

The **Smith Meter® Model 210 Valve** is typically used in conjunction with either the Smith Meter **AccuLoad®**, **MiniLoad**, or **Model SS1 Controller and Preset Counter** for preset loading control at load racks, bulk plants, or processing installations.

Features

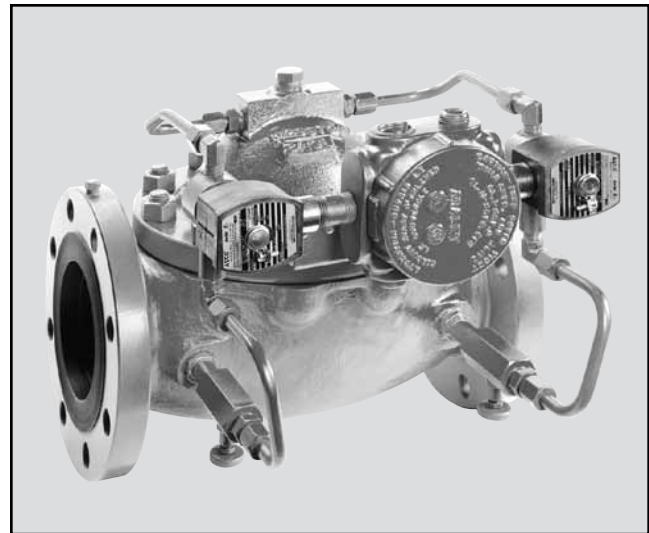
- Simple control loop
- Control loop needle valves
- Low pressure drop
- Separate opening and closing speed control
- Compound spring
- Horizontal or vertical applications
- Full range of optional control functions

Optional

- **2" Reduced Port Valve** – Ideal for renewable fuels blending, controlling flow down to 3 GPM.

Operation

The Smith Meter Model 210 Valve is a Smith Meter 200 Series Valve with two solenoid controls (see Figure 1). The normally-open (N.O.) and normally-closed (N.C.) solenoids, located in the upstream and downstream portions of the control loop, respectively, control the operation of the valve. With both solenoids energized, high upstream pressure is blocked allowing the product in the



cover to vent to low downstream pressure, opening the main valve. Conversely, de-energizing both solenoids allows high upstream pressure to close the valve.

Energizing just the N.O. solenoids locks fluid in the valve cover, which locks the valve poppet in a fixed position, to maintain a constant flow rate as long as operating conditions do not change. When operating conditions (e.g., pressures) change, causing a change in flow rate for that fixed valve opening, the flow controller (e.g., SS1 or AccuLoad) signals the appropriate solenoid to open momentarily to readjust flow rate back to its set value. When the set flow rate changes (e.g., from low flow start to high flow limit, or during multi-step valve shutdown), the appropriate solenoid is signalled to open until flow rate adjusts to the new set value. See Figure 2 for a typical truck loading flow rate sequence.

Located between each solenoid and the main valve port is a valve response control device, typically a needle valve.

