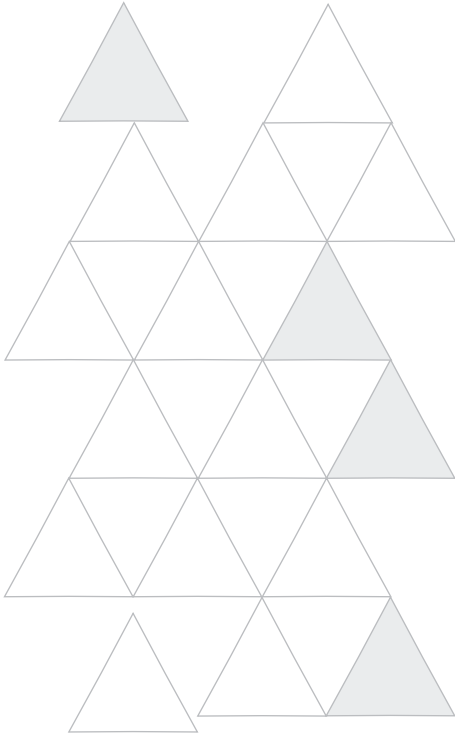




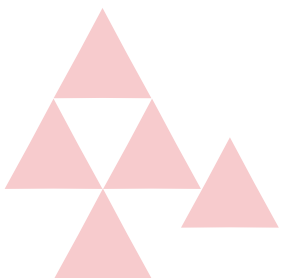
I.T.E

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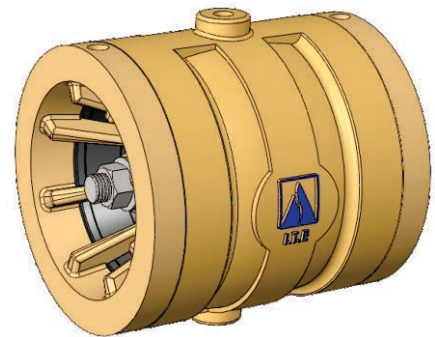
DELUGE VALVE



❖ IMEN TIAR Engineering Company began its activities in 1999 as a manufacturer and supplier of safety and firefighting equipment, along with the designing of [automatic] fire alarm and extinguishing systems. The company is active in the fields of oil, gas, petrochemical and heavy industries, as well as power plants and firefighting organisations. This company manufactures a wide range of safety and firefighting products, and has achieved to obtain the ISO 9001:2008 and the European CE certificates in addition to the domestic certificates from the Institute of Standards and Industrial Research of Iran (ISIRI).

❖ Introduction to the Deluge Valve

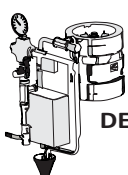
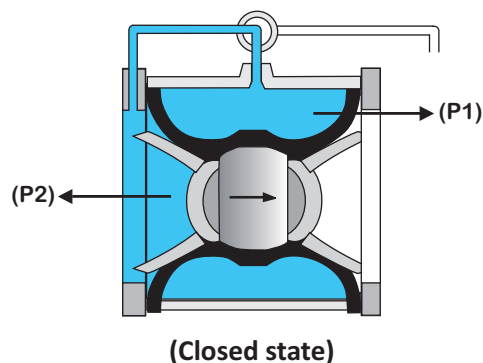
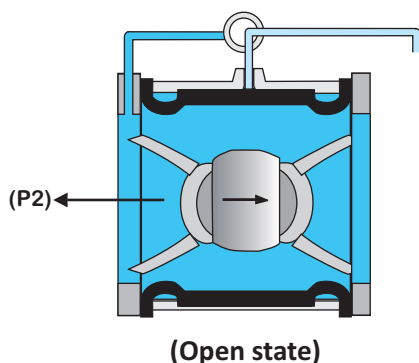
A main valve is required within firefighting systems that work with either water or foam, which is able to quickly open the current of the fluid, in the minimum amount of time, in order to initiate the firefighting operation. This important role is played by the **Deluge valve**. Essentially, deluge valve is a control valve, which is specialised for use in the automatic extinguishing systems.



❖ The Operation of the Deluge Valve

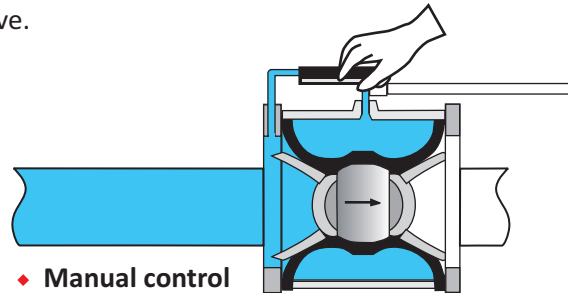
The deluge valve is opened and closed via the only moving part of the valve: the special sealed reinforced rubber, regularly known as the diaphragm.

