

TecJet™

Intelligent Electronic Gas Injection Valve



TECJET 50

Efficiency, performance and emissions. In today's marketplace, these factors play a key role in gas engine development. As the engine's performance improves, gas metering devices should be more flexible and accurate, and be used for a wide range of gas qualities from butane down to landfill gas.

Meet the TecJet™ valve. The TecJet 50 is an electronic gas injection valve for single-point injection. It has integrated sensors and electronics, which provides the correct gas flow under all circumstances.

In general, a separate engine control system, like the EGS-01 control, calculates the desired gas flow from the different engine and gas parameters. This gas flow is transmitted through a CAN link to the TecJet valve(s). The TecJet valve ensures that desired gas flow is attained, independent of the gas pressure and gas temperature.

The microcomputer inside the TecJet valve converts the desired gas flow signal

into a valve position (which corresponds to the desired gas flow), depending on the gas inlet pressure, the gas temperature, and the pressure difference over the valve and the density of the gas.

TECJET BENEFITS

- Flexible inputs to use the engine control system of an OEM. Communication in two directions possible with other control systems by means of the integrated CAN bus.
- Fast response to flow commands which makes it possible to accept large load steps without losing engine speed.
- High turn down ratio which makes it possible to use one TecJet model for a complete engine family like 6, 8, 12, or 16 cylinder.
- The exponential opening characteristics of the TecJet gas control valve enable you to control the gas flow at idle with the same accuracy as at full flow.

- Forms ideal combination with EGS-01 control
- Microprocessor based mass gas flow control
- Communication in two directions by CAN bus
- Fast response to flow commands
- Accurate over entire flow range
- Very accurate gas metering device
- Compensates for gas pressure and gas temperature fluctuations
- Integrated sensors and electronics
- Requires only analog or digital desired gas flow signal and supply voltage

APPLICATION

The TecJet valve, together with an engine control system, forms an ideal combination to operate gas engines with any gas composition. The TecJet gas control valve is applicable for stationary and automotive applications within a power range of 20—20 000 kW. In stationary applications, the TecJet valve can be installed upstream or downstream of the turbine. In automotive applications, the TecJet valve is usually installed downstream of the turbine. The TecJet gas control valve has an extremely fast response in case of variations of engine load and speed. This is important for good engine behavior, low fuel consumption, low emissions and load jumps. With the help of a PC (personal computer), you can easily monitor and set up the TecJet valve for your specific application.

ADJUSTMENTS

Using TecJet monitoring software installed on a laptop or PC connected to the TecJet valve, you can monitor and make all adjustments quickly and easily through the following six menus:

- **File Menu**
The File Menu lets you “go on-line” with the system.
- **View Menu**
The View menu lets you view several parameters, errors in the TecJet valve, and the hardware level.
- **Parameters Menu**
The Parameters menu lets you enter and modify the various TecJet valve parameters.
- **Diagnostic Menu**
The Diagnostic menu shows information in tables that are used when there are flags on the “STATUS” menu (View Menu) for these parameters.
- **Window Menu**
The Window menu lets you check the monitor version and change the screen resolution.
- **Help Menu**
The Help menu gives information that assists you with the action you are currently performing.



TecJet Monitoring Program

SPECIFICATIONS

Weight	14 kg (31 lb)
Power Supply Rating	18–32 Vdc
Power Consumption	15 W 40 W peak
Ambient Temperature	–25 to +85 °C (–13 to +185 °F)
Storage Temperature	–40 to +105 °C (–40 to +221 °F)
Pressure Range: For Low Pressure Valve	Up to 15 kPa with a measuring range of 18 kPa
For High Pressure Valve	Up to 50 kPa
Accuracy	<2% of maximum flow
Response Time	<80 ms (10% – 90% opening, @24 V)
Resolution	11 bit (only PWM and CAN, not in analog flow command)
Vibration	Maximum 50 m/s ²
Input Signal	CAN 5 V, CAN 24 V Analog 0–5 Vdc (impedance 40 kΩ)* PWM 12 bit resolution (impedance 3 kΩ)** Double PWM 6 bit resolution * *0–100% flow = 0.2–4.8 Vdc (other values programmable) **0–100% flow = 5–95% duty (other values programmable) has to be connected to open collector output frequency: min. 75 Hz / nom. 128 Hz / max. 150 Hz
EMC (Electromagnetic Compatibility)	EN 50082-2 (immunity) EN 50081-2 (emissions) Alternator load dump, ISO 7637-2, Test pulse 5, I _p =8 A, R _s =3
Gas Filter in the Gas Stream	Maximum mesh size 50 μm

