

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
- CSA Class I, Division 2, Groups A, B, C, D
- CE Compliant

Specifications

CONSTRUCTION

Materials	All parts exposed to the gas are resistant to corrosion and stress corrosion cracking
Mounting	May be mounted in any configuration
Gas Inlet Hole Diameter	Intake manifold runner (mating surface) must have 95–110 mm opening 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 –20 to +93 °C (–4 to +199 °F) (versions using Agro EMC grounded cable glands)
Vibration Qualification Test:	0.1 G ² /Hz Random, 10–2000 Hz, 12.8 Grms, 3 hours/axis (test derived from MS202F, Method 214A, Test Condition D) Test Method Woodward RV3 (balanced/top-load version)
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):

	Unbalanced SOGAV 250	Balanced SOGAV 250
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
Coil Heat Dissipation	8 W (maximum)	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

North America: CSA Class I, Division 2, Groups A, B, C, D

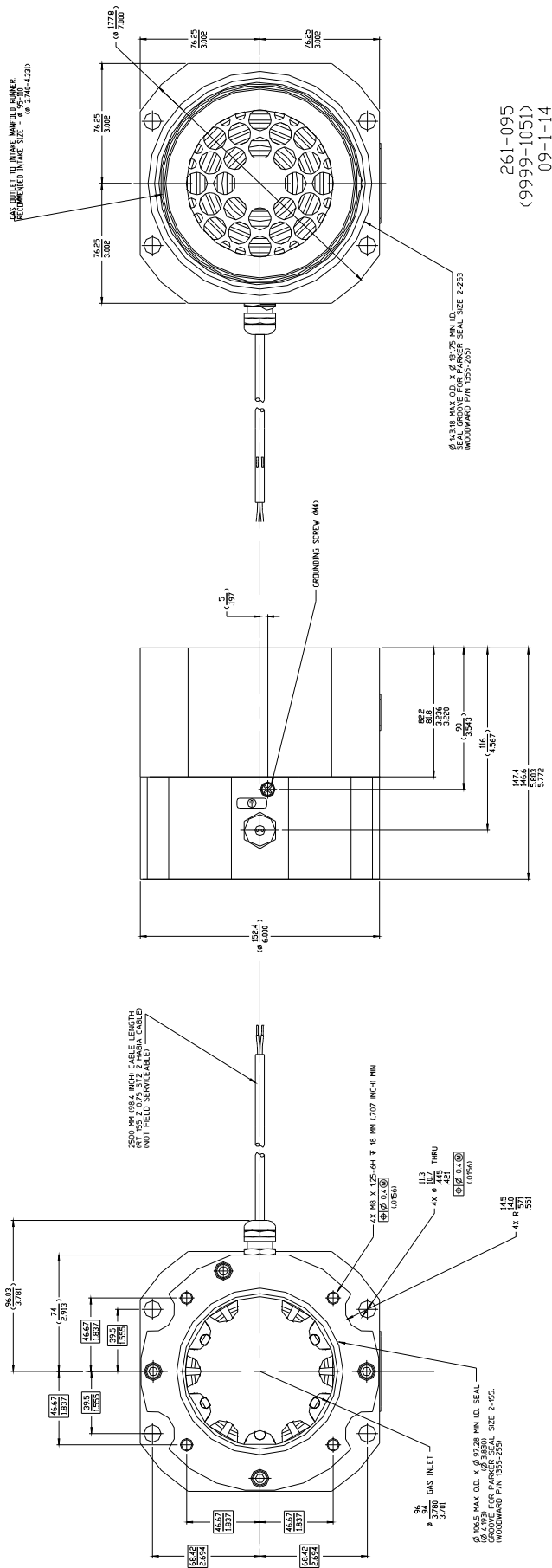
Europe: Zone 2, Category II 3 G, EEx m IIC T3

