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Mechatronics

The interaction of mechanical, electronic and IT elements.

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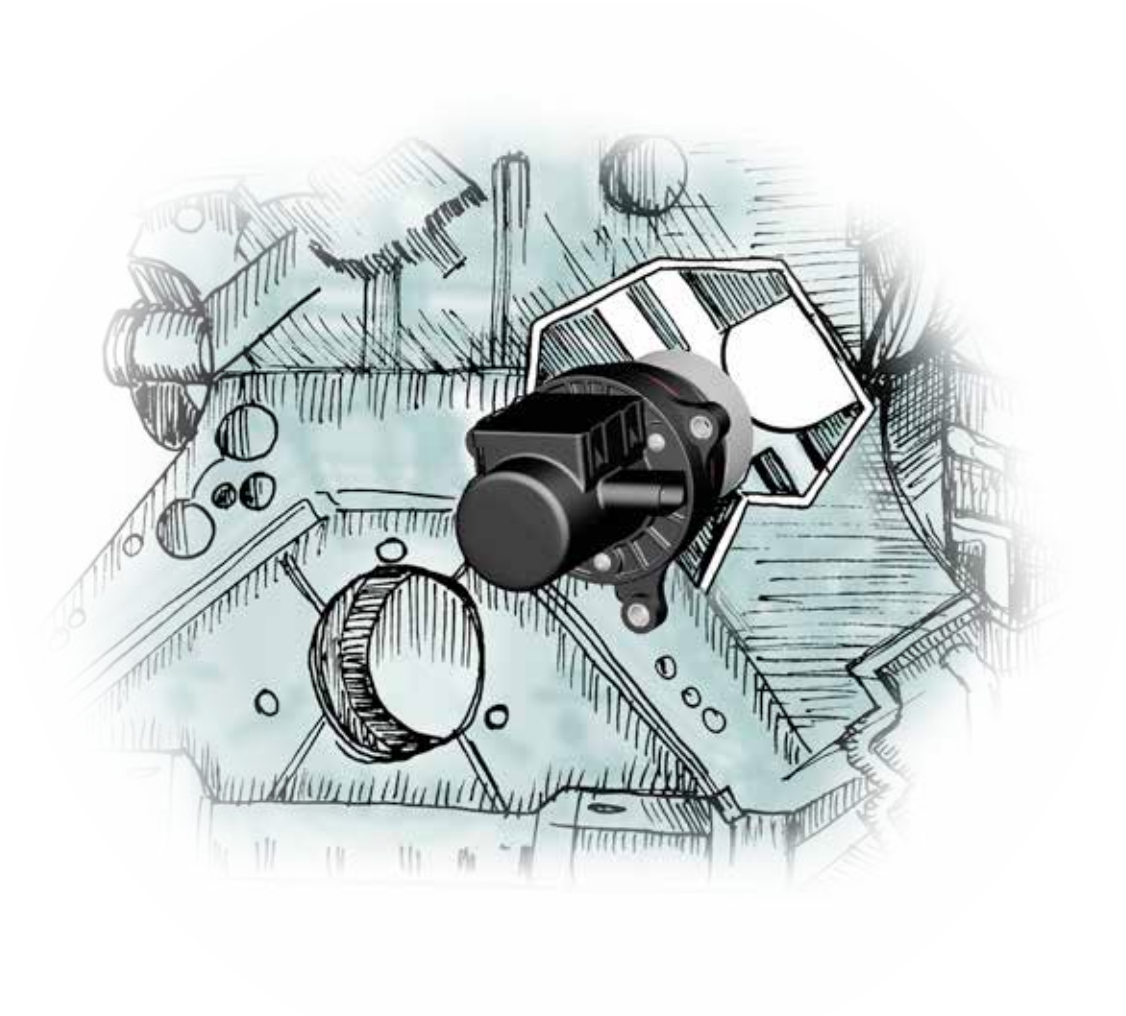
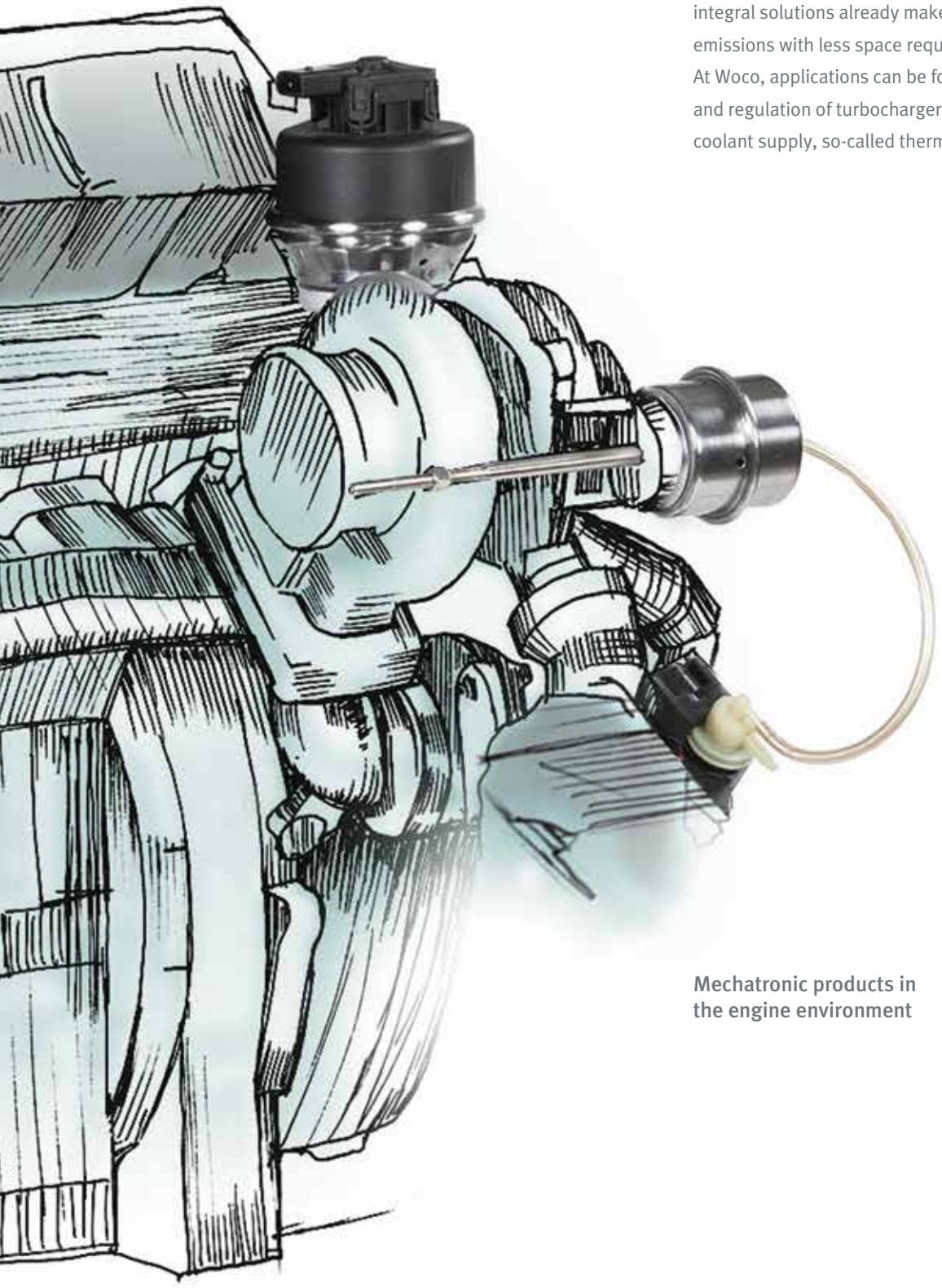


