

Model 215 Wafer Sphere 3" to 12" Digital Control Valve

Bulletin SS03010 Issue/Rev. 0.8 (6/14)

Smith Meter® Valve and Line Accessories

The **Smith Meter® Model 215 Digital Control Valve** is a high-performance, wafer-sphere valve with a solenoid-controlled pneumatic/hydraulic actuator.

When used in conjunction with one of the Smith Meter Electronic Valve Controllers (e.g., AccuLoad®, or micro-Load™) Model 215 Valves provide precise, trouble-free, low pressure drop, preset loading, and/or flow control of virtually any flowing liquid. The Model 215 is particularly well suited for applications on heavy fuel oils or lube oils where viscosity limits the use of hydraulic valves.



3" Model 215

Features

- Operation is independent of fluid viscosity and pressure to assure proper control under virtually all operating conditions.
- Wide fluid compatibility can be assured by proper selection of valve-wetted materials.
- Fail-safe operation since valves are spring-loaded fail-to-close.
- Pre-wired, explosion-proof junction box supplied as standard.
- Main valve meets NACE MR-01-75 requirements.

Options

- Pneumatic or hydraulic actuation.
- Pressure regulator.
- Pressure gauge.
- Limit switches.
- Hydraulic power pack.
- Fail to open operation – consult factory.

Operation

The valve schematic in Figure 1 illustrates the simplicity of the solenoid-controlled actuator system of the Model 215 Valve. The normally closed (N.C.) and normally open (N.O.)

solenoids, located on the pressure and relief lines (respectively) of the actuator, control the operation of the valve. Opening the pressure line and closing the relief line, by energizing both solenoids, allows pressurized air or hydraulic fluid to enter the actuator, pushing the diaphragm and opening the valve. Conversely, de-energizing both solenoids allows the pressure in the actuator to relieve to atmosphere or back to the hydraulic reservoir, permitting the actuator spring to close the valve. Closing off both the pressure and relief lines (energizing the N.O. solenoid only) locks the valve in place. The needle valve settings control the valve opening and closing speeds.

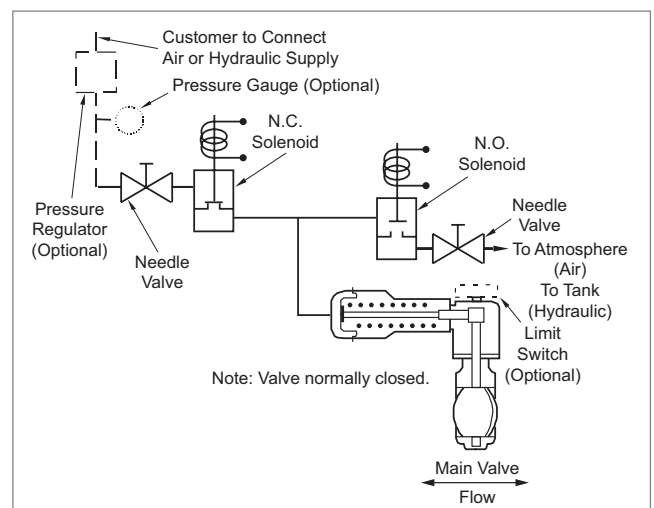


Figure 1 – Model 215 Valve Schematic

Specifications

(For standard Wafer Sphere Type 215 Valve)

Main Valve

Type: High-performance, wafer-sphere valve – standard

Sizes: 3" to 12", installed between Class 150 ANSI RF companion flanges (supplied by others)

Operating Pressures: 285 psig (Class 150 ANSI) – standard; Other pressures available on request.

Operating Temperatures: -20°F (-29°C) to 100°F (38°C)¹

Materials of Construction

Body: Carbon Steel (optional: Stainless Steel)

Disk and Shaft: Stainless Steel

Seat: PTFE² Other materials available on request.

Meets NACE MR-01-75 requirements.

