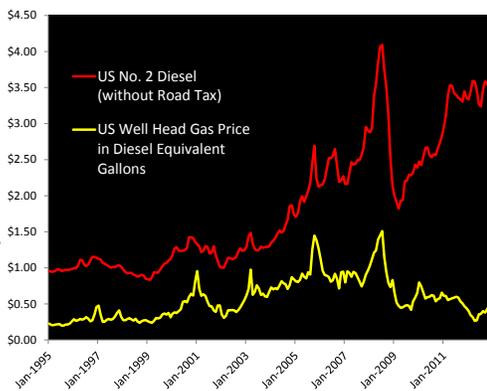


GTI+ Bi-Fuel System

Altronic is proud to introduce the GTI+ Bi-Fuel system. Building on the experience of over 3000 installed systems worldwide, the GTI+ platform offers improved performance through the use of an innovative new mixer design and fully electronic, closed-loop fuel control valve-based gas train. The design increases system responsiveness and eliminates parasitic pressure drop between the gas train outlet and turbocharger inlet.

The GTI+ Bi-Fuel system maintains the basic design philosophy of the original GTI product line: Simplicity in design and operation, while maintaining a true zero-pressure “draw through” configuration that maximizes engine safety.

In recent years, the price differential between natural gas and diesel on an energy basis has increased substantially. In the United States, the dynamics of the energy market indicate that this differential will remain.



The GTI+ system is ideal for applications, such as drilling rigs, where the optimal substitution rate needs to be mapped across the genset load range. The Altronic AGV5-2L valve combines the function of a closed-loop, electronic zero governor with that of a substitution control valve, providing a fast responding and reliable fuel control system.

Electronic Gas Train

The GTI+ system utilizes a fully electronic, advanced gas train design. At the heart of this system is a specialized version of the Altronic AGV5 fuel valve. The AGV5 is a microprocessor-based smart valve equipped with a fast-acting voice coil for rapid and accurate response. The AGV5 serves as both the zero governor pressure controller and fuel valve to control the bi-fuel substitution rate across the engine load range. The valve responds in closed-loop control to an electronic pressure signal within the mixer housing, ensuring that the fuel demand at the mixer is satisfied at any given time and eliminating pressure drop associated with pneumatic pressure control systems. This closed-loop control minimizes the effects of pressure drops between the outlet of the gas train and the mixer inlet.



This allows the desired substitution rates to be met, while maintaining the fundamental safety characteristics of a zero pressure draw-through design.

The AGV5 is a proven design that has been utilized as the fuel control device in hundreds of gas engine applications. Its soft-seat poppet is highly tolerant of gas stream contamination and offers fail safe reliable service.



Since the AGV5 is rated to a higher pressure, the gas train can accept gas supply pressure of up to 50 psig, eliminating the need to reduce higher gas supply pressures to lower gas train inlet pressures with an added primary regulator.

The new enhanced gas train also uses a highly-reliable, automatic, fast-acting, industrial shutoff valve to provide dual shutoff capability. The actuator is equipped with the ability to visually confirm the OPEN/CLOSED position of the valve.

Air/Gas Mixer

The new GTI mixer design is a true venturi configuration that provides the optimal demand signal for use in supplying the required air/gas mixture to the engine. The proprietary design is manufactured to exacting tolerances from anodized aluminum for corrosion resistance and highly reliable service. Gas mixes with the incoming air stream through a slot in the inner diameter of the mixer throat. The width of this slot is adjusted by means of a collar on the outside of the mixer body. This collar serves as the fixed power valve and is used to adjust the maximum allowed substitution rate of the system. Electronic pressure sensors, mounted to the mixer, sense the pressure in the mixer plenum and provide real time measurements to the AGV5 fuel valve and system controller, allowing for system response to gas demand as sensed directly at the point of mixture.

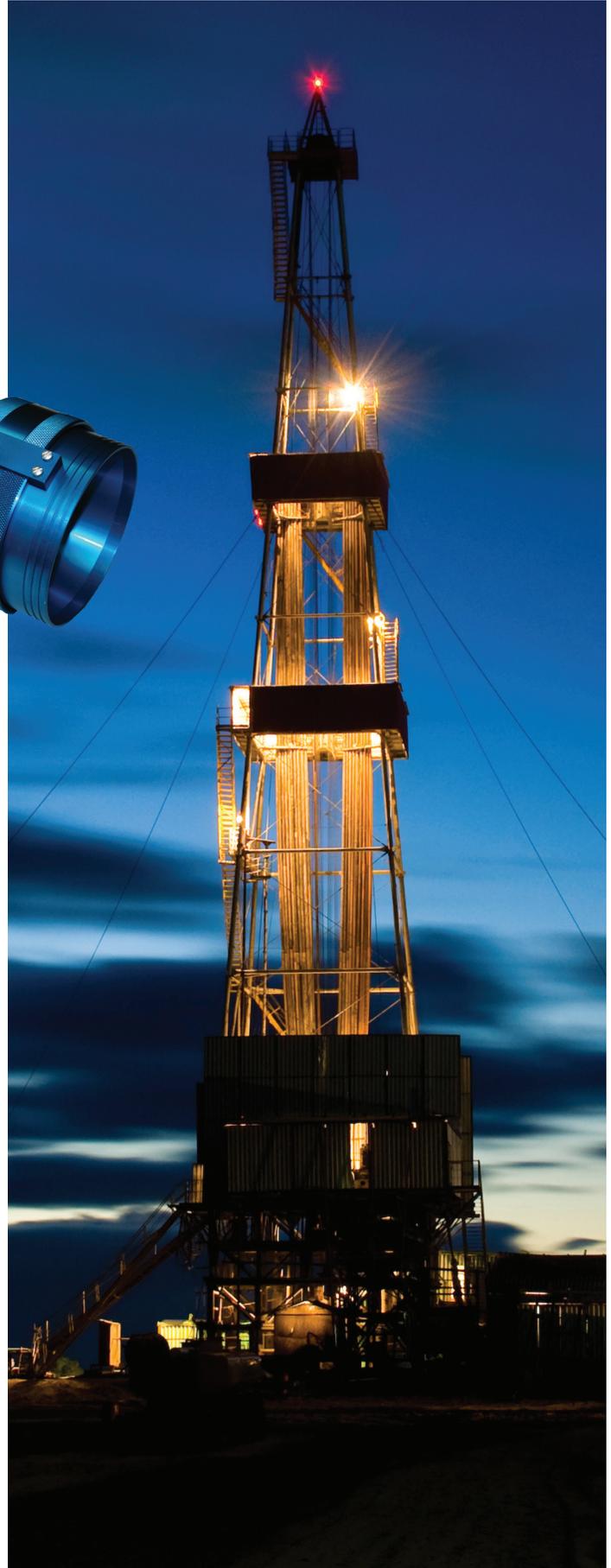


DE-3020 Controller Platform

The GTI+ Bi-Fuel system uses an upgraded DE control platform which provides for configurable I/O for increased flexibility in application across the broad expanse of diesel engines in use today.

Introduction Process

The GTI+ system will be released in three phases. The first is the base system that includes the new electronic closed-loop gas train, new mixer design and new controller platform. The second phase will make a severe environment control panel enclosure available as an option for applications that require extra protection. The third will introduce an option for a full-color touch screen with enhanced graphical display of system parameters, advanced data logging capability, and the ability to integrate to the engine data bus.



altronic
HOERBIGER Engine Solutions

712 Trumbull Avenue, Girard, Ohio 44420
(330) 545-9768 Fax: (330) 545-3231
Email: sales.altronic.gti@hoerbiger.com
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