Mechatronics

The interaction of mechanical, electronic and IT elements is usually described by the generic term mechatronics. Woco also develops and produces product solutions for this category. Specifically, the overriding topics in the areas of thermal and media management in addition to electrical actuators with integrated sensors require communications interfaces to basic control devices of the vehicle architecture. Multifunctional, integral solutions already make a contribution to reducing CO_2 emissions with less space requirement and use of materials. At Woco, applications can be found in the area of the control and regulation of turbochargers, air intake management and coolant supply, so-called thermal management.



Mechatronic products in the engine environment

Downsizing by turbocharging

Downsizing of combustion engines is impractical and inefficient without supercharging systems. Downsizing allows comparable engine performance and especially torques with reduced cylinder capacity and less cylinders. Woco provides pneumatic control and regulation elements for turbochargers.

Electro-pneumatic pressure transducers (EPT)

An electric PWM (pulse width-modulated) signal is translated into a proportional pneumatic pressure signal. This signal is required to control pneumatic actuators and thus continuously regulate displacement. The main product characteristics are:

- Optimised temperature compensation from -20°C to +125°C
- Standardised modular system

Pneumatic diverter valve

In overrun mode, this valve opens a bypass connection between the discharge and suction sides of the turbocharger. The rapid reduction of the dynamic pressure diminishes the rapid deceleration of the compressor wheel, which means that a ”turbo lag“ is prevented on renewed acceleration.

Pneumatic actuator with sensor

The pneumatic part of the actuator converts a pressure difference to the atmosphere into a reciprocating movement of the control rod. In addition, the integrated sensor indicates the position of the control rod to the electronics by means of a voltage signal.

