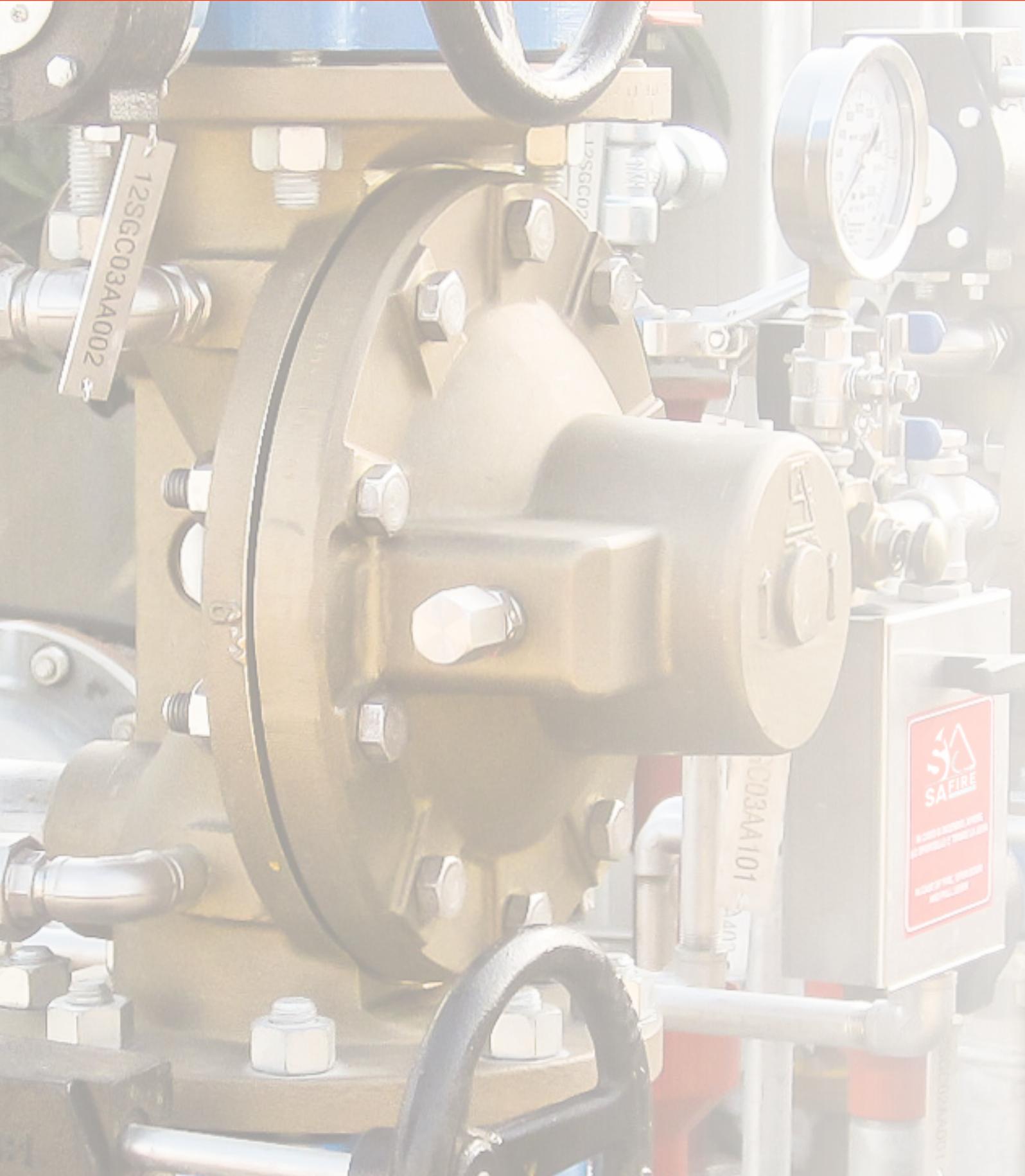


# Deluge Valves



**Fire Protection Solutions**



## Deluge Valves

### FOREWORD

Deluge valves are intended to respond quickly after fire detection, delivering large amounts of water over the entire protected area. SA deluge valves are used to control water flow in deluge, pressure reducing and ON/OFF fire protection systems. They can be trimmed with electric, pneumatic, electro-pneumatic and hydraulic release systems (trims), depending on the specific application. SA deluge valves are quick opening diaphragm type valves specifically designed for highly corrosive environments, such as petrochemical onshore and offshore installations. In this respect, the deluge valves and all their accessories are made of corrosion resistant materials, such as Nickel Aluminium Bronze, also suitable for sea water, foam concentrate and water foam solution. SA deluge valves are manufactured for vertical or horizontal installation. The deluge valves and all their accessories have been designed according to NFPA 15, UL 260, and they are manufactured according to SA's rigorous quality standards, using fully automatic CNC centres. All processes are carried out by highly skilled engineers and technicians providing SA's customers with "state of the art" fire protection deluge valves.

### PRINCIPLE OF OPERATION

In the set position the water is supplied to the priming chamber through the trim. The pressure of the water trapped in the priming chamber holds the diaphragm on the valve seat, keeping the valve closed. In fire conditions the pressure is released from the control chamber by an automatic or manual release device. The water supply pressure in the inlet chamber forces the diaphragm off the seat, allowing water to flow into the system and the alarm devices.

### DELUGE VALVE MODEL VD

SA deluge valves Model VD are traditional diaphragm type valves available in diameter sizes from 2" (DN 50) to 10" (DN 250). They have an inlet chamber, connected to the supply side of the main line, an outlet chamber, connected to the

fire suppression system side, and a priming chamber.