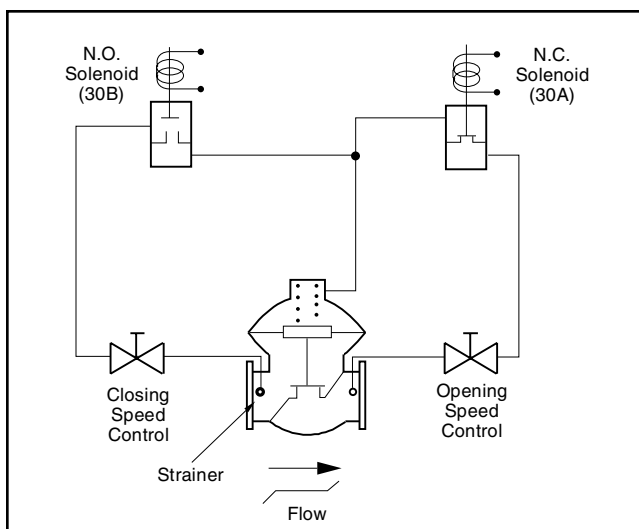


Figure 1 – Model 210 Valve Schematic

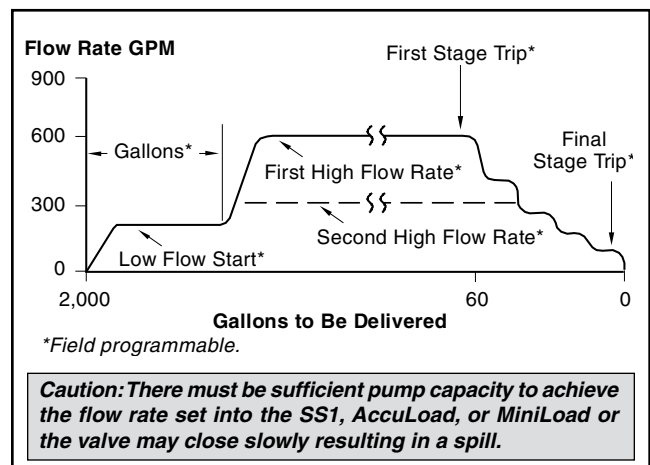


Figure 2 – Typical Load Cycle

This device is used to fine tune the opening/closing rate of the valve, as well as providing total control loop isolation for ease of service. Adjustment of these devices controls the flow to the cover chamber, permitting adjustments based on product viscosities and pressures.

Voltage (Solenoids)

Standard: 110/120 Vac, 50/60 Hz.

Optional: 220/240 Vac, 50/60 Hz.

24 Vdc.

12 Vdc.

Other voltages, consult factory.

Specifications

Maximum Viscosity

Up to 200 SSU (40 mPa•s)¹.

Above 200 SSU (40 mPa•s), consult factory.

Pressure Rating/Connections^{2, 3}

Class 150 ASME, 285 psi (19.6 bar)

Class 300 ASME, 300 psi (20.7 bar)

Temperature Range

Valve Elastomer	Temperature Range ^{2, 4}
LS (Low Swell) Buna	-20°F to 200°F (-28°C to 93°C)
Buna-N	-20°F to 200°F (-28°C to 93°C)
Viton	-20°F to 350°F (-28°C to 177°C)

Materials of Construction

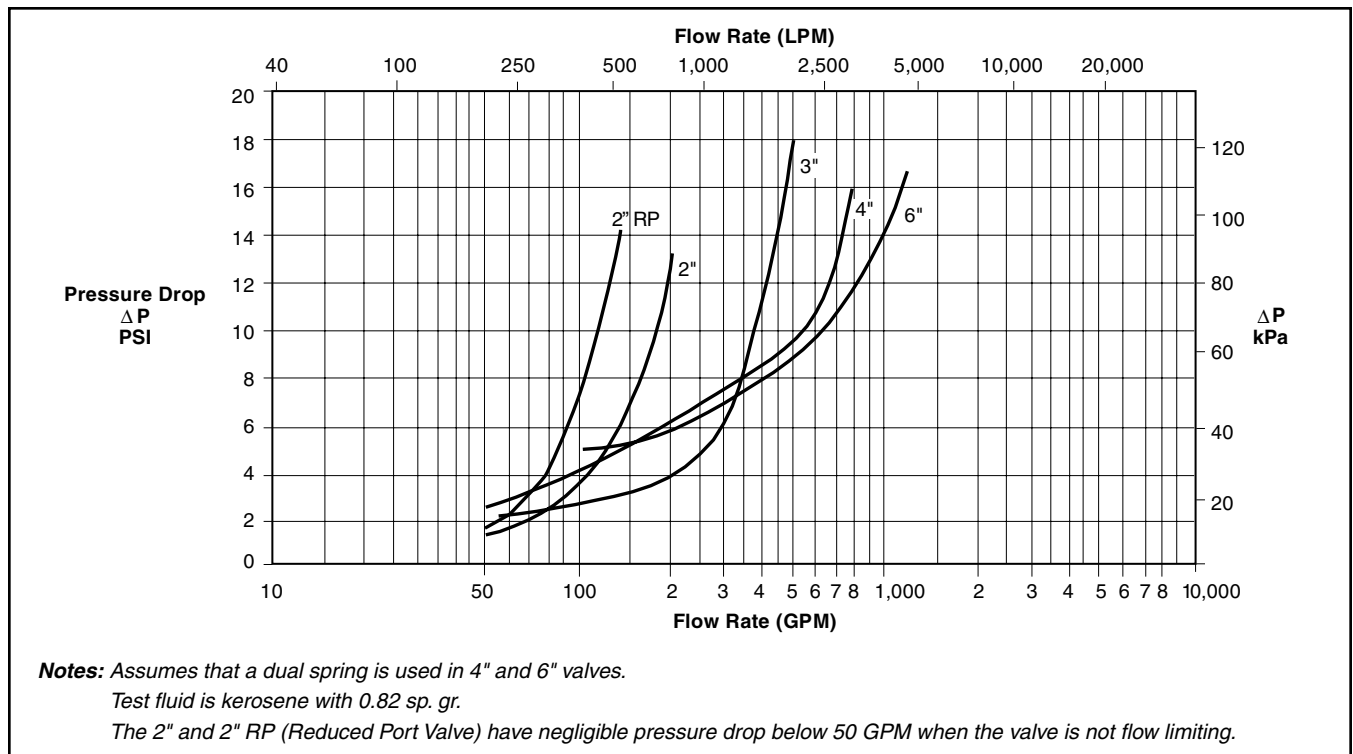
	Housing	Internals	Seals
Main Valve	Cast Steel	Stainless Steel, Carbon Steel, Ni-Resist Ductile Iron Options: Epoxy Coating	Low Swell Buna (Std.), Viton-A or Buna (Opt.)
Solenoid Valves	Stainless Steel	Stainless Steel	Viton-F (Std.) Chemraz (Opt.)
Needle Valves	Steel	Steel	Viton/Teflon
Valves+	See Note Below		
Tubings & Fittings	- See Note Below	Steel	-
Ball Valves*	Steel See Note Below	Chrome Plated Steel Ball/Steel Body	Teflon