Actuator

Type: Spring – diaphragm

Materials of Construction

Body: Carbon steel

Diaphragm: Buna-N

Air Supply: Clean, dry air or gaseous nitrogen

Hydraulic Supply: Clean Hydraulic Fluid, Dextron II or equivalent

Recommended Air Supply Pressure: 60-85 psig

Maximum Air Supply Pressure: 100 psig

Operating Temperature: -20°F (-29°C) to 150°F (68°C)

Needle Valve

Material: Brass – standard

Stainless Steel – optional

Tubing and Fittings

Material: Steel – standard

Stainless Steel – optional

Optional Equipment

- Pressure Regulator: 0-125 psi (air only); max inlet 250 psi
- Pressure Gauge: 0-160 psi

¹ Higher temperatures up to 400°F (200°C) available with derated maximum working pressure. The operating differential pressure is needed to determine maximum operating temperature (Inlet pressure – outlet pressure).

² Material reference changed to Polytetrafluoroethylene (PTFE).

- Optional Limit Switches: Two SPDT, UL-listed, CSA certified FM approved. (NEMA 4, 7 Groups C and D, and 9 Groups E, F, and G) for combined watertight and hazardous location design. Switches are rated at 15A with 125/250 VAC and 0.5A DC resistive.
 - The limit switches can be used for open or closed position indication for signaling devices, panel light operation, etc.
 - Valve open position limiting to facilitate prompt valve closure in dedicated service where an Electronic Controller is not required.
- Hydraulic Power Pack*
 - 110/240 VAC 50/60 Hz Single Phase.
 - HP Explosion Proof Motor – Class I, Div. 1 Groups C&D.
 - 3.0 GPM gear pump for fast response.
 - Hydraulic Supply and Return Manifolds – Drives up to 6 valves less than or equal to 3" in size. Size 3/8" SAE for supply and 1/2" SAE for return.
 - 5 Gallon Reservoir – with top filler/breather, drain plug and sight-level (small footprint).
 - Supply Pressure Regulator – with adjustable set point 0 to 200 psig with liquid filled gauge.
 - On Demand – Pump activates only when valve control is needed, used in conjunction with an AccuLoad or other preset controller.

* Consult factory on valves larger than 4".

Solenoids

Explosion-proof, UL-listed and CSA-certified for NEMA 4 and 7, Groups C and D, for use in watertight and hazardous locations.

Type: 2-way normally closed on pressure line

2-way normally open on exhaust line

Materials of Construction

Standard – Brass body with Buna-N disk

Optional – Stainless Steel body with Buna-N disk for service in corrosive atmosphere

Operating Pressure: 85 psi maximum

Operating Temperature: -40°F (-40°C) to 180°F (82°C)

