

SOGAV™ 200

Solenoid Operated Gas Admission Valve

Applications

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

The SOGAV valve is the electro-mechanical 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 and gas manifold pressures as well as fuel admission)
- Other necessary valves, actuators, regulators, sensors, cables, and safety devices

Governing is done by valve opening duration and/or gas pressure modulation.

The SOGAV 200 valve is generally suitable for use with engines in the 15–28 cm bore range. A thorough sizing analysis must be performed for any new application, since fuel properties and engine use can affect valve choice.

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

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.
Gas Inlet Hole Diameter	63 mm

ENVIRONMENT

Operating Temperature	-20 to +105 °C (-4 to +221 °F)
Vibration Qualification Test:	
Test Method	Woodward RV3
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) is dependent on current wave form and (for unbalanced valves) the pressure differential. Typical 90 V In-Pulse II and current wave form results below:

Time to full open after signal on	4 ms
Time to full closed after signal off	4 ms
Maximum Leakage When Closed	Less than 0.30% of the rated steady state flow rate
Filtration Required	5 µm absolute max particle size
Expected Maximum Gas Supply Pressure (P1)	650 kPa (6.5 bar abs, 94 psi abs) 5 bar working/nominal 11 bar short-term transient (periods of less than 5 s per event)
Expected Maximum Air Manifold Pressure (P2)	400 kPa (4.0 bar abs, 58 psi abs) 4 bar working/nominal 8 bar abs. short-term transient (periods of less than 5 s per event)
Maximum Gas Manifold to Air Manifold Maximum Pressure Difference	3 bar working/nominal 6 bar short-term transient (periods of less than 5 s per event)
Maximum Backfire Pressure Spike (without backflowing through valve)	50 kPa (0.5 bar; 7 psi) above the current gas manifold pressure
Expected Maximum Gas Supply Temperature	80 °C (176 °F)

REGULATORY COMPLIANCE

Hazardous Locations listings are limited to solenoid only.

European Compliance for CE Marking:

EMC Directive	2004/108/EC
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.)

Machinery Directive	2006/42/EC Compliant as partly completed machinery
Pressure Equipment Directive	97/23/EC Exempt per Article 1-3.10

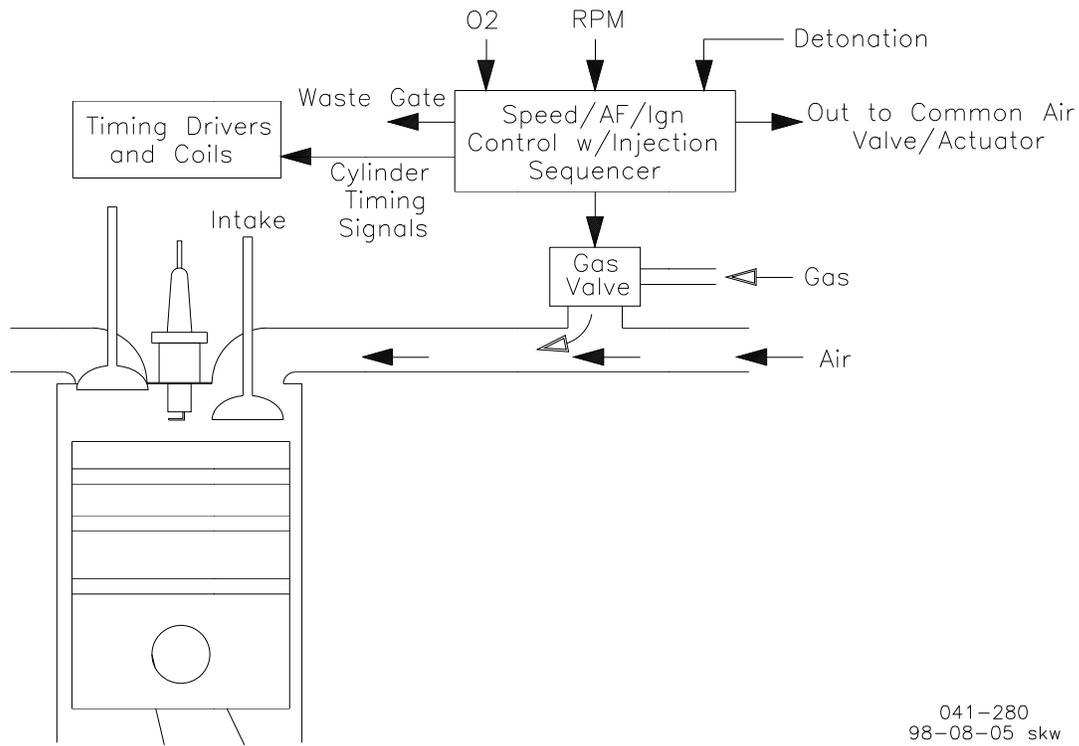
North American Compliance:

(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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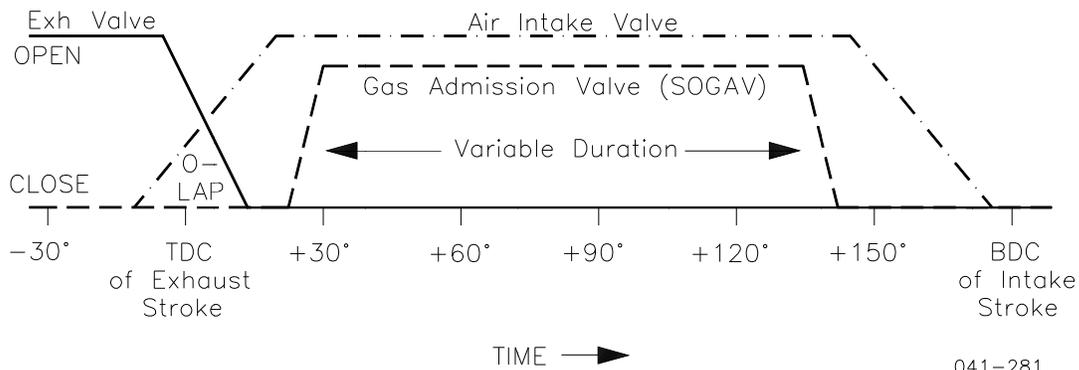
REFERENCE MANUAL

26497	<i>SOGAV 200 (Top-Load) Installation and Operation</i>
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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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Distributors & Service

Woodward has an international network of distributors and service facilities. For your nearest representative, call the Fort Collins plant or see the Worldwide Directory on our website.

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