

SOGAV™ 36

Solenoid Operated Gas Admission Valve

Applications

The SOGAV™ (Solenoid Operated Gas Admission Valve) 36 is an electrically actuated, high response gas admission valve for in-manifold (port) fuel admission. The SOGAV 36 valve is designed for use on four-cycle, turbocharged, natural gas or dual-fuel engines. One SOGAV 36 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 36 valve is typically suitable for (but not restricted to) engines in the 150–180 mm bore size range. A thorough sizing analysis must be performed for any new application, since fuel properties and engine use can affect valve choice.

The SOGAV36 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 and pressure-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
- Choice of sizes
- 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 | 30 mm |

ENVIRONMENT

| | |
|-------------------------------------|---|
| Operating Temperature | -20 to +105 °C (-4 to +221 °F) |
| Vibration Qualification Test: | |
| Test Method | US MIL-STD-810C Method 514.2 |
| Curve | F (20 g – Figure 514.2-2) |
| Resonance Search | 5–2000 Hz |
| Dwell Endurance | 30 minutes at each major resonance in each axis |
| Sweep Endurance | 3 hours minus the dwell time in each axis |
| 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):

| | |
|---|---|
| Time to full open after signal on | 0.0020 s max |
| Time to full closed after signal off | 0.0020 s max |
| Maximum Leakage When Closed | Less than 0.25% of the rated steady state flow rate |
| Filtration Required for Long Life | 5 µm absolute max particle size |
| Coil Heat Dissipation | 8 W (maximum) |
| Expected Maximum Gas Supply Pressure (P1) | 500 kPa (5 bar abs; 72.5 psi abs) |
| Expected Maximum Air Manifold Pressure (P2) | 300 kPa (3.0 bar abs; 43.5 psi abs) |
| Maximum Gas Manifold to Air Manifold | |
| Maximum Pressure Difference | 200 kPa (2.0 bar; 29 psi) |
| Minimum Pressure Difference | 100 kPa (1.0 bar, 14.5 psi) |
| 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:

