



QUICK RESPONSE

*Saving life and property through effective licensing, plan review,
and inspection of fire protection systems.*

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DRY PIPE VALVE – PRESSURE GAUGE

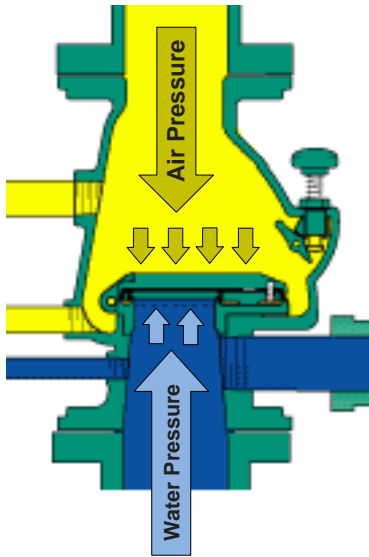


Fig. 1 Dry Pipe Valve

In dry pipe systems, **pressure gauges** are used to monitor water pressures in the system and in the water supply as well as the air pressure in the system.

The compressed air in the sprinkler system holds the dry pipe valve closed, preventing water from entering the sprinkler piping (Fig 1). This valve acts on a pressure differential principle. The surface area of the clapper face on the “air” side is greater than the surface area on the “water” side. The air pressure in the system pipes above the dry pipe valve is sufficient to exert a greater force on the top side of the clapper than is exerted on its underside by the pressure of the water supply. Since the area included by the air seat is approximately six times that of the water seat (The Differential Principle) the air pressure needed to keep the dry pipe valve closed is only a fraction of that of the water supply. Therefore, relatively low air pressure can hold back a much larger water pressure. For example, 30 pounds per square inch (psi) air pressure can hold back 180 psi water pressure.

Refer to the pictures below. The picture to the left shows a dry system ready for operation. The upper **gauge** indicates the air pressure in the system while the lower **gauge** indicates the pressure of the water supply. Note that due to the differential principal, the air pressure is lower than the water pressure. In the picture to the right, the water supply **gauge** reads zero while the upper **gauge** indicates the air pressure in the system. This is an indication that the water supply is turned off. If both **gauges** indicate the same pressures, that signifies the dry pipe valve has operated or “tripped”.

