

# SOGAV™ 250

## Solenoid Operated Gas Admission Valve

### Applications

The SOGAV™ (Solenoid Operated Gas Admission Valve) 250 is an electrically actuated, high-response gas admission valve for in-manifold (port) fuel admission. The SOGAV 250 valve is designed for use on four-cycle, natural gas or dual-fuel engines. One SOGAV valve is required for each cylinder.

The SOGAV 250 valve is the electro-mechanical valve portion of an overall Woodward fuel admission system consisting of:

- In-Pulse™ electronic fuel injection control
- Main speed/air-fuel ratio/engine sequencing control (must regulate air manifold pressures as well as fuel admission).
- Other necessary valves, actuators, regulators, sensors, cables and safety devices

Governing is performed via valve opening duration, and individual cylinders can be duration or timing bias within the In-Pulse control.

The SOGAV 250 valve's E-core solenoid has a short travel and high output force which result in fast and consistent closing response. The valve is a face-type poppet with multiple concentric grooves. The moving metering plate is spring- and pressure-loaded in the closed direction.



- Port fuel admission for improved cylinder-to-cylinder control
- All-electric actuation
- Fast response
- Simple installation
- Electronic fuel injection technology for four-stroke engines
- For new engines and retrofits
- Works with Woodward In-Pulse™ electronics
- Certified for North American Hazardous Locations
- Compliant with applicable CE Directives -- EMC, Low Voltage, ATEX, Machinery, Pressure Equipment

## Specifications

### CONSTRUCTION

Materials	All parts exposed to the gas are resistant to corrosion and stress corrosion cracking.
Mounting	May be mounted in any configuration with the solenoid axis greater than horizontal, placing the solenoid higher than the metering plates. However, a vertical orientation (valve inlet facing upward) is preferred and will substantially increase valve life versus a horizontal orientation. Intake manifold runner (mating surface) must have 95–110 mm opening.
Gas Inlet Hole Diameter	95 mm

### ENVIRONMENT

Operating Temperature	–20 to +105 °C (–4 to +221 °F)—8402-249, -251 –20 to +95 °C (–4 to +203 °F)—8402-250, -255
Vibration	Contact Woodward for vibration qualification data and analysis
Humidity, Salt Spray, Pressure Wash	The unit withstands exposure to pressure washing, salt spray, etc., without adverse corrosion or infiltration.

### PERFORMANCE

Response (assumes the use of a Woodward In-Pulse™ control):

	<b>Unbalanced SOGAV 250</b>	<b>Balanced SOGAV 250</b>
Time to full open after signal on	0.0050 s max	same
Time to full closed after signal off	0.0050 s max	same
Maximum Leakage When Closed	< 100 SCFH	same
Filtration Required for Long Life	5 µm absolute max particle size	same
Expected Maximum Gas Supply Pressure (P1)	450 kPa (4.5 bar abs; 65 psi abs)	650 kPa (6.5 bar abs; 94 psi abs)
Expected Maximum Air Manifold Pressure (P2)	300 kPa (3.0 bar abs; 43 psi abs)	400 kPa (4.0 bar abs; 58 psi abs)
Maximum Gas Manifold to Air Manifold Maximum Pressure Difference	150 kPa (1.5 bar; 22 psi)	250 kPa (2.5 bar; 36 psi)
Minimum Pressure Difference	100 kPa (1.0 bar, 14.5 psi)	n/a
Maximum Backfire Pressure Spike (without backflowing through valve)	50 kPa (0.5 bar; 7 psi) above the current gas manifold pressure	same
Expected Maximum Gas Supply Temperature	80 °C (176 °F)	same

### REGULATORY COMPLIANCE

(Hazardous Locations listings are limited to solenoid only.)

#### European Compliance for CE Marking:

Low Voltage Directive	2006/95/EC
ATEX Directive	94/9/EC Zone 2, Category 3, Group II G, EEx m II T4 X

#### Other European Compliance:

(Compliance with the following European Directives or standards does not qualify this product for application of the CE Marking.)

EMC Directive	2004/108/EC Not applicable to this product. Electromagnetically passive devices are excluded from the scope of the 2004/108/EC Directive.
Machinery Directive	2006/42/EC Compliant as partly completed machinery
Pressure Equipment Directive	97/23/EC Exempt per Article 1-3.10

#### North American Compliance:

(Certified as a component for use in other equipment only.)