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

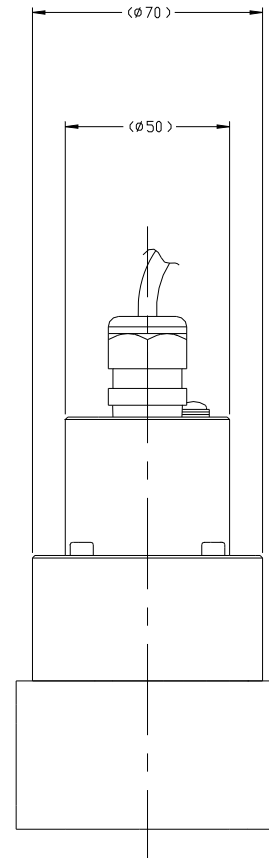
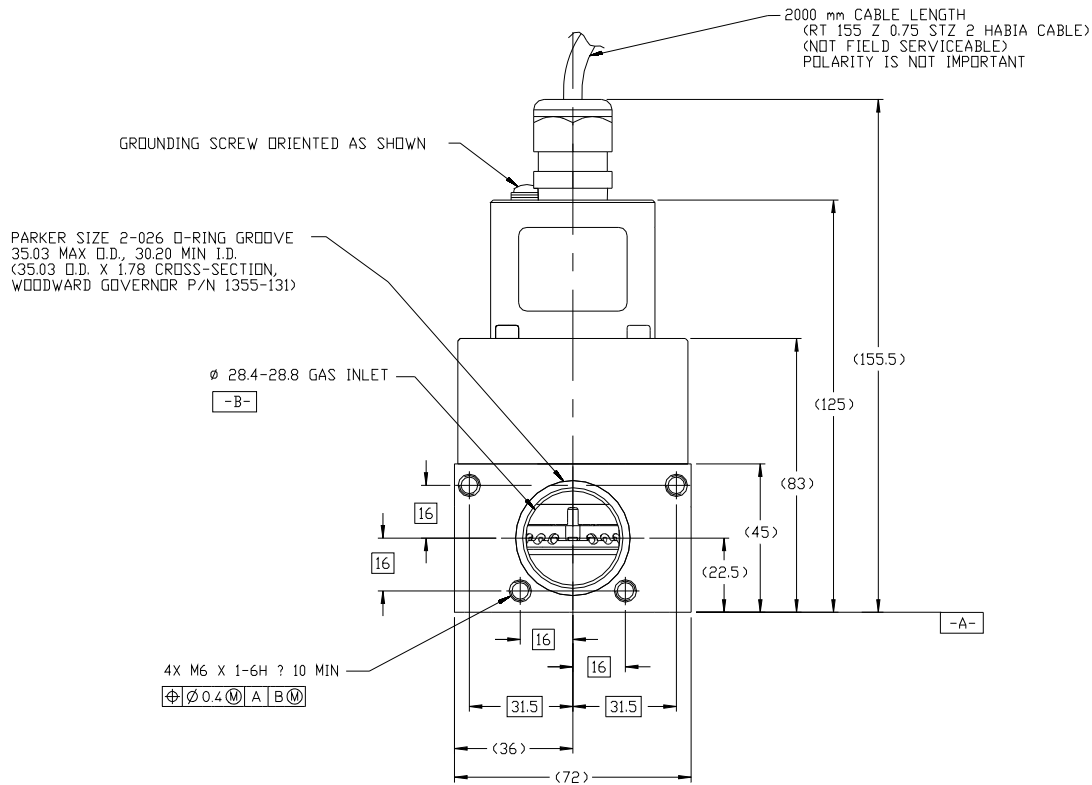
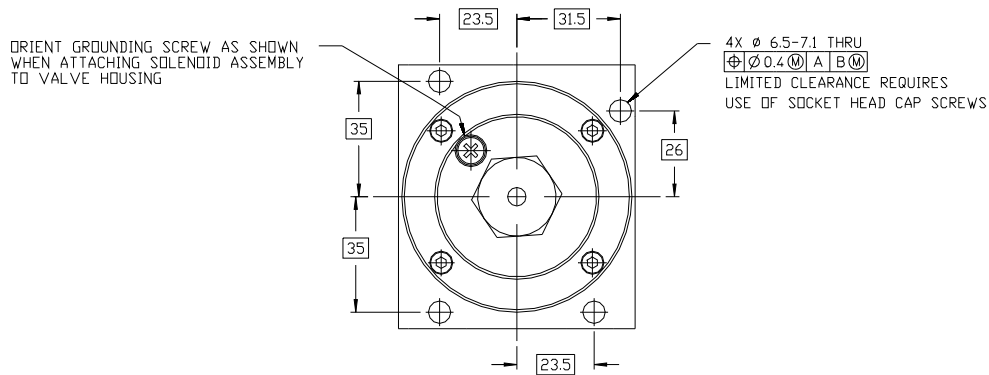
Europe: Zone 2, Category II 3 G, EEx m IIC T4

CE Compliant with ATEX, LVD, and MD Directives

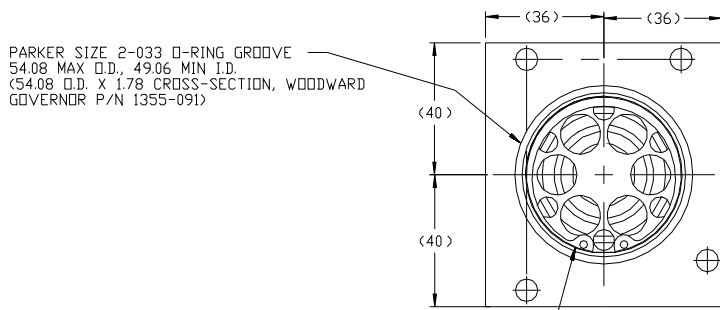
Exempt from the Pressure Equipment Directive 97/23/EC per Article 1-3.10

