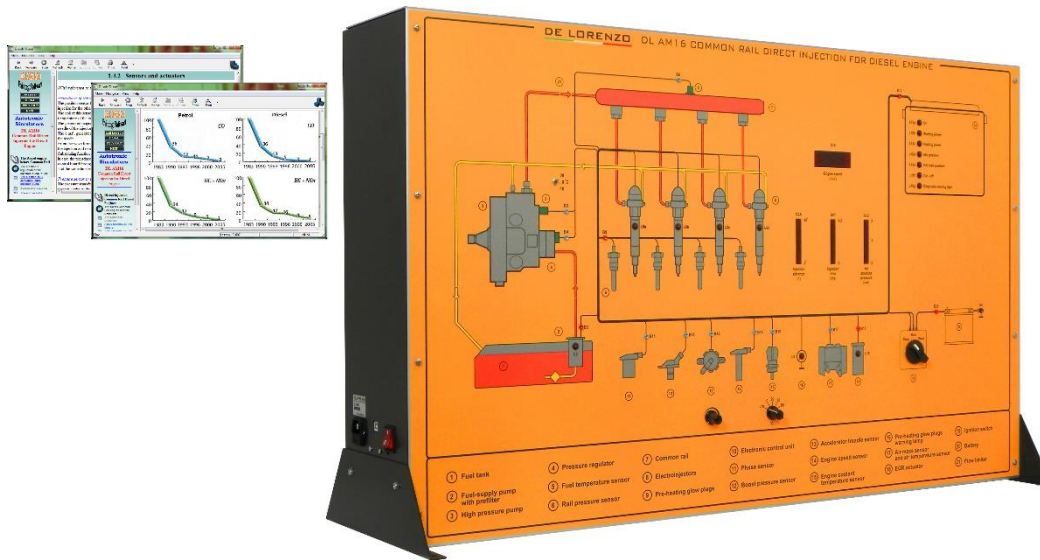




COMMON RAIL DIRECT INJECTION FOR DIESEL ENGINE



DL AM16

LEARNING EXPERIENCE

This simulator allows the study, the testing and the troubleshooting on HDI (CDI - CR) injection systems for diesel engines. Similarly to what happens for the traditional injection petrol engines, where, the pressure of the fuel is only few bars, the HDI injection system uses a high pressure (up to 1500 bar) electric pump and a single manifold (common rail) to connect the pump to the electro-injectors. These are electronically and individually controlled for what concerns the start and the duration of the injection. In the conventional diesel engine, the rotation speed of the engine controls the pressure to the injectors and, furthermore, pressure and injection are strictly correlated, because only when the pressure exceeds a given threshold there is the mechanical opening of the injector. Therefore, the advantages of the common rail are rather evident:

- High pressure also at low regimes;
- Excellent atomization and dispersion of the fuel;
- Increase of the torque;
- Reduction of the noise;
- Reduction of the consumptions and of the emissions.

MAIN CHARACTERISTICS

The main components that characterize a common rail direct injection diesel engine are the following:

- fuel tank with pre-filter;
- high pressure electro-pump;
- flow limiter;
- common rail with electro-injectors, fuel pressure limiting valve and relevant pressure sensor;
- electronic control board for the management of the whole plant;
- engine rpm sensor;
- accelerator pedal position sensor;
- over-supply pressure sensor;
- air temperature sensor;
- engine temperature sensor;
- air mass sensor;
- pneumatic actuator for the variable geometry turbine;
- computerized workstation linked to the management system.



GENERAL CHARACTERISTICS

- Dim. mm approx (HxLxW) : 700x1000x150 - (470 with the base)
 - Weight approx. kg 25
 - Input power supply: AC 220V±10% 50 Hz
- Working temperature: -40°C ~ +50°C.

This vertical frame bench-top trainer is specially designed to show to students how automotive systems work. The simulator consists of a panel operated by the support of a computer with a coloured silk-screen diagram that clearly shows the structure of the system and allows the location of the components on it.

The trainer is supplied with a CAI Software and the supported documentation guides the students to the study and the performance of the simulation exercises. All components installed and given leads are made to protect the safety of the students.