Thermal management

Optimisation of the interior temperature of the vehicle in conjunction with best possible control of the heat input and cooling of the engine and its secondary circuits are achieved through successful thermal management. Woco water valves help to selectively control and regulate water circuit temperatures at central points. As a result, for example, the warm-up phase of the combustion engine can be significantly reduced and fuel can be saved, thus reducing CO_2 emissions.

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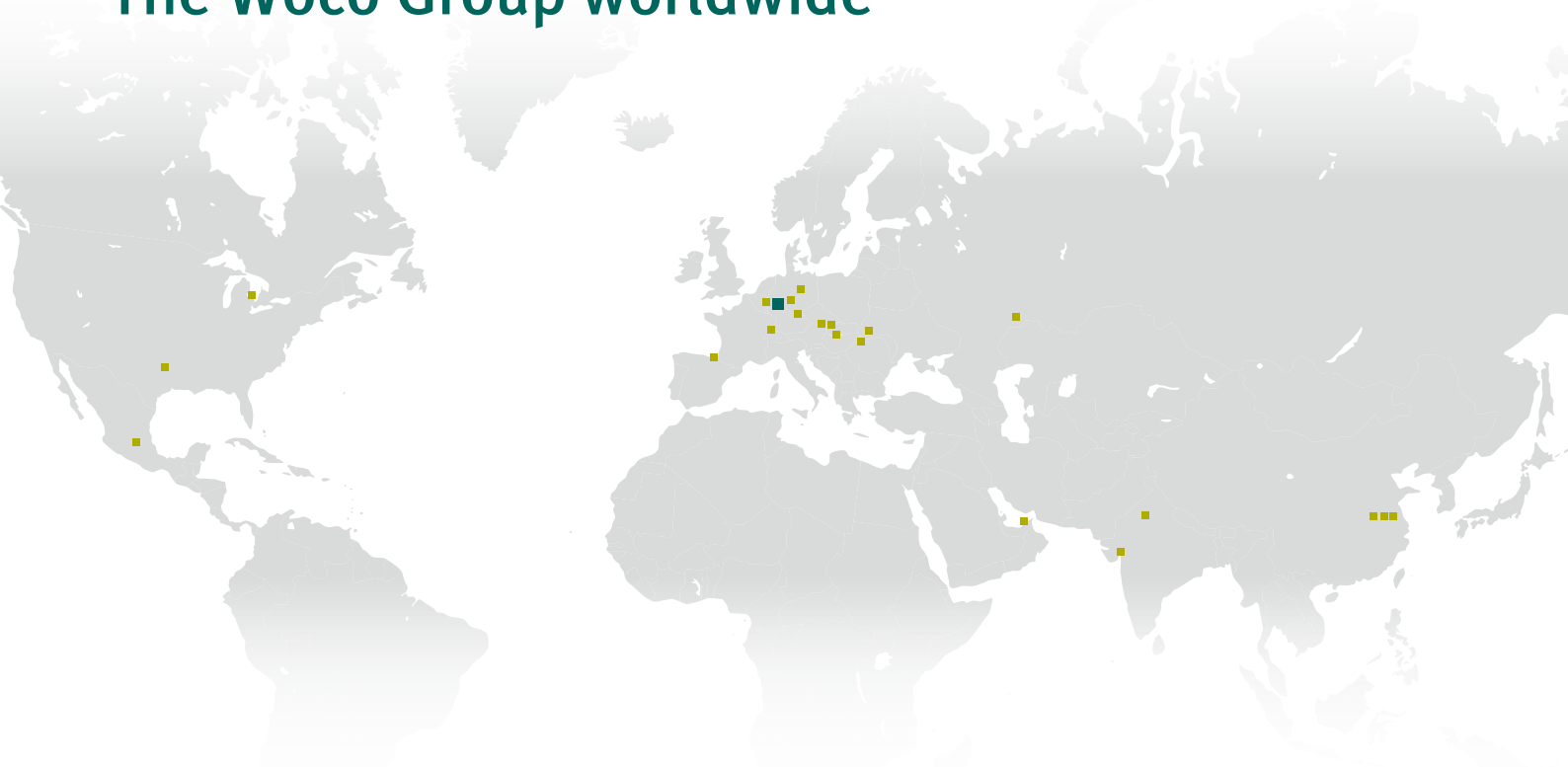

Woco develops future-oriented technologies based on innovative material, product and process solutions. We achieve our goals by continuously identifying and evaluating trends in markets and technology and through the consistent benchmarking of products, processes and materials. Through close cooperation with universities and research institutions and continuous exchange and transfer of knowledge with our internal departments, the Woco Group develops market-oriented, future-proof functional solutions for automotive power train and vehicle body. The global presence of the Woco Group ensures proximity to our customers and markets and their specific requirements.