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Application Guide

SPENCE ENGINEERING COMPANY, INC. 150 GOLDENHAM ROAD, WALDEN, NY 12586-2035

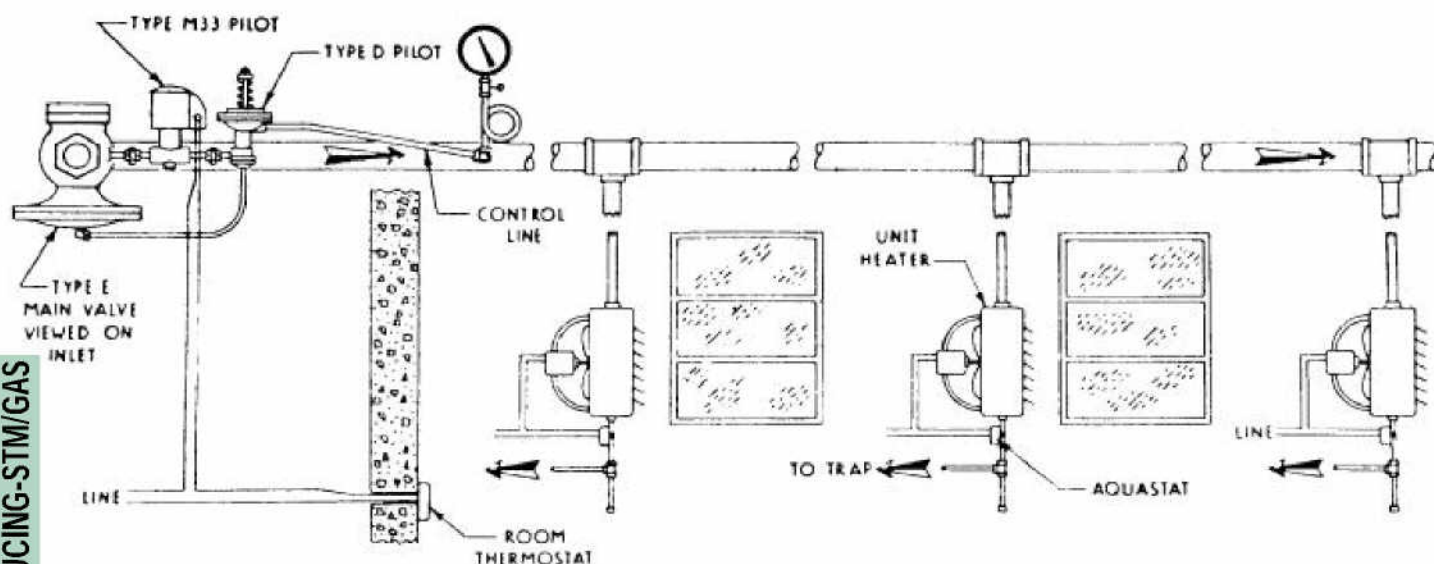
TYPE EM33D ELECTRICALLY OPERATED REDUCING VALVE

APPLICATION:

To provide control of unit heater coil pressure and room temperature.

OPERATION:

When the thermostat closes the circuit and opens the Type M33 solenoid pilot, the D pilot operates the Type E main valve to control header pressure. Then, as unit heaters warm up, the aquastats close the individual fan circuits, starting the fans.



ADVANTAGES:

- Reduced pressure can prevent "hot-blast".
- Reduced pressure reduces trap wear.
- Steam shut-off and pressure controlled by same valve.
- Aquastat operation prevents cold drafts.
- Seasonal pressure adjustment partially balances output to load and reduces cycling on room temperature.



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ED208D ELEC

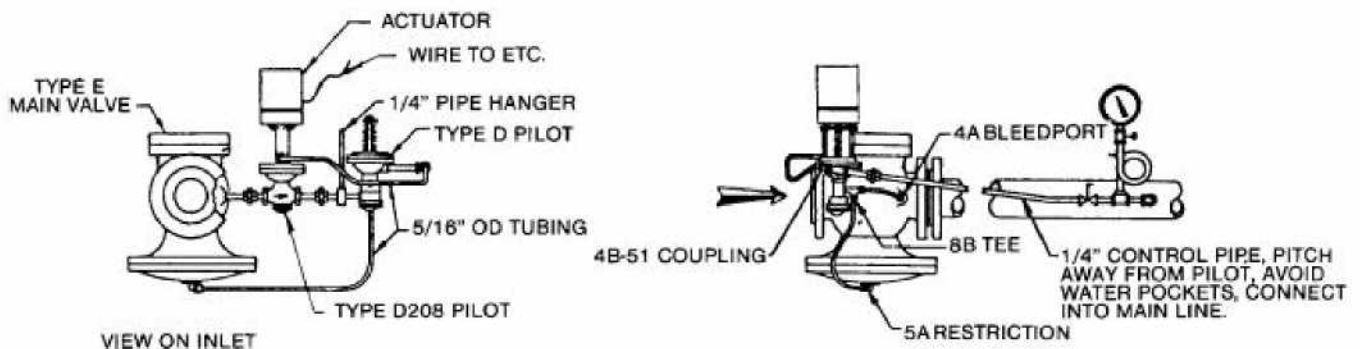
TYPE ED208D ELECTRONIC STARTUP CONTROL in conjunction with a TIME PROPORTIONING OUTDOOR RESET CONTROLLER

APPLICATION:

Effect energy savings by adapting a Time Proportioning Reset Controller to a building's steam heating system. A Time Proportioning Outdoor Reset Controller regulates a building's heating system based on the actual heat loss for a given outdoor temperature by computing and varying the required "on/off" cycle with changing outdoor conditions.

