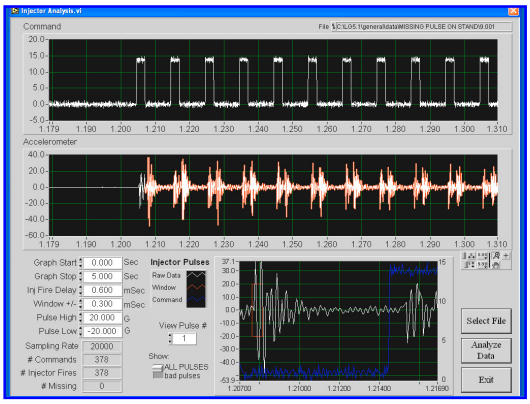
Independent Engineering Laboratories, Inc.

Innovation Beyond Limitation

Fuel Injector Performance Testing (Port or Direct Injection)

Fuel injector characterization is carried out using a test stand that conforms to SAE-J1832 recommended practice. A proprietary injector driver assists the stand to achieve 0.35% repeatability. If desired, an auxiliary driver may be interfaced. Both conventional and alternative fuels can be studied at pressures exceeding 600kPa (port injection). Fuel temperatures are controlled and can range from 0°C to 60°C.



Static and Dynamic Flow Characterization
Infinite Frequency and Pulse Width Programmability

Direct Injection

Utilizing an external built spin fixture (which can be designed and built in-house) We now have the capability to perform injector characterization on high-pressure Direct Injection Applications. With infinite flexibility, ***iEL*** can handle any of your injector testing needs.

Available Functional Measurements:

Closing Time	Impedance	Repeatability
Coil Resistance	Insulation Resistance	Response Time
Dynamic Flow	Linear Flow Range	Seat Leakage
DMOV	Missing Pulses	Slope and Offset
External Leakage	Pulsation	Static Flow
Hydraulic Leakage	Rail Distribution	SMOV
Voltage Offset	and more….	

Independent Engineering Laboratories, Inc. * 145 W. Monroe Street * Jackson, Michigan 49202
Phone: 517-788-6590 * Fax: 517-788-6592 * ielsales@ielinc.com

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Fuel Injector Durability Testing (Port and Direct Injection)

Currently fixturing is available to test up to 200 (port) injectors at one time. Conventional or alternative fuels can be accommodated. Temperature, pressure and operating voltage are continuously logged throughout the test. If desired, the performance characteristics of individual units may also be recorded during the test. Fuel temperatures are controlled and can range from -40 °C to 70°C. Additionally, the fixtures can be placed in an environmental chamber and the ambient air controlled from -60°C to 160°C. Vibration can be added to better simulate real world conditions. In short, we can provide vibration, thermal cycle, and control fuel temperature all while operating the injectors.

Direct Injection Services

- Cold Exposure
- Drop Shock
- Elevated Temperature Extreme
- Fuel Validation
- Humidity Thermal Cycle
- Thermal Shock
- Impulse
- Operational Durability
- Operational Vibration
- Permeation
- Pulsation
- Thermal Shock
- And more….

Available Port Injector Durability Testing:

Alternative Fuels
Corrosion Resistance
Elevated Temperature
Standard Durability
And more….
Thermal Cycle
Vibration

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