1. Closed state: the pressure (P_1) behind the diaphragm is equal to the main pressure (P_2) of the water flow. This leads to closing of the deluge valve.
2. Open state: through evacuation of water behind the diaphragm, the pressure is reduced. As a result, the pressure of the main water inlet causes the instantaneous opening of the valve and the flooding of water.

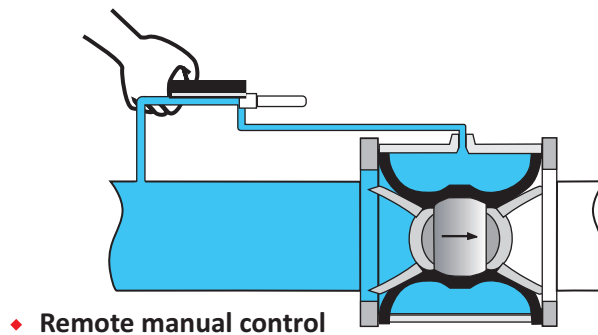


Types of Operation for the Deluge Valve

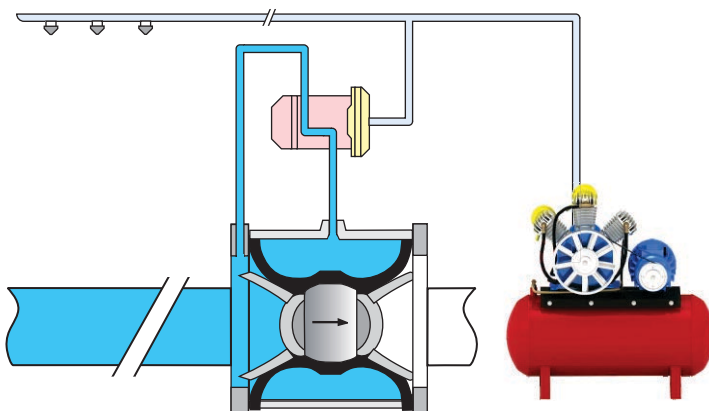
1. Manual control: in this method, the deluge valve can be conveniently controlled via the opening or closing of the ball valve.



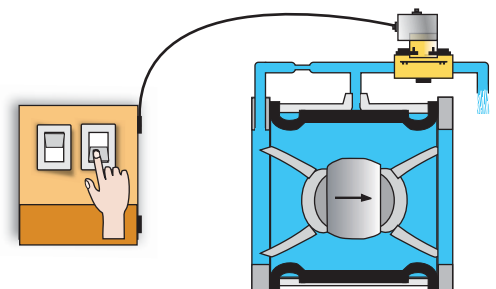
2. Remote manual control: for situations where there is a hazard in the vicinity of the deluge valve, the valve can be opened or closed remotely from a safe distance.



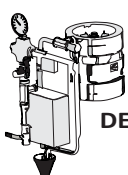
3. Automatic control: this method is designed to be compatible with various fire-detection systems, and can be activated by means of pneumatic (Image 1) or electrical (Image 2) actuators.



