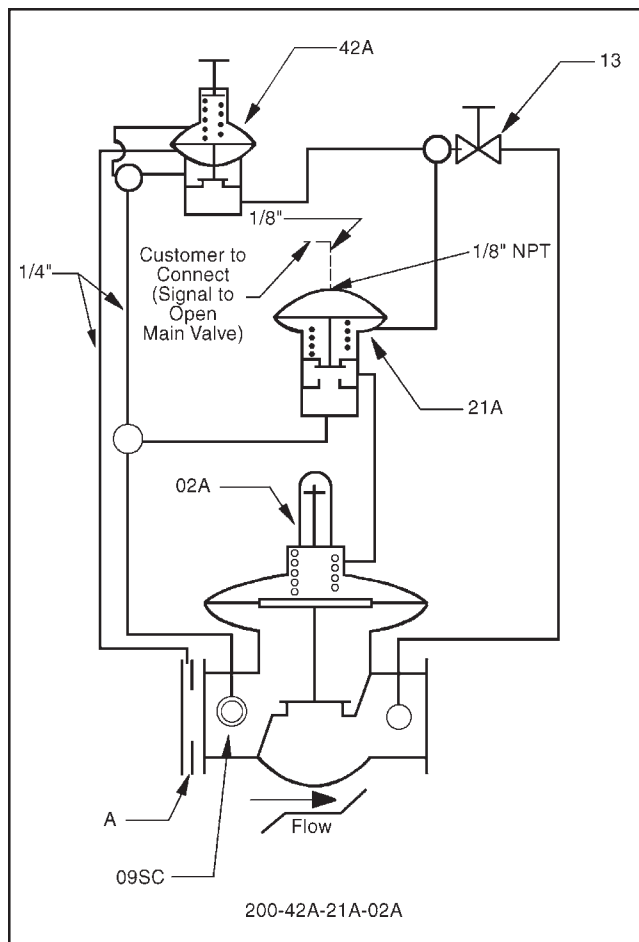


Model 200-42A-21A-02A

The Smith Meter™ Model 200-42A-21A-02A combines the basic 200 series hydraulic control valve with a Model 42A flow control pilot that maintains a set flow rate. The pilot senses a pressure drop across the fixed orifice plate and modulates the entrance of fluid into the main valve cover. The downstream needle valve, Model 13, is used to balance the sensitivity of the fluid entering and exiting the cover of the main valve, as modulated by the 42A pilot. The Model 21A pilot opens the main valve when a remote signal is applied to the pilot cover, and closes the main valve when that signal is relieved. A cover-mounted indicator switch, Model 02A, shows the valve position.

Model 200/201

The Smith Meter™ 200/201 Series Valves are hydraulically-operated diaphragm globe valves. The Model 200 is a flow-over-the-seat design that will fail-closed, and the Model 201 is a flow-under-the-seat design that will fail-open. Product control is accomplished by using line pressure for actuation of the valve.



Schematic Drawing

42A - Rate of Flow Control

This pilot is "normally closed" and is mounted in the upstream control loop of the 200 series valve. It regulates flow rate by sensing differential pressure across the orifice plate and modulates the entrance of fluid into the main valve cover. An increase in the differential pressure, produced by a rise in the flow rate across the orifice plate, is sensed by the pilot diaphragm. When the differential pressure becomes greater than the pilot spring setting, the pilot opens which equalizes the pressure across the main valve diaphragm. This equalization of pressure starts closing the main valve until the desired flow rate is reached and the differential pressure across the orifice plate is no longer greater than the pilot setting. The pilot returns to the normally-closed position and the main valve cover pressure is relieved. The desired flow rate can be adjusted by turning the adjustment screw clockwise to increase the flow rate and counterclockwise to decrease the flow rate. (This adjustment is restricted by the product's specific gravity and the orifice plate sizing.)

Model 21A

The 21A accelerator is a three-way diaphragm-operated pilot. When pressure is applied to the cover chamber, the common port will switch from the normally-open port to the normally-closed port.

Model 02A

The 02A is a cover-mounted indicator. It is a direct linkage to the main valve stem that is used to show valve position.

Model 09SC

The 09SC is a self-cleaning strainer used to protect the small orifices of the pilots and solenoid valves used in the control loop of the main valve. The self-cleaning feature allows any foreign particles to drop back into the main line when the fluid in the main valve stops.

Model 13

The 13 needle valve is used to set sensitivity in combination with other control pilots located in the control loop plumbing. When used in the upstream loop, it controls closing speed by limiting the flow of fluid to the cover of the main valve. When used in the downstream loop, the needle valve controls opening speed by limiting the exit of fluid from the cover.

Revisions included in MN03020 Issue/Rev. 0.1 (1/03):

Page 1: Removed reference to 8", 10" and 12" Piston valves..

The specifications contained herein are subject to change without notice and any user of said specifications should verify from the manufacturer that the specifications are currently in effect. Otherwise, the manufacturer assumes no responsibility for the use of specifications which may have been changed and are no longer in effect.

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