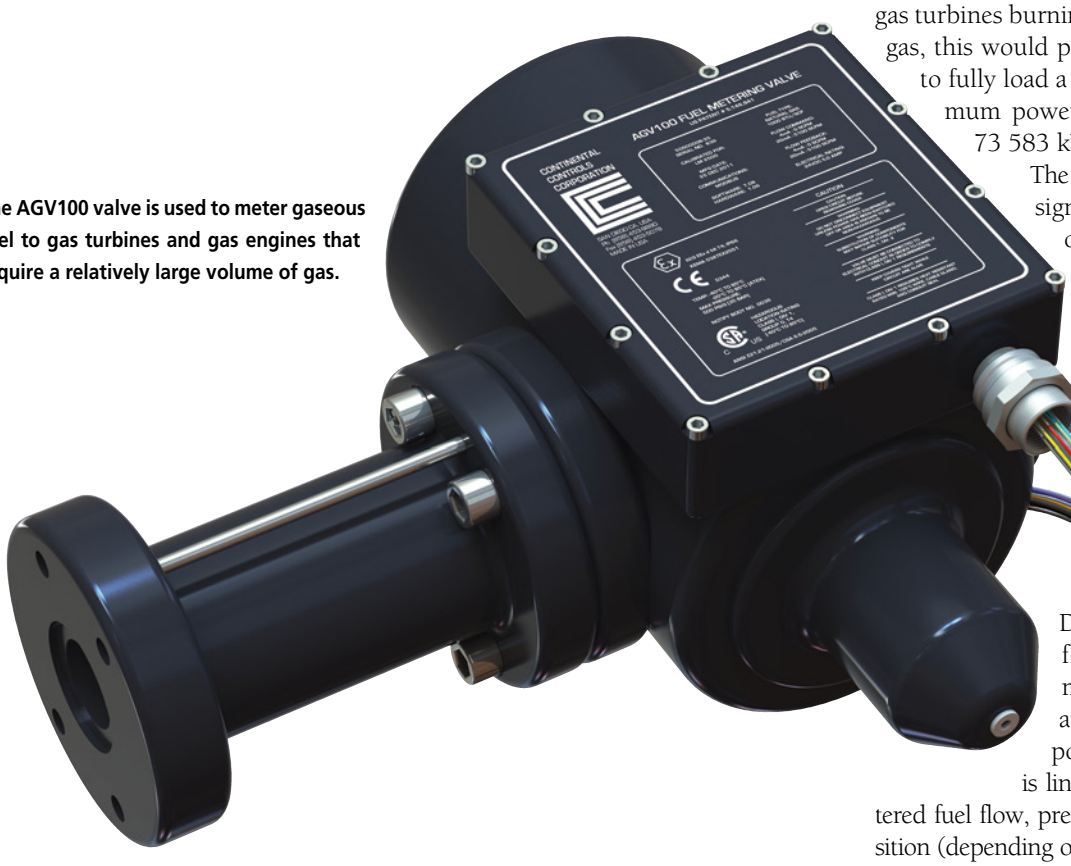

The AGV100 valve is used to meter gaseous fuel to gas turbines and gas engines that require a relatively large volume of gas.

New Large Gas Valve For Mid To Heavy Turbines Or Large Gas Engines

Configurable design allows for flow, pressure or position control

Continental Controls Corp., a manufacturer of fuel control products for gas turbines and gas engines, has introduced the AGV100, a new electronic fuel valve to meter gaseous fuels for most gas turbines up to about 60 MW and large gas engines.

"We pioneered the use of flow control valves for gas turbine applications," said Rick Fisher, vice president, sales and marketing at Continental Controls. "The industry has proven that valves with integrated flow measurement have a lot of advantages over traditional position-based fuel valves. This configuration automatically overcomes changes in supply pressure or ambient conditions, and it provides an excellent condition monitoring input and in the future a measure of carbon consumption. The flow measurement is accurate within 2%, and the flow calculation can quickly be changed via software to keep the measurement accurate even when the composition of the gas changes."

The AGV100 valve is used to meter gaseous fuel to gas turbines and gas engines that require a relatively large volume of gas. This may be due simply to the size of the turbine or engine or may be because the application is using gas of a lower heating value that therefore requires a much higher volume of gas. According to Fisher, on gas turbines burning standard natural gas, this would provide enough fuel to fully load a turbine with maximum power of approximately 73 583 kW.

The valve has been designed to provide an optimum interface between a control system and the engine through the integration of various end devices integrated into the valve. Included are pressure transducers, a Dp transducer for flow and pressure measurement, and an LVDT to report position. The valve is linear, that is, the metered fuel flow, pressure control or position (depending on the configuration) is proportional to the 4 to 20 mA fuel demand signal from the control system.

The AGV100 is a direct-acting, balanced poppet (voice coil actuated) valve with nested control loops. The fuel flow is measured in the valve and compared with the fuel requested by the 4 to 20 mA signal from the customer's controller. The error signal generated is used to correct the fuel flow.

The valve requires only 24 Vdc for power and generally less than 5 Amps. The valve can be configured to accommodate a variety of turbines or gas engine requirements by slightly changing the valve to flow and measure more or less fuel and pressure. Based on the application and requirements, the customer can choose to configure the AGV100 with integrated flow control, pressure control or position control.

The fuel valve includes a specially designed venturi flowmeter for measuring fuel flow. It has been designed to provide accurate flow measurements in a variety of applications. The innovative design of the venture and flow tube provides improved

measurement characteristics even with changing backpressure or other effects from the application that may cause other measurement techniques to be less accurate, said Fisher. The fuel flow measurement is available to the user for control, display and logging purposes. The accuracy is ±2% of reading or 0.5% of full scale, whichever is greatest.

The control of fuel flow is performed by an electronic computer assembly. The computer receives the 4 to 20 mA fuel demand signal and compares it to the fuel flow signal from the built-in flowmeter. It then adjusts the throttling orifice to change the fuel flow as necessary to make the measured fuel flow equal to the fuel demand.

"Even with its advantages, some of our customers would prefer to integrate their own flow measurement elsewhere on the engine skid," said Fisher. "For these customers, our design objective was to allow the end user to configure the valve as they want to use it. The majority of customers will still choose to configure it as a flow control valve. Some system integrators and OEMs that have flow measurement elsewhere on the skid may choose a simple position-based valve. Some customers may choose variable pressure control, or others may even choose to control with position but also measure fuel flow for other reasons. All of these configurations are available on the AGV100.

"This valve was designed to offer the minimum possible pressure drop and to allow the lowest possible skid edge supply pressure," added Fisher. "This is a particularly important feature for applications using low Btu or other alternative gaseous fuels. This could include biogas, digester gas or field gas. No matter the size of the turbine or gas engine or how poor the heating value of the gas, the AGV100 can be configured to meet the most demanding gaseous fuel applications."