CE Compliant with ATEX, LVD, and MD Directives

Exempt from the Pressure Equipment Directive 97/23/EC per Article 1-3.10

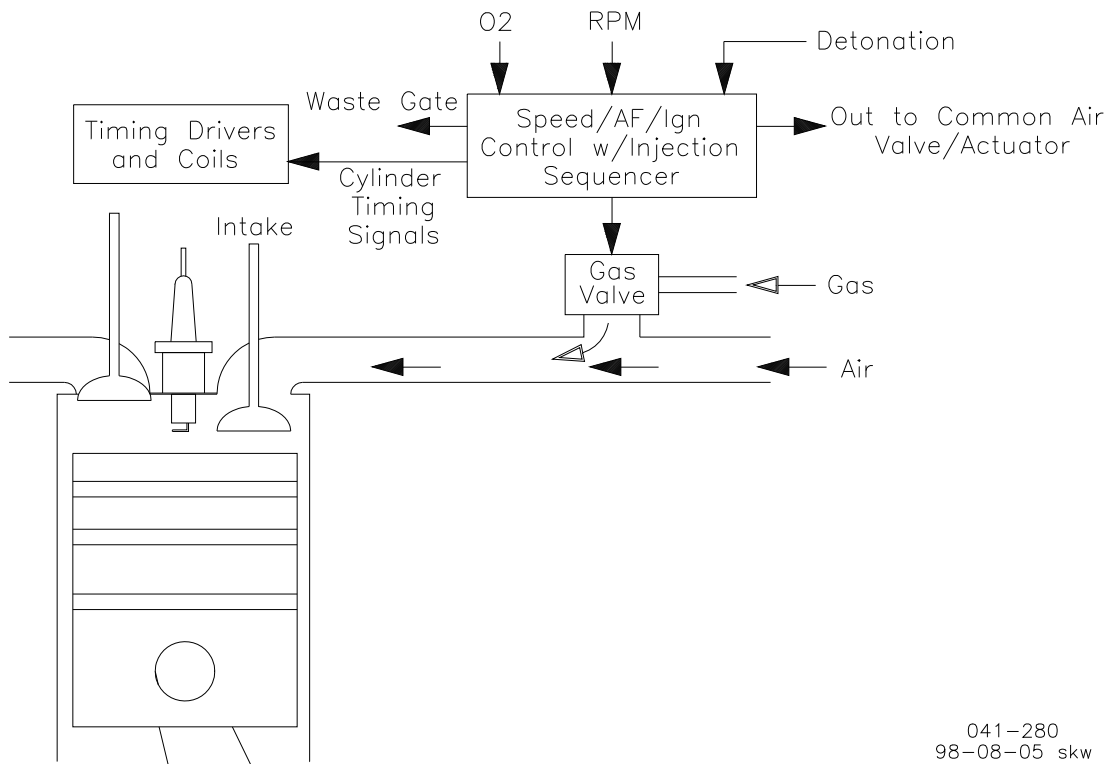
REFERENCE MANUALS

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>



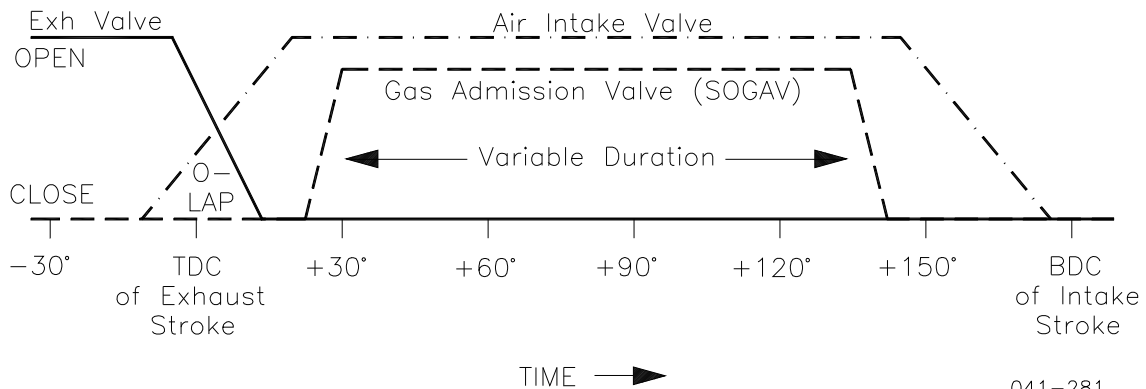
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SOGAV 250 Outline Drawing (Flying Lead Version)



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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2009/5/Fort Collins