



MARK 53 ON HOT WATER

Many differential back pressure regulators are used as pump bypass valves and that holds true with the Mark 53. Where the Mark 53 comes in handy is when the media passing through the valve is hot liquid. When hot water, such as might be used for boiler feedwater, passes through a valve and takes a pressure drop, it can flash back to steam. For example, 50 psi water is liquid at 266°F. If the valve drops the pressure to 25 psi, the liquid will flash back to steam. The process can cause damage to the internals of the valve and should be avoided.

In this illustration, the Mark 53 is normally closed. The pump discharge pressure acts beneath the diaphragm. This pressure is opposed by the force of the adjusting spring plus the pump supply pressure. As the pump discharge pressure builds up and overcomes the set point, the Mark 53 throttles to the open position, relieving the necessary capacity to the supply side of the pump to maintain the set point and prevent flashing.