



VALVE ACCESSORIES & CONTROLS, INC.

Principal of Operation

V200E/P Nickel Coating

The basic principal of operation for a Nickel coated unit does not change due to the Nickel coating. This coating is offered in the V200 E, Electropneumatic or P Pneumatic units. The below description assumes a 4-20mA input, if you have a pneumatic unit substitute a 3-15 PSI input in the place of 4-20 mA. For a detailed Principal of operation drawing please go to:

V200E- <http://www.vacaccessories.com/pdfs/v200/v200E-prin-of-oper.pdf>

V200P- <http://www.vacaccessories.com/pdfs/v200p-principal-of-oper.pdf>

A simple design and concept equals a simple operation of these components:

- A pneumatic positioner
- A close-coupled I/P converter

Note: Principal of operation assumes proper calibration of the unit has been made.

Supply pressure up to 145 PSI is connected to the supply port of the unit (marked S on the gauge block side), and the actuator ports (marked C+ and C-) are connected to either a double or single acting (spring return actuator-rotary or linear) actuator. The C+ port is the positioner's opening port. An instrument signal (generally 4-20 mA) is then connected to the I/P connection block. The pneumatic I/p port (located on the 1/4" porting side) should be plugged. With no electronic signal on the unit, the positioner is stable, but no actuator movement has occurred. The I/P is directly coupled with the pneumatic positioner; either internally mounted or externally mounted (EX and FF units) with a custom designed adapter. Air supply for the I/P (up to 145 psi) is provided through the positioners supply port. The I/P converter will convert the 4/20 mA signal to a 3-15 psi signal sent internally to the positioner diaphragm. A milliamp change causes the I/P to respond and sends a pneumatic signal (internally) to the positioner diaphragm, causing the diaphragm to move and the spool valve (air shuttle valve) to move, sending air to the actuator. As the actuator moves, feedback to the positioner is provided through the actuator linkage and the positioner spindle/cam assembly. As the actuator moves the spindle/cam rotates and turns to the desired "set point" based on the mA input signal, the actuator's actual position. Once the set point is achieved a steady state position is maintained, and the supply air is "balanced" between ports.



Ordering Codes

Positioner	Spindle	Front Cover	Indicator	Cam	Coating
V200P/E (IS)	D____*	90 90 Degree 60 60 Degree 45 45 Degree 30 30 Degree 01 Blank	A Arrow B Beacon	C____*	NIC

*See spindle and cam selection below

Standard Spool valve shipped is SG/LB (standard gain/low bleed) see below options

Example: V200E-D2-90-B-C1-NIC

V200 electropneumatic positioner with 1/2" square spindle, standard 90 degree cover, beacon indicator, and standard 90 degree cam, Nickel Coating.

* Spindles

D1	Namur	D8	12 mm Dual Post
D2	1/2" Square	D9	Old Namur
D3	3/8" Square	D10	Namur-special-long
D4	Round (Linear)	D11	Octagon
D5	Double D	D12	DeZurik special
D6	3/8" Square-long	D15	Namur slotted special
D7	3/4" Slotted	D17	Bailey positioner equal

* Cams

C1	90° & 180°, Linear + split range	C6	90° & 60°, Slot 0-100
C2	45° & 90°, Linear 0-100	C7	90°, Square root 0-100
C3	30° & 60°, Linear 0-100	C8	90°, Equal %
C4	60° & 120°, Linear 0-100	C9	70° Linear with 35° zero suppress
C5	90° & 60°, Pin 0-100	C10	90°, 4 way 25°, split range
		C11	270° Linear

Options:

High Gain Spool Valve	HG
Super High Gain/High Flow Spool Valve	SHG/HF
Nickel Coated	NIC*

Gauges-must specify quantity and pressures gauge options

*Nickel coating available in V200P or E (IS) only-no external lps are Nickel coated.



V200 Technical Specifications

Nickel Coating

Available in E, IS & P

	Pneumatic	Electropneumatic
	V200P	V200E & IS
Input Signal	3-15 PSI	4-20 mA
Supply Pressure	145 PSI	20-145 PSI
Linearity error	<0.7%f.s	<1.0%f.s
Hysteresis	<0.4%f.s.	<0.6%f.s.
Repeatability	<0.3%f.s.	<0.5%f.s.
Temperature range	-40° to 185°F (-40° to 85°C)	-40° to 185°F (-40° to 85°C)
Air connections	¼" NPT	¼" NPT
Gauges	1/8" NPT	1/8" NPT
Cable Entry	½" NPT	½" NPT
Ingress & corrosion protection	NEMA 4X / IP66	NEMA 4X / IP66
Standard coating	Nickel	Nickel
Weight	3.5 lbs	3.9 lbs

Spool valves:

			Standard Gain/ Low Bleed	High Gain	Super High Gain/ High Flow
Air Delivery:	@ 87 PSI (0.6MPa)	SCFM/(SLPM)	28.3/(800)	31.5/(900)	50.0/(1400)
Bleed Rate:	@ 87 PSI (0.6MPa)	SCFM/(SLPM)	0.20/(5.6)	0.83/(23.5)	1.3/(36.8)
Pressure Gain:	@ 87 PSI (0.6MPa)		240:1	1100:1	1100:1