

GV2 ELECTRONIC GAS FUEL VALVE

BENEFITS

- Full authority
- Fully automatic control
- Rapid variable pressure control
- Precise valve opening
- Improved fuel economy
- Use with a variety of AFR's
- Excellent for alternatives fuel (biogas, landfill gas field gas)
- PLC/ECS controllable
- Compatible with NA or turbocharged engines
- CSA Class 1 Division 2 approved



THE CONTINENTAL CONTROLS SOLUTION

All gas engines must precisely control the air-to-fuel ratio (AFR) to decrease emissions and increase engine efficiency. The Engine Control System (ECS), Programmable Logic Controller (PLC), or even the standalone driver/controller incorporates the AFR's electronics. In any of these cases, a former concern has been how to quickly and accurately control the engine's fuel amount while considering changes in load, gas quality, and many other factors.

Previously, the solution has been to select a valve designed for another application or even another media (not necessarily for natural gas). Due to the lack of tailored valves to certain flows and pressures to specific stationary gas engines, their limited control range led to sticking or malfunctioning.

To combat this, the engineers designed the GV2 to be seamlessly compatible with various AFR controls, carburetors, and mixers. The GV2's upgraded capability now includes fuel flow ranges for LHV/Low BTU flare gas, biogas, and Landfill gas.

The GV2's advanced electronic fuel control administers precise control of gaseous fuels for small to midsize gas engines from 50-500hp.





CLOSED LOOP PRESSURE CONTROL

Variable pressure control is regarded as one of the most effective techniques for controlling the air-fuel ratio in a gas engine. The pressure downstream of the GV2 can be continuously monitored via the 4-20ma pressure feedback signal.

BENEFITS OF SERVO-COIL ACTUATION

To ensure consistent and precise control over gas fuel flow, the GV2 has been designed to cause minimal friction and virtually no hysteresis.

FULLY AUTOMATIC CONTROL

The GV2 is fully automatic. This means that no matter the operational changes of the engine, the GV2 will adjust and accommodate. There will be no need for an operator to reset a set point or adjust the controller; this will be done automatically.

COMMUNICATIONS

The GV2 is both RS232 Modbus RTU and CAN bus J1939 compatible. Complete setup, monitoring, and control can come from an external PLC Control System via Modbus communications.

CCC PRODUCT INTEGRATION

To be used a fuel authority valve with complete AFR control, the Catalyst Monitor can be integrated alongside the GV2 as an optional add on. The GV2 can accept an input from the Catalyst Monitor via CAN bus with the ECV5 or EGC2 to send fuel pressure commands to the GV2 to dynamically adjust the O2 Sensor setpoint based on changing catalyst or sensor conditions. If installed, the CM's O2 and NOx sensors provide complete and total AFR control.

THEORY OF OPERATION

The GV2 is a voice coil operated valve with a built in delta pressure transducer. One side of the transducer measure the outlet of the valve; the other is connected to a port on the bottom of the valve. The port is typically connected to the outlet of the turbocharger. If there is no turbocharger, the port is simply vented to atmospheric pressure. The electronics in the GV2 open the metering valve to control the fuel over air pressure coming out of the valve.

DUAL BANK ENGINES


Dual bank engines with a single point of fuel injection and a single turbocharger are connected like a single bank engine. A dual bank engine with a turbocharger for each bank and an O2 sensor on each bank will require a GV2 primary on one side and a GV2 secondary on the other. Each will operate independently and be connected with its own O2 sensor. Two GV2 would be needed for dual bank applications up to 1500 hp. In the instance of a joint intake system, the GV2's would share one O2 sensor and operate in the master-slave valve configuration; the slave GV2 would follow the commands of the master GV2.