TECHNICAL MANUAL

26209 *SOGAV 36 Installation and Operation Manual*

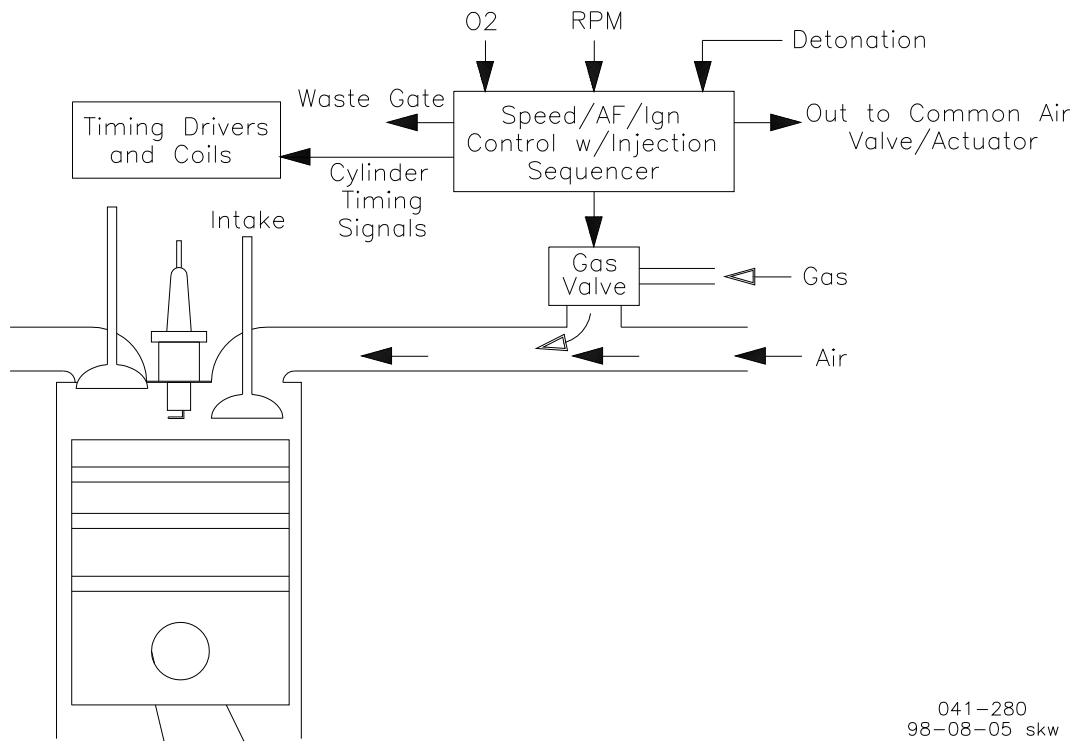


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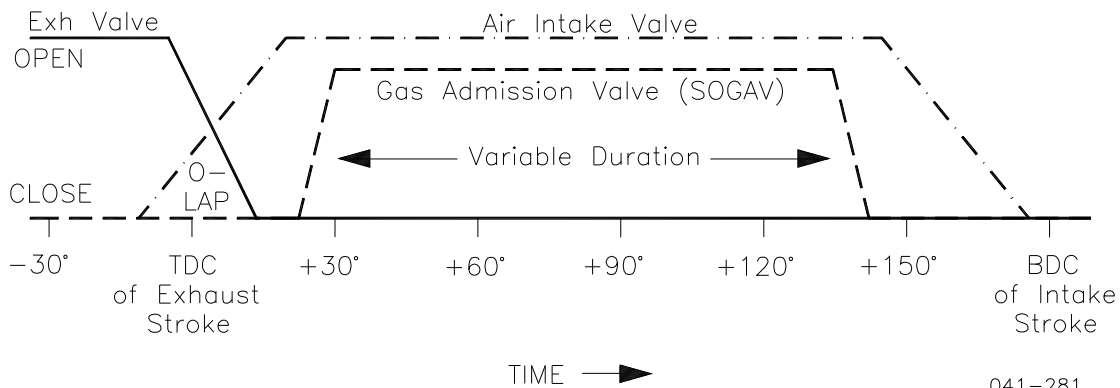
GAS OUTLET TO INTAKE MANIFOLD
 (ϕ 47.625-47.675)
 -C-
 RECOMMENDED MANIFOLD RUNNER
 BORE SIZE: ϕ 40 MAX

Typical SOGAV 36 Outline Drawing (8402-248)
 (Do not use for construction)



In-manifold Electric Gas Admission

041-280
98-08-05 skw



Timing: In-manifold Gas Admission

041-281
99-01-19 skw



PO Box 1519, Fort Collins CO, USA 80522-1519
1000 East Drake Road, Fort Collins CO 80525
Tel.: +1 (970) 482-5811 ♦ Fax: +1 (970) 498-3058
www.woodward.com

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