

## SOGAV™ 2.2

### 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 2.2 valve is designed for use as a pre-chamber fuel admission valve for four-cycle, turbocharged, natural-gas engine. It may also be applied as a main in-manifold (port) fuel admission valve.

A thorough sizing analysis must be performed for any new application, since fuel properties and engine use can affect valve choice.

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 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

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### CONSTRUCTION

Materials.....	All parts exposed to the gas are resistant to corrosion and stress corrosion cracking
Mounting.....	May be mounted in any configuration

### ENVIRONMENT

Operating Temperature.....	-20 to +105 °C (-4 to +221 °F)
Vibration Qualification Test	
Test Method .....	US MIL-STD-810C Method 514.2 Procedure 1
Curve.....	L (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

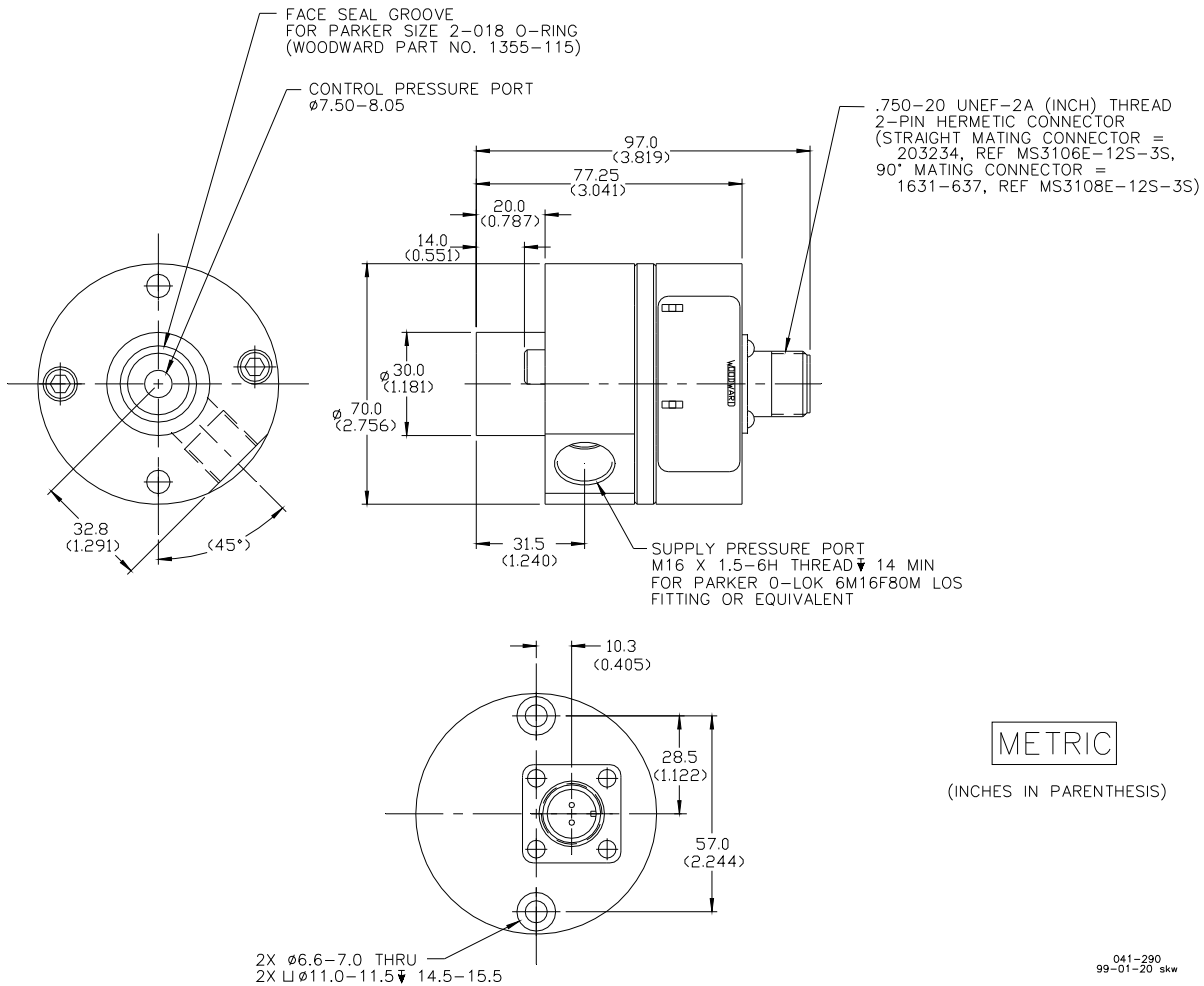
Response (assumes the use of a Woodward In-Pulse control)	
Time to full open after signal on .....	0.005 s max
Time to full closed after signal off.....	0.005 s max
Maximum Leakage When Closed .....	Less than 0.3% of the rated steady state flow rate
Filtration Required for Long Life.....	5 µm absolute max particle size
Coil Heat Dissipation.....	10 W (maximum)
Expected Maximum Gas Supply Pressure (P1)...	500 kPa (5 bar abs; 72 psi abs)
Expected Maximum Air Manifold Pressure (P2) ..	300 kPa (3.0 bar abs; 43 psi abs)
Maximum Gas Manifold to Air Manifold	
Maximum Pressure Difference .....	300 kPa (3.0 bar; 43 psi)
Maximum Backfire Pressure Spike	
(without backflowing through valve) .....	600 kPa (6.0 bar; 87 psi) above the current gas manifold pressure
Expected Maximum Gas Supply Temperature .....	80 °C (176 °F)