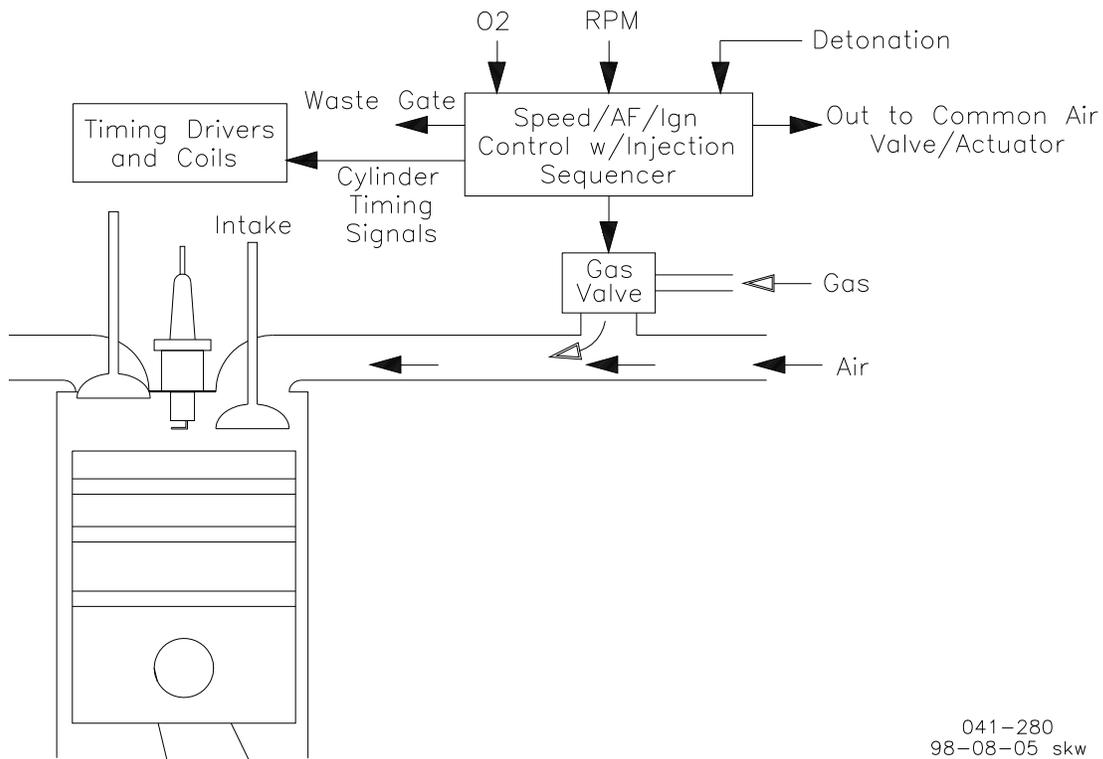
CSA	CSA Certified for Class I, Division 2, Groups A, B, C, D T4 at 105 °C Ambient for use in Canada and the United States
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### REFERENCE MANUALS

26114	<i>SOGAV 250 (unbalanced, bottom-load version) Installation and Operation Manual</i>
26500	<i>SOGAV 250 (pressure-balanced, top-load version) Installation and Operation Manual</i>

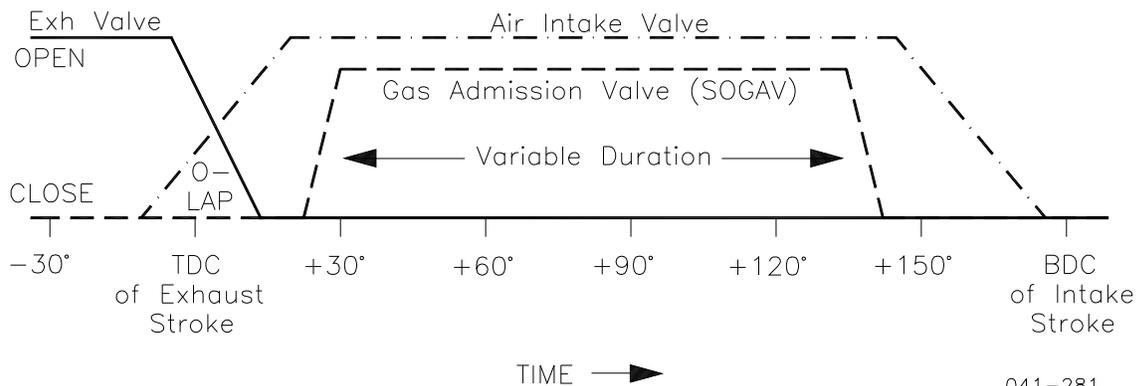






041-280  
98-08-05 skw

**In-manifold Electric Gas Admission**



041-281  
99-01-19 skw

**Timing: In-manifold Gas Admission**



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