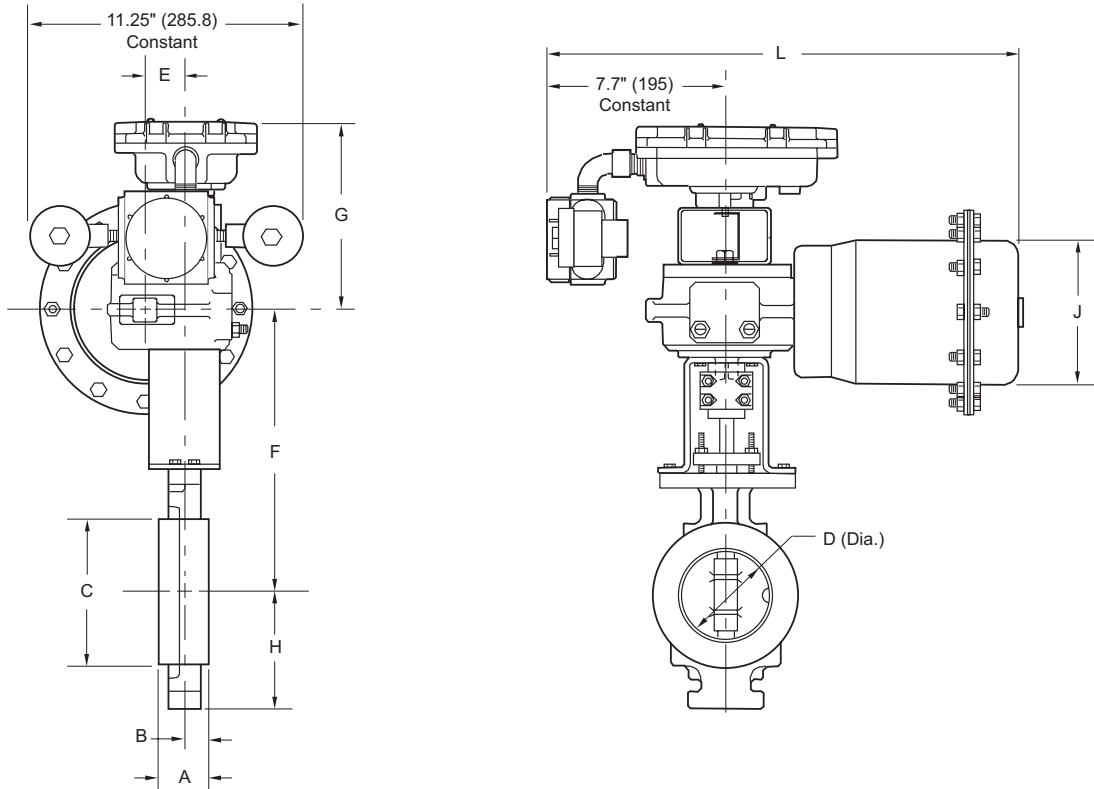
Voltage: Standard – 102-120 VAC 60 Hz
94-110 VAC 50 Hz
204-240 VAC 60 Hz
188-220 VAC 50 Hz

Optional – 20-25 Vdc
10.2-12.6 Vdc

Other voltages, consult factory.

Dimensions

inches (mm)



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

Valve Sizes	A	B	C	D	E	F	G	H	J	L	CV	Actuator Air Swept Volume cu.in (liters)	Typical Number ³ of Preset Deliveries per Cylinder of GN ₂ ⁴
3"	1.9" (49)	1.1" (27)	5.0" (127)	2.9" (73)	1.7" (42)	10.9" (277)	8.2" (207)	4.4" (113)	8.9" (227)	21.9" (558)	165	66 (1.08)	3,000
4"	2.1" (54)	1.2" (30)	6.2" (157)	3.8" (95)	1.7" (42)	11.4" (290)	8.2" (207)	4.9" (125)	8.9" (227)	21.9" (558)	400	66 (1.08)	3,000
6"	2.3" (57)	1.9" (33)	8.5" (216)	5.6" (142)	2.1" (53)	13.2" (337)	8.3" (212)	5.9" (149)	10.9" (273)	24.2" (616)	1,050	133 (2.18)	1,500
8"	2.5" (64)	1.4" (35)	10.6" (270)	7.4" (188)	2.7" (67)	15.4" (391)	8.8" (222)	7.6" (194)	12.6" (319)	26.4" (670)	2,200	265 (4.34)	750
10"	2.8" (71)	1.6" (41)	12.8" (324)	9.3" (236)	3.4" (86)	18.8" (478)	9.2" (235)	9.2" (235)	15.0" (381)	30.4" (786)	3,300	531 (8.70)	375
12"	3.2" (81)	1.9" (48)	15.0" (381)	11.2" (284)	1.8" (44)	18.6" (471)	9.2" (235)	10.8" (273)	15.0" (381)	30.4" (786)	5,100	531 (8.70)	375

³ Based on using air at a rate of one full actuation at 45 psig for each preset delivery.

⁴ One standard cylinder of gaseous nitrogen (GN₂) contains 300 standard cubic feet.

Revisions included in SS03010 issue/rev. 0.8 (6/14):

Page 2: Optional Equipment – Pressure regulator revised. Materials of Construction revised – Standard and Optional. Revised both Recommended and Maximum Air Supply Pressures. Seats reference was changed to PTFE.

March 2019 - Updated branding and contact information.

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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