The inlet chamber and the outlet chamber are separated by the diaphragm that allow for the valve to open and close. The diaphragm design, without mechanical moving parts, requires low maintenance and provides an obstacle free waterway,

minimizing the pressure loss through the valve. Model VD is specifically designed for industrial harsh environments such as onshore and offshore installations. It is suitable for use with sea water, foam concentrate or water foam solution. Deluge valve Model VD is used to control water flow in deluge, pressure reducing and ON/OFF systems. It can be controlled manually and automatically by electric, pneumatic, electro-pneumatic or hydraulic trims. SA deluge valves Model VD are under **UL testing for UL/cUL Listing**.

### DOUBLE CHAMBER DELUGE VALVE MODEL VDD

The deluge valve Model VDD is an innovative concept valve designed for fire protection systems according to NFPA 15, UL 260 and IEC 61508/61511. The VDD deluge valve combines all the functions available on the traditional deluge valves with a **fully redundant architecture**, designed to achieve higher reliability.

In fact, the VDD deluge valve has two priming chambers,

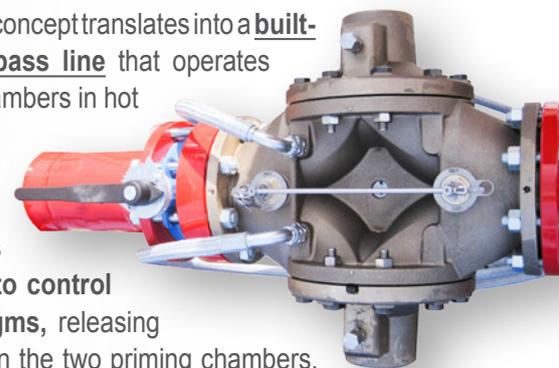


each one provided with its own diaphragm and actuation trim, which offer two independent waterways to the water spray system. Each priming chamber provides the nominal design waterway for the fire protection system: in case of failure of one diaphragm, the opening of the other diaphragm allows the hydraulic waterway for the correct operation of the water spray system.

In practice this new concept translates into a **built-in emergency bypass line** that operates on both priming chambers in hot back-up.

Moreover, a **hydraulic bridge between the trims allows each trim to control both the diaphragms**, releasing the water trapped in the two priming chambers.

If one trim should fail, the other trim can open both the priming chambers through the hydraulic bridge. Thus **the double chamber deluge valve can overcome a double failure trim + priming chamber.** ( see SIL Fire System for further information on VDD products).



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