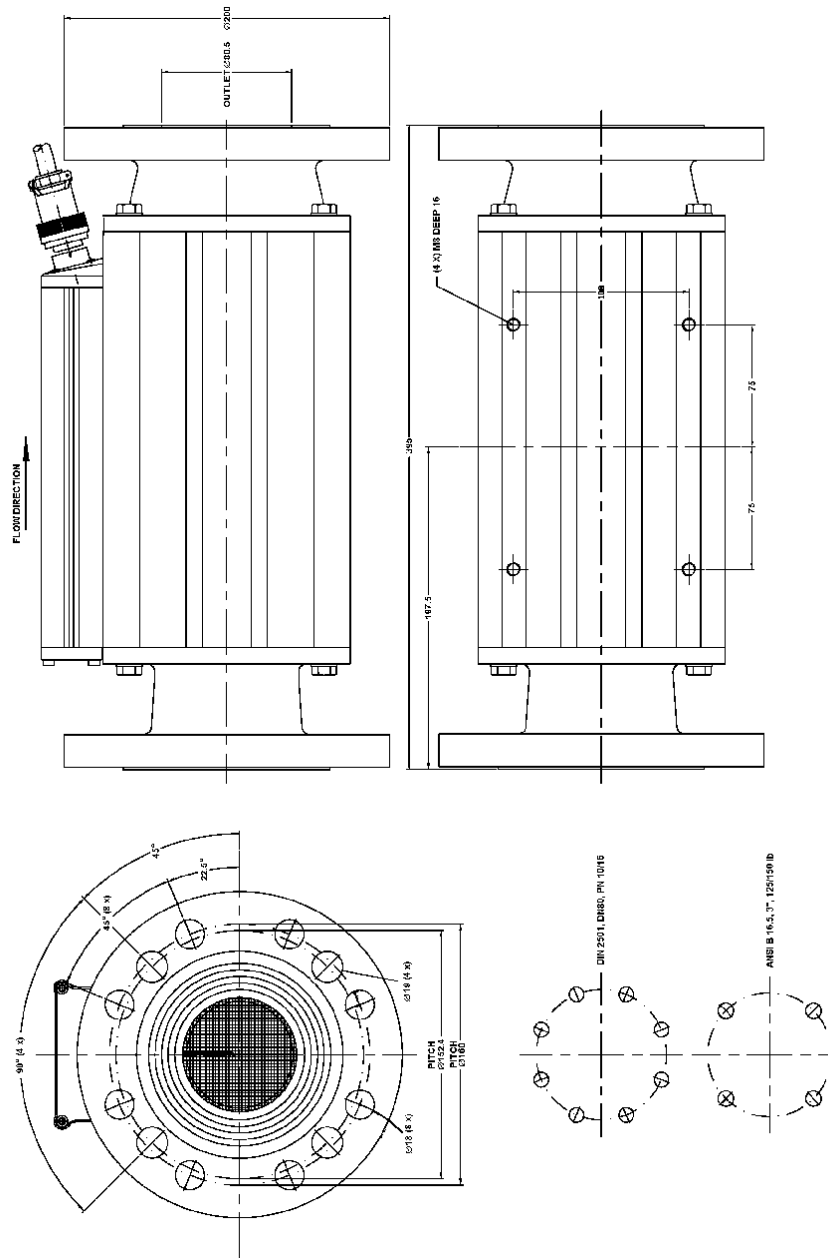
For more information, see Woodward manual 36102.

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TecJet 50 Outline Drawing

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