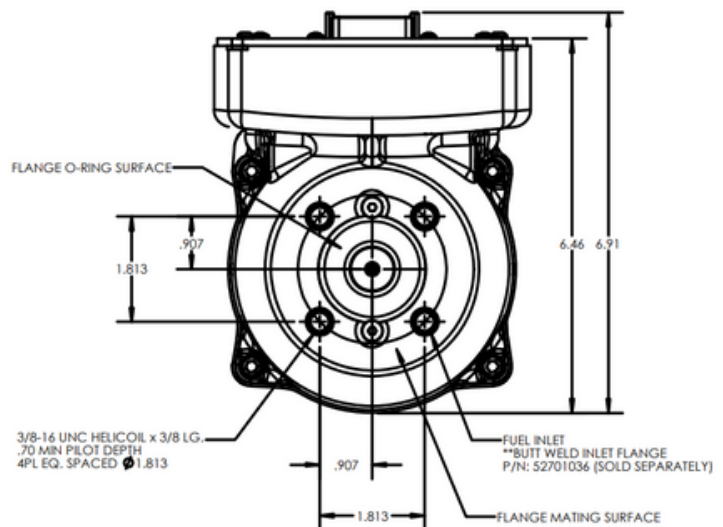
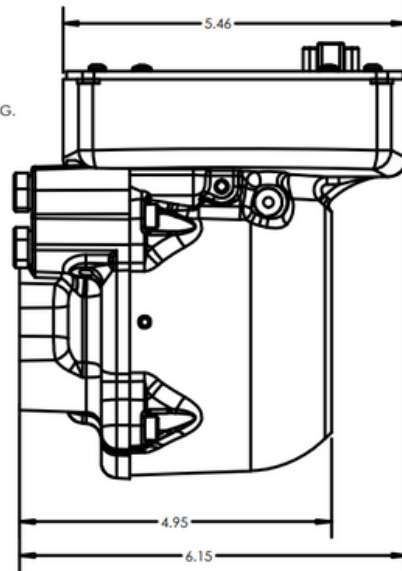
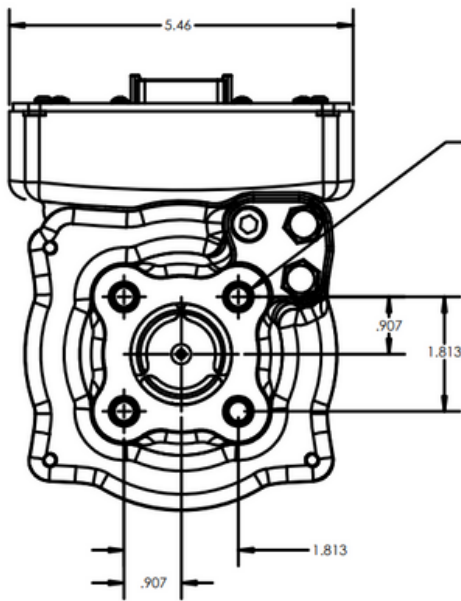
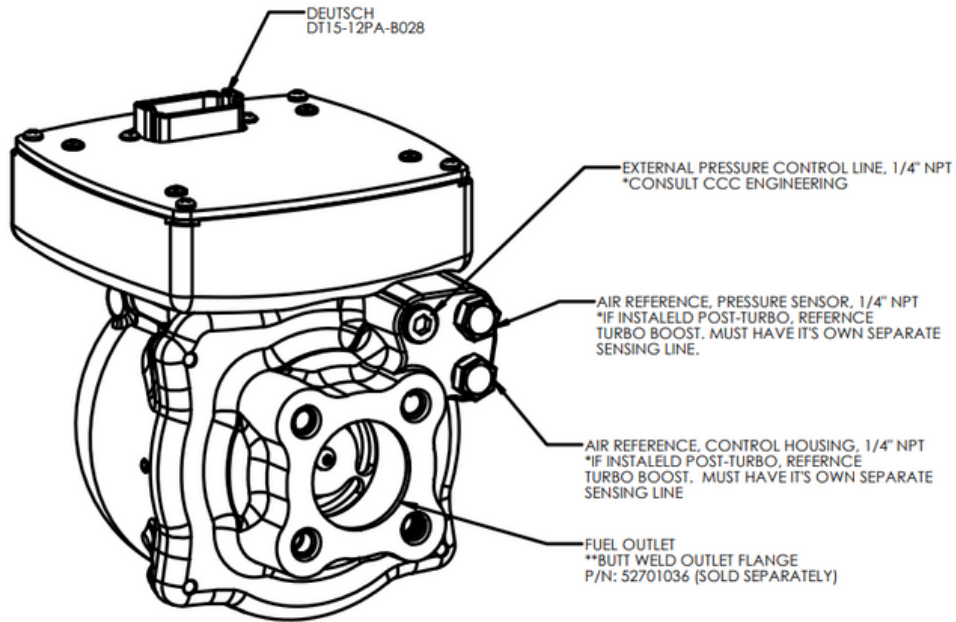
INSTALLATION

Simplicity is key. If a system is too difficult to setup, install, or use, all of the features in the world won't help. The GV2 is extremely easy to setup and use. At its simplest, the user would merely set the default pressure and use the default gain settings to control the engine.



SPECIFICATION

Flow Capacity:	Pre-turbo: 120 SCFM Natural Gas
Fuel:	Natural Gas, Propane Gas, Other Gaseous Hydrocarbons
Maximum Operating Pressure:	65 PSIG (differential pressure between fuel and air reference should not exceed 8 PSID)
Maximum Filtration Requirement:	50 Micron Absolute
Operating Temperature:	-40° C (-40° F) to +85° C (+185° F)
Response Time:	Less than 45 milliseconds 10% - 90% Stroke
Fuel Demand Signal [to Valve]:	PWM, CANBus J1939, or Step Command
Fuel Feedback Signal [from Valve]:	J1939 CANBus
Power Input:	10-30 Vdc, 5 Amp Maximum
Electrical Interface:	Deutsch 12 Pin DT Series Connector
Communication Interface:	RS232 Modbus RTU, J1939 CANBus
Valve Materials:	<p>-Body: 6061-T6 Anodized Aluminum</p> <p>-Wetted Components: 300 series Stainless Steel, 6061-T6 Anodized Aluminum, Polyetherimide and Silicon</p> <p>- Seals: Nitrile, Teflon, Fluorosilicone</p>
Flanges:	1-1/2" Pipe, Face Seal Flange
Dimensions:	6.84" L x 5.56" H x 6.78" W
Approximate Weight:	6.90 pounds (3.13Kg)
Certifications:	 c ^{US} Class I, Division 2, Group D: T4



+1(858)453-9880
info@continentalcontrols.com
7710 Kenamar Court, San Diego, CA 92121