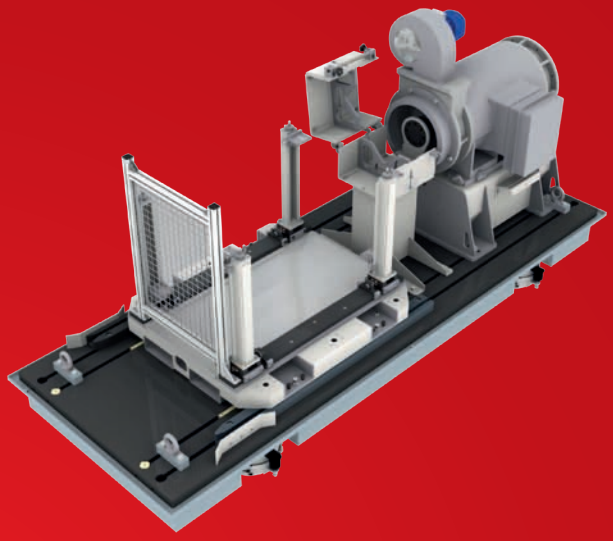
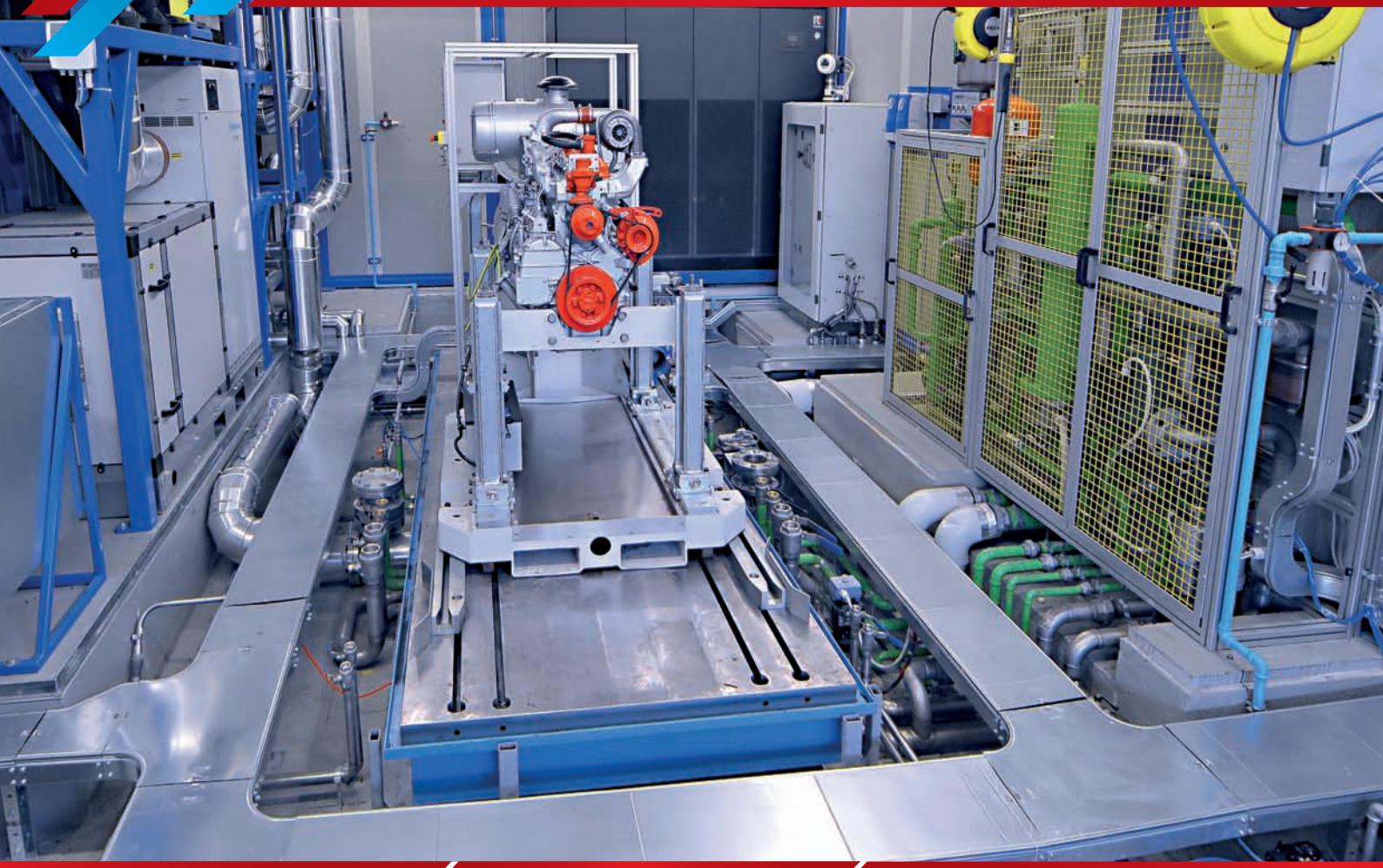
TEST CELL EQUIPMENT



