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Product Highlight:
**CLASS 1 DIV 1 DIESEL FUEL
SYS DEVELOPMENT BENCH**

The purpose of the MCM common rail system development bench is to actuate a complete diesel common rail fuel system as it would on the engine and measure its performance. This machine is also Class 1, Division 1 rated and is used with live fuel. As this machine was designed for product development, it is also capable of interfacing to a production or prototype ECM. This particular machine could measure split shot injection discharge as well as injection rate, bypass flow, bypass temperature, and bypass pressure. Measured parameters for pumps are actual speed, output flow, output pressure bypass flow, byprass temperature and bypass pressure. The fuel is also temperature controlled.



Background

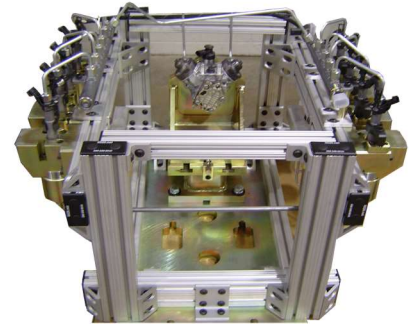
A typical common rail diesel fuel system is comprised of a pump, fuel rail(s), connection tubes and fuel injectors. This machine uses an interchangeable “buck” that mounts the entire fuel system in vehicle orientation. The buck can be changed out very quickly to test a completely different fuel system. The discharge from the injectors can be returned straight back to the tank or measured directly with a split shot flowmeter or rate tube.

Machine Features:

- Accommodates several fuel systems with buck changeover. Takes less than 1/2 hour for complete changeover.
- Class 1, Division 1 Explosion proof rated
- All filters have two stage differential pressure switches to provide an early warning of filter failure.
- Test chamber drip pan and machine base drip pan contain any fluid that may leak during operation or maintenance
- Ideal for product development, but can also be used for durability tests.
- Stainless Steel hydraulic system
- Air-conditioned electrical cabinet

Fuel System Mapping

In development it is important to make sure that the product will perform as expected under all combinations of operating conditions. The mapping function of this machine allows the operator to select a range of values for several controlled parameters as well as a default value and increment for each. Our solution has integrated with ETAS and the INCA packages so that the OEM ECU can be used and programmed in an OEM proprietary environment.



Flexibility

Our machines are custom designed to meet your requirements and price range. We can tailor a design to have the packaging, type of controller, and footprint that you require.

Controls and Measurements

The following table highlights some of the controls and measurements that this machine performs.

Controlled Feature	Range	Measured Feature	Range
Drive Speed	50-5000 RPM	Supply Pressure	5-150 psi
Drive Power	41 KW	Discharge Temp	20-180°C
Rail Pressure Meas.	0-2000 Bar	Inlet Flow	0-250 LPH
Supply Pressure	5-150 psi	Return Flow	0-10LPH
Return Pressure	1 Bar vac. – 2 Bar press.	Supply Temperature	20-90°C

Please contact us at sales@mcm1.com for more information.