OPERATION:

When the Time Proportioning Outdoor Reset Controller calls for an "on" cycle, it activates the D208's Electronic Time Controller. The ED208D then follows its pre-programmed start-up cycle, which gradually heats up and pressurizes the building's steam heating system until the downstream pressure reaches the setting of the D pilot, which then assumes normal control. When the Time Proportioning Outdoor Reset Controller signals an "off" cycle, the D208's Electronic Time Controller is deactivated and the ED208D closes in approximately one minute.



ADVANTAGES:

Substantial fuel savings since the steam heating system is energized only when required and in the amount necessary.

Substantial man-hour savings when frequent start-ups are necessary.

Reduces start-up load effect on boilers by controlling the rate at which the steam heating load is applied.

Minimizes the possibility of water hammer by gradually heating lines and enabling the traps to discharge condensate.

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TYPE ED208P14-EF14D ELECTRONIC SLOW STARTUP CONTROL for PARALLEL OPERATION

APPLICATION:

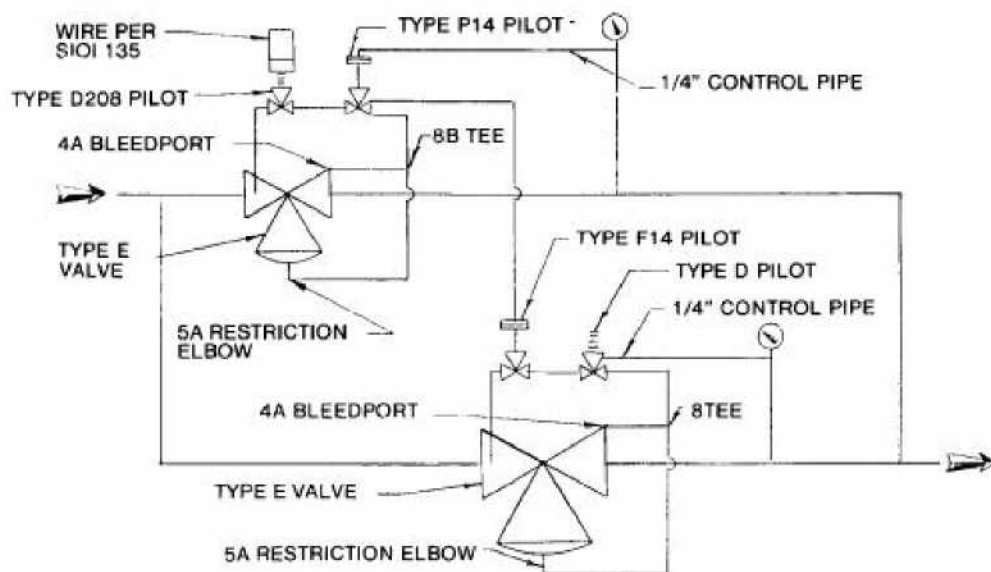
To gradually heat up and pressurize a parallel installation.

OPERATION:

When activated, the D208 Electronic Slow Start-up Control on the lead valve follows its pre-programmed start-up cycle, which gradually heats up and pressurizes the system until the delivery pressure reaches the setting of the P14 pilot, which then assumes control. The output of the lead station's P14 pilot is also connected to the trailing station's F14 pilot. This F14 pilot is set approximately 20 psi higher than the delivery pressure. Arranged in this manner, the trailing station is prohibited from normal parallel operation until the lead station has been fully activated and its capacity exceeded.

FEATURES:

May be started from manual switch, thermostat or time clock. May be readily added to most existing Spence Parallel Operated Pressure Reducing Stations.



ADVANTAGES:

Substantial fuel savings when used to turn on steam heating mains only when required by outdoor thermostat control.

Substantial man-hour savings when frequent start-ups are necessary.

Reduces start-up load effect on boilers by controlling the speed with which the load is applied.

Minimizes the possibility of water hammer by gradually heating lines and enabling the traps to discharge condensate.