CONTROL SISTEM

AUTOMOTIVE TESTING SOLUTIONS

TEST CELL EQUIPMENT

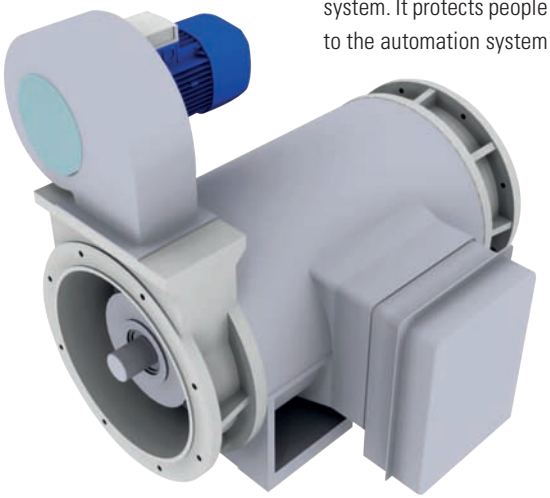


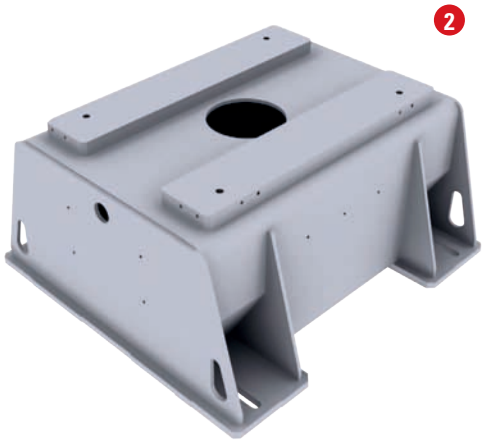
DYNAMOMETER

1 The dynamometer is an electrical motor with low rotor inertia; it allows to absorb or to generate energy from the internal combustion engine. It's built with a lamellar stator provided with magnetic block self-supported. The main feature is to satisfy particular kind of application where high performance of torque and speed regulation are needed.

2 The dynamometer is supported by a frame that is a mechanical structure built with iron and metal sheets welded together. Aim of this support is to fix the brake on it, in order to have the centre of the transmission to desired height.
This support can be fixed directly on the basement by means of screws or "T" dices.

3 The transmission shaft that connects the dynamometer to the engine is covered by means of our specific system. It protects people and other equipment in case of shaft breaks. An electrical safety signal connected to the automation system allows to stop the engine when the cover is not closed correctly.



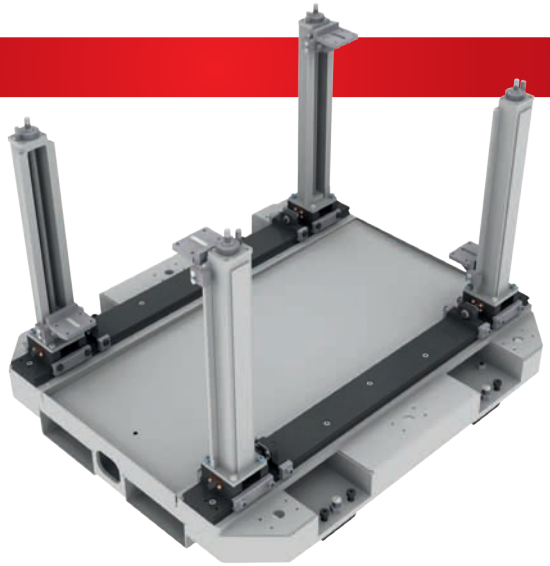


ANTI-VIBRATION SUPPORT

To ensure stable long-term test operation and reduce wear resulting from the vibration of the engine, both the combustion engine and dynamometer have to be mounted on a single, isolated support.
Control Sistem has developed a modern solution on which both the engine and the dynamometer can be mounted. This unit in its standard edition is based on four air springs which are designed in order to cut vibration transmission to the building.
The equipment is mounted in line on four stainless steel guide slots on which all components can be moved and adjusted. Thus all parts of the unit “engine - drive shaft - dynamometer” are positioned towards each other without relative motion.

ENGINE PALLET

The increasing variety in engine dimensions, especially in the area of passenger cars from two to eighteen cylinders, requires a testing environment with high flexibility for engine set-up in the test cells.
Therefore, the engine pallet has to be capable to cope with this variety. A flexible pallet improves test cell availability and increases the efficiency of the whole facility. Built on a strong frame for mounting the pallet onto the base frame, a combination of horizontal and vertical profiles allows for high flexibility to adapt engine brackets in different heights and vertical positions and to adjust the pallet to the engine size. Furthermore, the pallet allows a fine alignment of the engine relative to the dynamometer by means of adjustment screws.