### REGULATORY COMPLIANCE

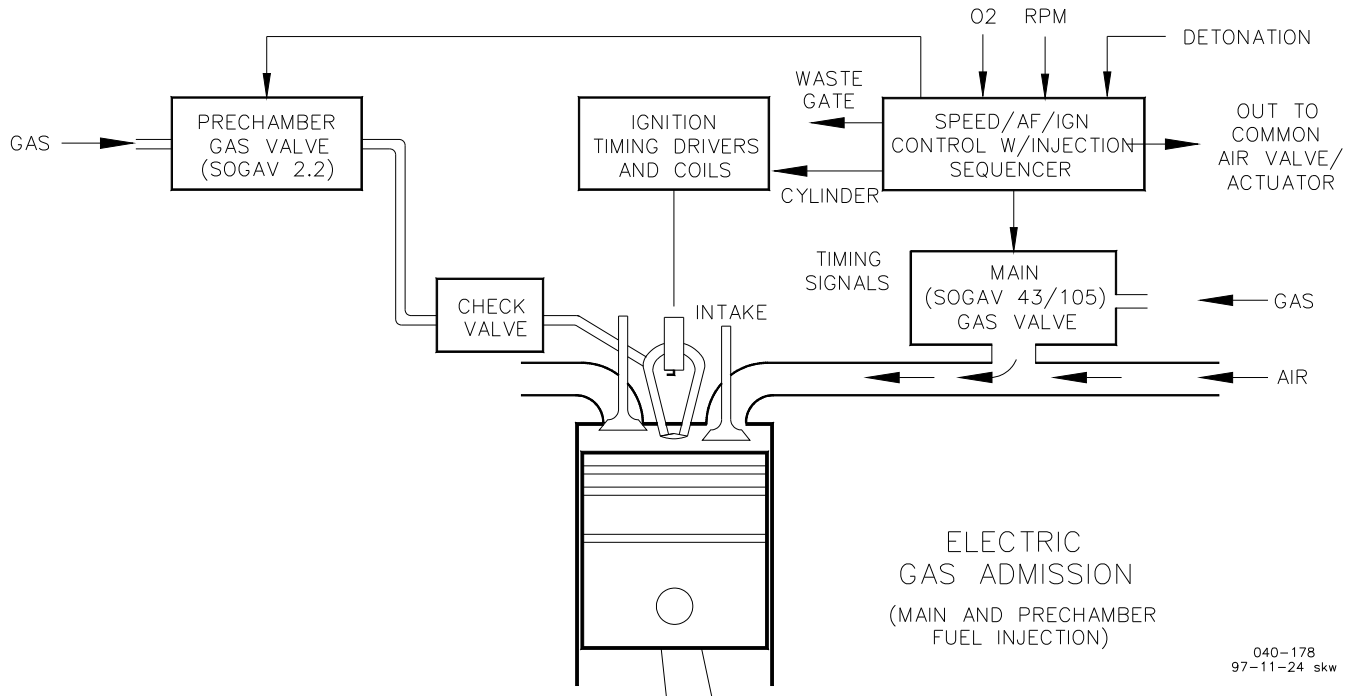
Hazardous Locations listings are limited to solenoid only  
 North America: CSA Class I, Division 2, Groups A, B, C, D  
 Europe: Zone 2, Category II 3 G, EEx m IIC T4  
 CE Compliant with ATEX, EMC, LVD, and MD Directives  
 Exempt from the Pressure Equipment Directive 97/23/EC per Article 1-3.10

### REFERENCE PUBLICATIONS

04153 .....	SOGAV 2.2 Installation, Operation, & Maintenance
04161 .....	SOGAV 2.2 Installation Sheet



**SOGAV 2.2 Outline Drawing**  
(Do not use for construction)



**Electric Gas Admission (Main and Prechamber Fuel Injection)**



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2008/8/Fort Collins