◆ Image 1- Pneumatic control

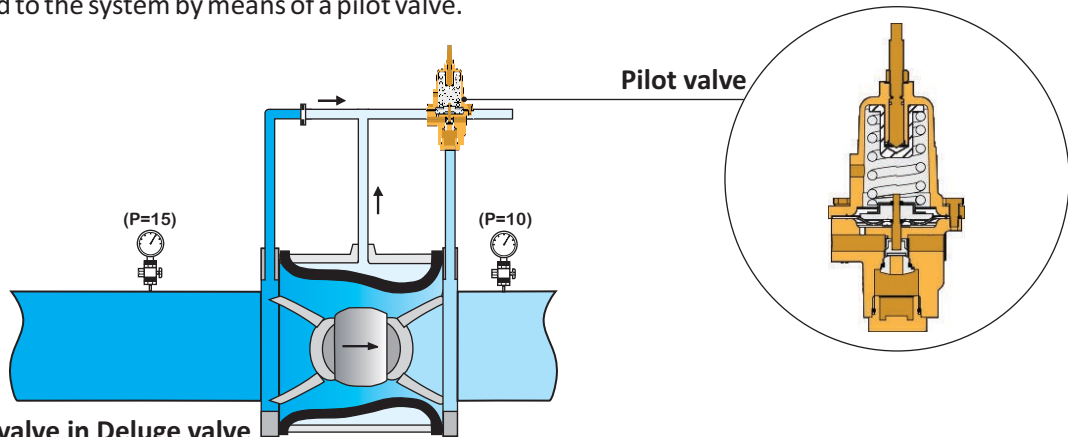


◆ Image 2- Electrical control



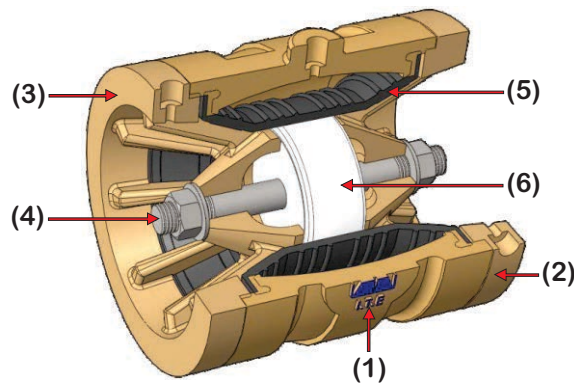
❖ A Special Utilisation of the Deluge Valve

The use of a pilot valve gives a special application to the [deluge] valve. The pilot valve can be controlled pneumatic-hydraulically (in combination) or fully hydraulically. The adjusting of outlet pressure and the speed of opening and closing of the deluge valve is one of the utilisations that can be added to the system by means of a pilot valve.



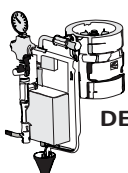
◆ Using pilot valve in Deluge valve

❖ The Components of a Deluge Valve



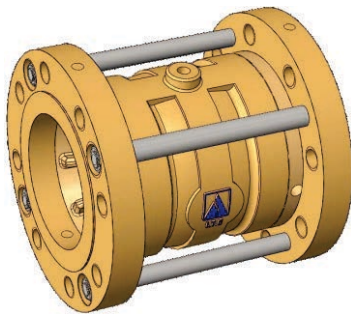
ITEM	PART NAME	MATERIAL			
		(D.C.I):	(BZ):	(AL-BZ):	(NI-AL-BZ):
1	BODY	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2	INLET FLANGE	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3	OUTLET FLANGE	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4	BOLT	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
5	SLEEVE	<input checked="" type="checkbox"/>			
6	SEALING DISK	<input checked="" type="checkbox"/>			

(D.C.I: Ductile Cast Iron) , (BZ: Bronze) , (AL.BZ: Aluminum Bronze) , (NI.AL.BZ: Nickel Aluminum Bronze) , (S.Steel: Stainless steel) , (G.Steel: Galvanized Steel) , (NBR: Nitrile Butadiene Rubber) , (PTFE: Polytetrafluoroethylene)

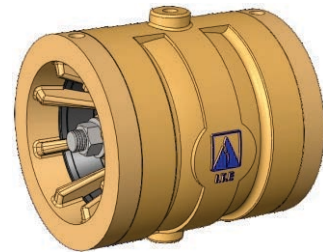


Technical Specifications of the Deluge Valve

Size	Connection Type	Standard	Max. Working Temperature	Max. Working Pressure	Coating
3"	Flange Type Wafer Type	NPT ANSI B16.5 # 150 or 300 Wafer End	60°C	12 or 21 bar	Epoxy
4"					
6"					
8"					

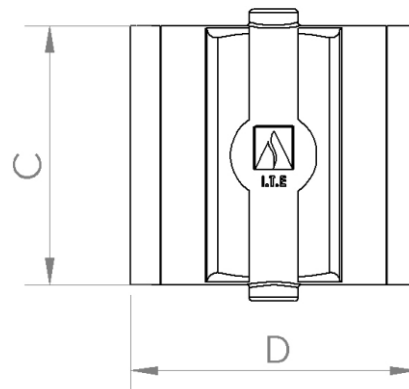
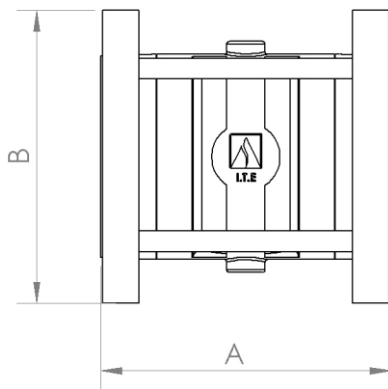


◆ Inlet and outlet pressure type (Flange Type)

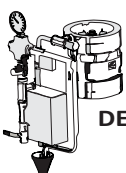


◆ Inlet and outlet pressure type (Wafer Type)

Technical Specifications of the Deluge Valve



VALVE SIZE	3"		4"		6"		8"	
	mm	inch	mm	inch	mm	inch	mm	inch
A	188.6	75.5	222.3	88.9	279.5	111.8	312.5	125
B	190.5	76.2	228.6	91.5	279.4	111.8	342.9	137.2
C	135	54	160	64	220	88	290	116
D	120	48	134	53.6	190	76	230	92