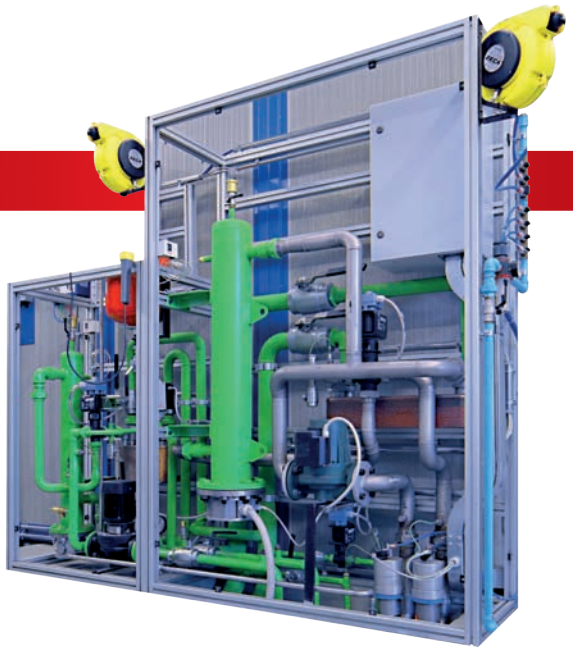


FUEL SUPPLY SYSTEM

The proposed fuel supply system is a standard Control Sistem product that is able to regulate fuel pressure and temperature while measuring in real time the flow rate. The fuel consumption detection is an integrated device used for static and dynamic measuring tasks. All the hydraulic components are installed in a closed cabinet connected to a smaller one for the electronic devices, mainly composed by a PLC and a panel pc. The system is a stand-alone unit and it can communicate with the test cell automation system by means of AK protocol.

ENGINE FLUIDS CONDITIONING SYSTEM

The system consists of a complete hydraulic circuit able to control the temperature of engine cooling water, intercooler and lubricant oil. All the components are fixed on an alloy structure placed inside the test cell and they are connected to the engine. An electronic regulator included in the system can receive an external control signal aiming to set the required temperatures. The same component gives a feedback of the regulated temperature. The system allows to perform various regulation strategies including transient profiles.



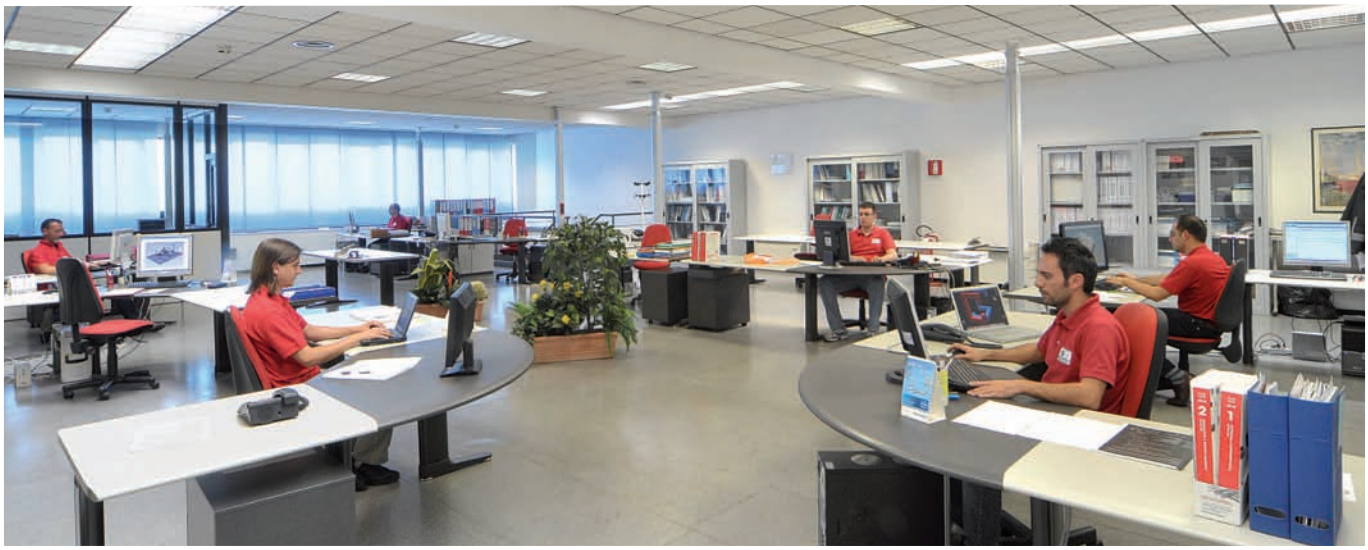
CONTROL SISTEM

Expert engineering, flexible deployment.

Control Sistem is a leading producer of Testing Facility solutions for the Automotive sector providing all-round service and extensive specialization across the vehicle testing spectrum: Engine Testing Cells, Components Testing Rigs, Powertrain & Gearbox Testing Solutions.
Control Sistem also develops in-house complete dedicated management Software that is a key feature of the entire test process alongside the other elements in the Testing chain.

The high-level technical and entrepreneurial capacity acquired in over 20 years experience in the Automotive sector enables Control Sistem to deliver cutting-edge solutions comprising latest-generation technology as well as sophisticated Hardware and Software systems.
Proven expertise in the sector has enabled the Company to collaborate with top automakers both in Italy and worldwide with consistently excellent results.

Control Sistem's real strength is its highly flexible ability to design and produce solutions tailored to customer specifications or developed in conjunction with customers themselves – a versatility that has become a fundamental market plus in the development of each project.



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