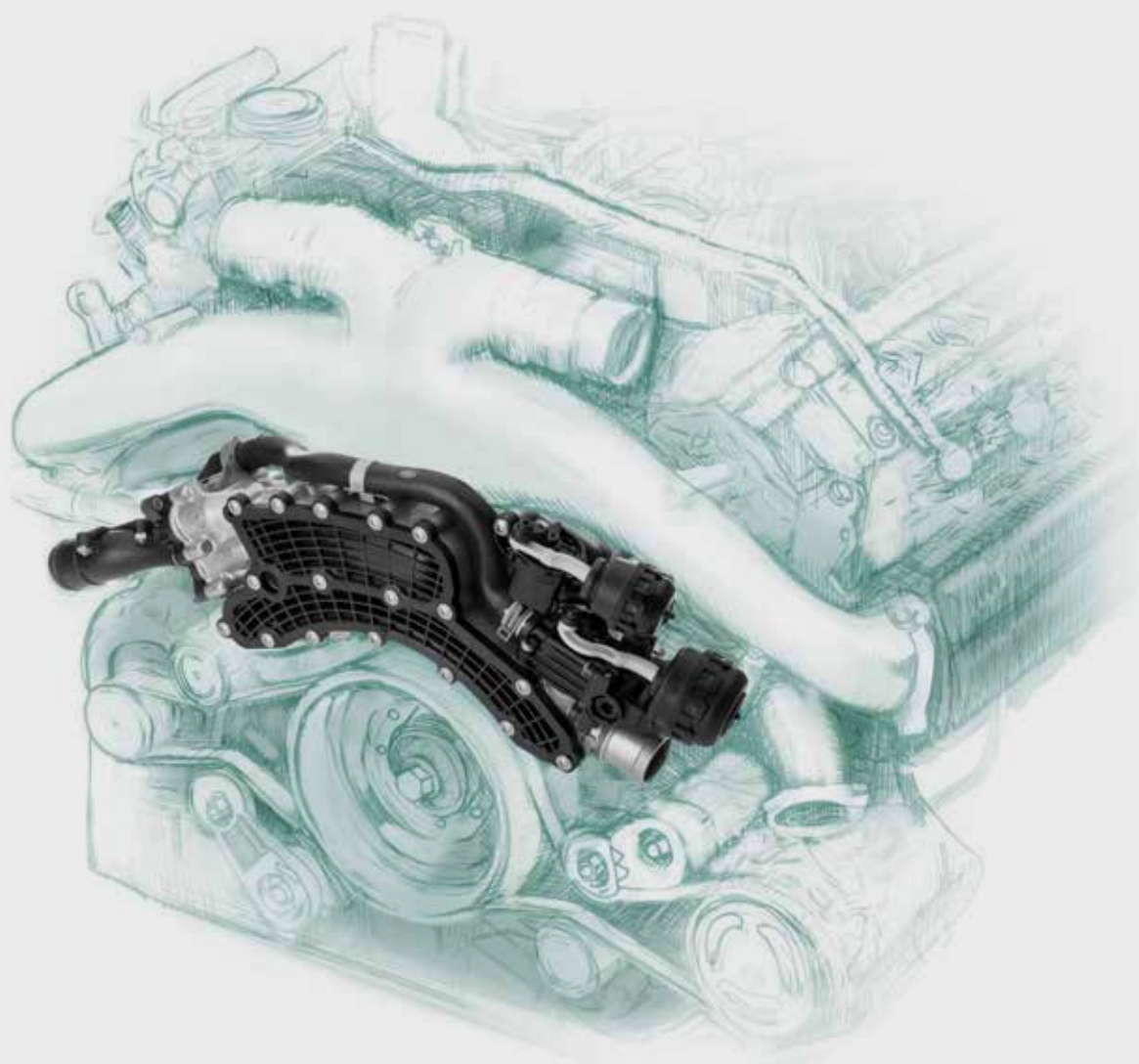


Thermal Management

Control and Regulation of heat flows.