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ED210 ELECTRONIC

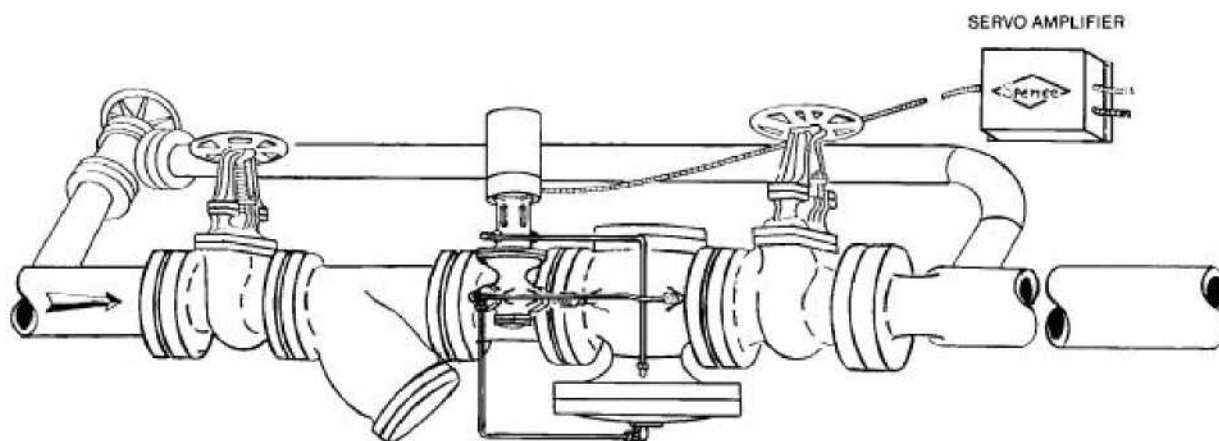
TYPE ED210 ELECTRONIC MODULATING REGULATOR

APPLICATION:

To electronically modulate a Main Valve to control pressure or temperature.

OPERATION:

The D210 pilot will modulate a process variable in relation to a proportional control input signal. There is a continuous signal between the system's input, the Servo-Amplifier and the pilot actuator. This constant signal gives the D210 pilot the ability to react immediately to a command from the input and modulate the Main Valve.



**Typical Installation of the Type ED210
Pressure Regulator protected by a Strainer**

ADVANTAGES:

Back-up power supply available.

Optional input signals:-

1 - 5 ma

4 - 20 ma

10 - 50 ma

Selectable from 0 to 24 VDC

Can be used on standard Spence valve.

Adaptable to energy management systems.

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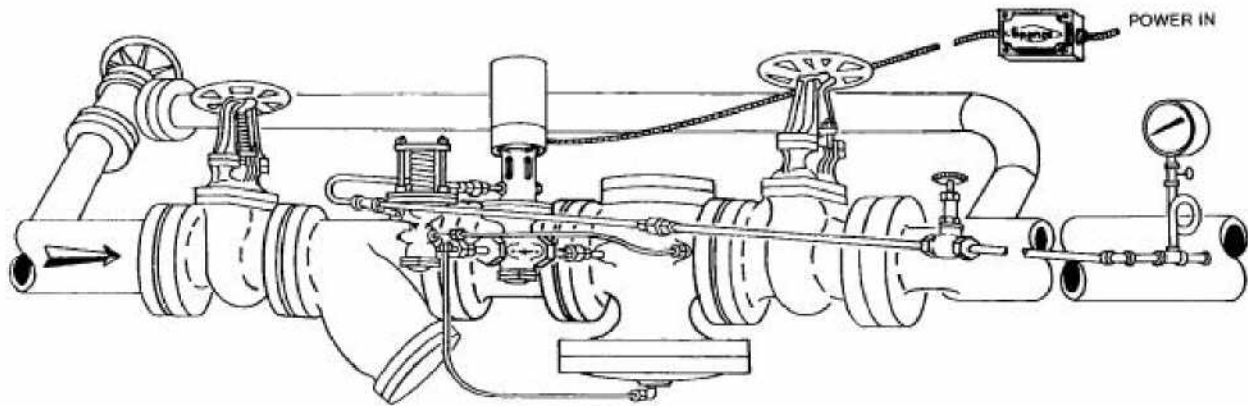
TYPE ED208D ELECTRONIC START-UP CONTROL

APPLICATION:

To gradually heat up and pressurize a steam distribution line.

OPERATION:

The D208 Pilot is controlled by a pre-programmed Electronic Time Controller (E.T.C.). When activated by the customer supplied "switch", the Pilot slowly opens the Main Valve over the 6 - 96 minute time period selected. When deactivated, the Main Valve closes in 1 minute.



**Typical Installation of the Type ED208D
Pressure Regulator protected by a Strainer**

ADVANTAGES:

May be started from manual switch, thermostat or time clock. May be readily added to most existing Spence ED pressure reducing stations.

Substantial fuel savings when used to turn steam into heating mains only when required by outdoor thermostat control.

More even temperature is maintained in a comfort control system.

Substantial man-hour savings when frequent start-ups are necessary.

Reduces start-up load effect on boilers by controlling the speed with which the load is applied.

Minimizes the possibility of a water hammer by gradually heating lines and enabling the traps to discharge condensate.

Back up power supply available.