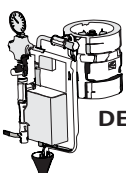


❖ The Properties and Advantages of the Deluge Valve

1. Reliable operation due to the absence of moving mechanical parts.
2. Resistant against water hammer, while being able to be quickly opened and closed.
3. The sufficiency of atmospheric pressure for the complete closing of the valve (even during a pump malfunction, when the system is unpressurised).
4. Adjustable opening and closing speed.
5. The portability of the fully pre-assembled valve.
6. Both vertical and horizontal installation is possible.
7. Quick and easy activation.
8. Remote controllability of the valve.
9. Compact design that is suitable for tight spaces.
10. Able to provide the working pressure up to 21 Bars.
11. Possible to be produced with various types of coatings.
12. Possible to use various materials for manufacturing of the valve (due to different work conditions).
13. Possible to add new mechanisms by modifying the control circuit, e.g. for controlling of the outlet pressure, etc.
14. Easy repair and maintenance.

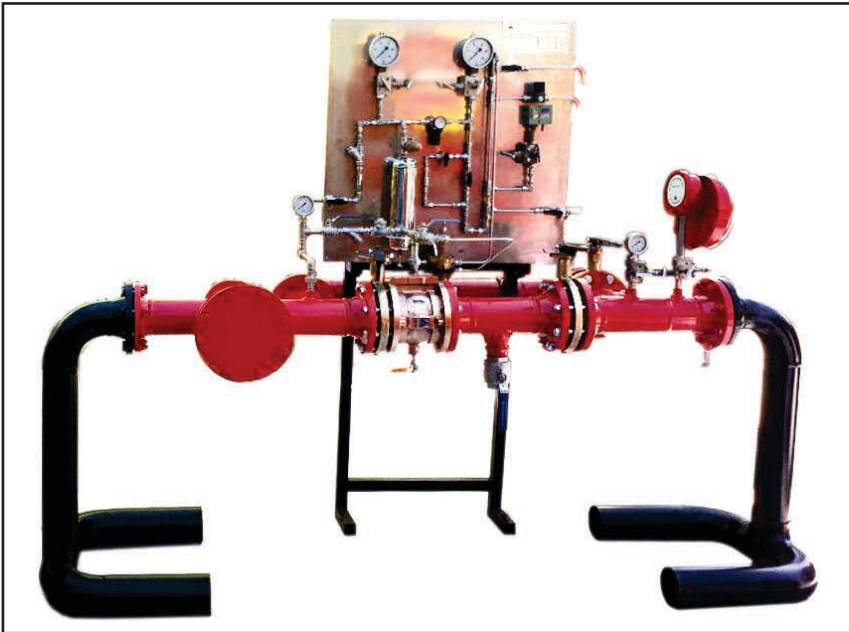


❖ Deluge valve system



❖ Various Types of Deluge Valve Packages

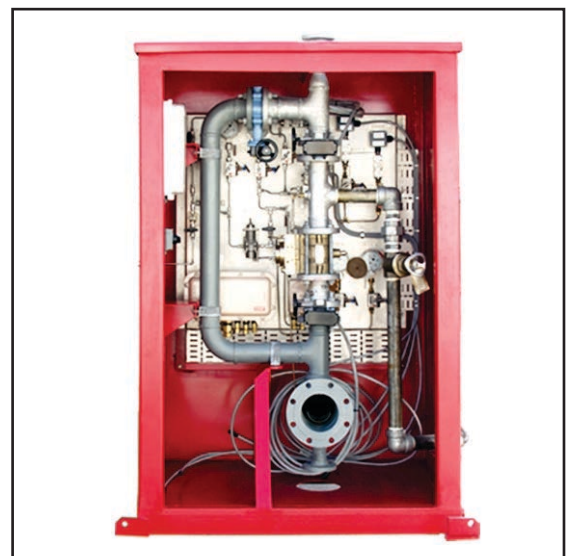
In order to improve the performance and facilitate the use of deluge valves, Imen Tiar Engineering Company has integrated them into various types of systems and packages, which can be employed for different applications.



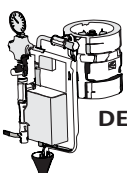
◆ Deluge valve system (For integration into water mains)



◆ Deluge valve (Single)



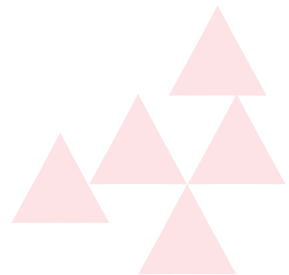
◆ Deluge valve (Package)





Engineering Co.
IMEN TIAR

Rev. A
**DELUGE
VALVE**



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