+Standard.

*Optional (for 4" and 6" only).

Note: Stainless Steel Ball Valves, Needle Valves, and/or Tubing and Fittings Available.

Pressure Drop (When Valve is Not Flow-Limiting or Wide Open)



1 1 mPa•s = 1 cP.

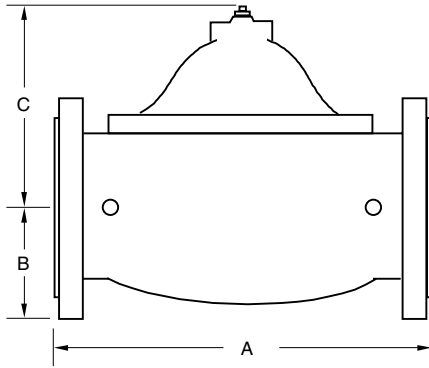
2 Pressure ratings are based on temperatures of -20°F to 100°F (-28°C to 38°C). For operation at higher temperatures, the maximum working pressure may be derated.

3 PED requirements limit applications to liquids with maximum vapor pressures of .5 bar above atmospheric pressure, at maximum allowable temperature.

4 For temperature outside these ranges, consult factory.

Dimensions

Inches (mm)



Size	A Class 150 ASME Flange	A Class 300 ASME Flange	B Class 150 ASME Flange	B Class 300 ASME Flange	C	Weight (lb)
2" & 2" RP	8.0" (203)	8.5" (216)	3.0" (76)	3.3" (84)	5.5" (140)	46
3"	11.0" (279)	11.8" (300)	3.8" (97)	4.1" (104)	7.0" (178)	83
4"	13.5" (343)	14.1" (358)	4.5" (114)	5.0" (127)	8.0" (203)	136
6"	17.0" (432)	17.9" (455)	5.5" (140)	6.3" (160)	10.8" (274)	258

Note: Dimensions – Inches to the nearest tenth (millimeters to the nearest whole mm), each independently dimensioned from respective engineering drawings.

Revisions included in SS03009 Issue/Rev. 0.8 (4/10):
Revisions made to Materials of Construction on page 2.

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.

Contact information is subject to change. For the most current contact information, visit our website at www.fmctechnologies.com/measurementsolutions and click on the "Contact Us" link under the "Quick Links" in the right-hand column.

Headquarters:

500 North Sam Houston Parkway West, Suite 100, Houston, TX 77067 USA, Phone: +1 (281) 260 2190, Fax: +1 (281) 260 2191

Gas Measurement Products:

Erie, PA USA +1 (814) 898 5000
Ellerbek, Germany +49 4101 3040
Thetford, England ++44 1842 822900
Kongsberg, Norway +47 (32) 28 67 00
Buenos Aires, Argentina +54 (11) 4312 4736

Integrated Measurement Systems:

Corpus Christi, TX USA +1 (361) 289 3400
Kongsberg, Norway +47 (32) 28 67 00
San Juan, Puerto Rico +1 (787) 772 8100
United Arab Emirates, Dubai +971 (4) 883 0303

Liquid Measurement Products:

Erie, PA USA +1 (814) 898 5000
Los Angeles, CA USA +1 (310) 328 1236
Slough, England +44 (1753) 571515
Ellerbek, Germany +49 4101 3040
Barcelona, Spain +34 (93) 201 0989
Moscow, Russia +7 495 5648705
Melbourne, Australia +61 (3) 9807 2818

Beijing, China +86 (10) 6500 2251
Singapore +65 6861 3011
Chennai, India +91 (44) 450 4400

Visit our website at www.fmctechnologies.com/measurementsolutions