**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 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) 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

REFERENCE MANUAL
26497 SOGAV 200 (Top-Load) Installation and Operation
SOGAV 200 Outline Drawing
(Do not use for construction)
In-manifold Electric Gas Admission

Timing: In-manifold Gas Admission