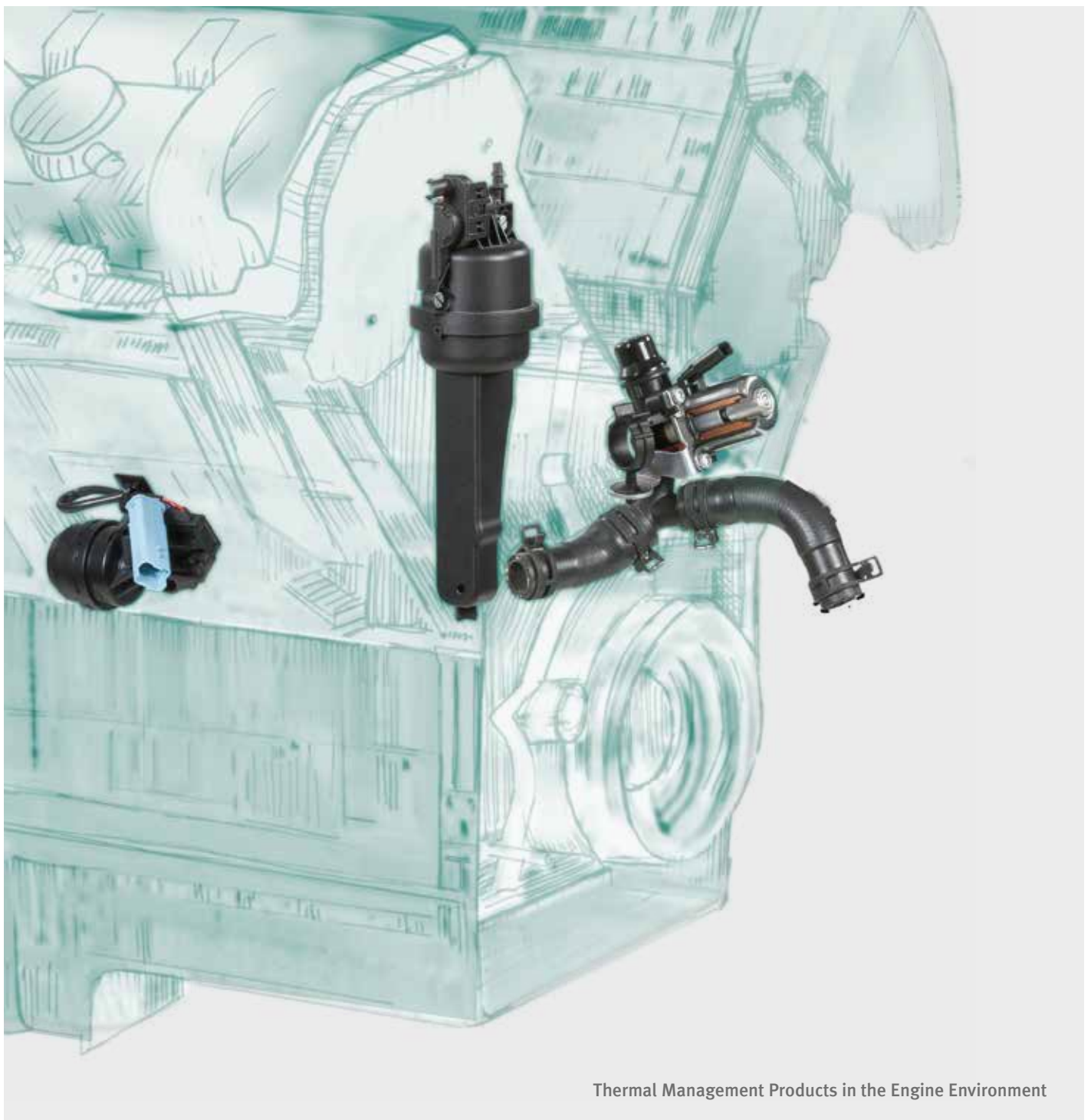
Thermal Management

Optimization of the interior temperature of the vehicle in conjunction with best possible control of the heat input and cooling of the engine and its partial circulatory systems are achieved through successful thermal management.

Water valves from the Woco Group help to selectively control and regulate water circuit temperatures at central points. As

a result, for example, the warm-up phase can be significantly reduced, thus saving fuel and reducing CO₂ emissions.

Woco serves the water segment with electromagnetic and electric motor-driven water valves, water distributors and flexible hose connections. The latest developments rely on versatile functional integration and as compact modules



Thermal Management Products in the Engine Environment

facilitate the controllability of different circuits on the engine. Here, with its long-standing assembly expertise Woco has good prerequisites to serve future market requirements for the management of coolants.



Electromagnetic Water Valves

These valves are used to switch the different cooling water circuits on and off. Electromagnetically-controlled pistons with integrated return spring and sealing cone are used as actuators. Advantages of this technology are:

- Minimal wear
- Minimal pressure loss
- Optimal flow guidance



Electric Motor-Driven Water Valves

Electric motor-driven valves are used if fully variable control is required for cooling water circuits. These products consist of a DC motor with a downstream drive and coupled rotary valve. The valves are actuated via the control input. Monitoring takes place with the aid of integrated electronics.



Low Pressure Water Valve

This valve is available in two versions: normally open and normally closed. It consists of a vacuum actuator with integrated return spring and the coolant-carrying part with rotary vane. It switches the coolant flow via a rotary piston specially developed by Woco, with a wear-optimized, pressure-supported sealing system. Constant impermeability in case of large pressure differences is guaranteed at temperatures from -40°C to $+140^{\circ}\text{C}$.

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The Woco Group Worldwide

Woco is where the customer needs Woco to be.

Woco develops and produces 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.