Series 2000

Pressure and/or Temperature Pilot Operated Steam Regulators

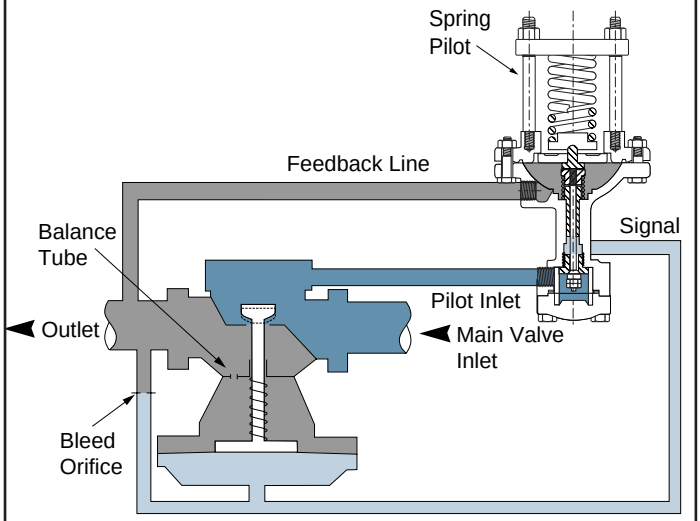
Operation - Main Valve with a Spring or Air Pilot

Pressure may be controlled by use of either a spring pilot or an air pilot. The only functional difference is that a spring pilot uses a spring to apply loading force to the pilot diaphragm and the air pilot uses air pressure.

Downstream pressure is sensed and fed back to the pilot through the feedback line to the underside of the pilot diaphragm. The downstream pressure balances against the spring (or air pressure) force in the pilot, causing the pilot valve to move. This movement opens or closes the pilot valve. When the downstream pressure is below the pilot set point, the force from the spring or air opens the pilot valve and inlet steam flows through the pilot. The open pilot valve allows the flow of steam through the pilot seat and signal line, and on to the underside of the main valve diaphragm. The force from the steam pressure pushes against the main valve spring to control the main valve position. The main valve opens or closes in response to its diaphragm movement.

Under constant steam demand, the pilot and main valve remain relatively motionless. As steam demand decreases, the downstream pressure will rise. When the downstream pressure rises, the pilot valve senses the change relative to the spring or air loading force and the pilot begins to close. Less steam flows through the pilot and signal line to the underside of the main valve diaphragm. The steam trapped under the main valve diaphragm bleeds off through an orifice, allowing the main valve to close.

Main Valve with Spring Pilot



Main Valve with Air Pilot