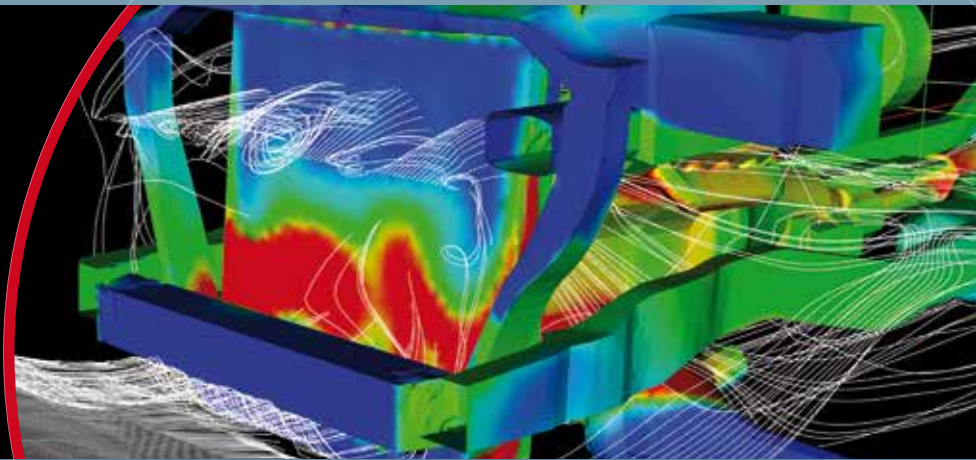


SONCEBOZ
from mind to motion



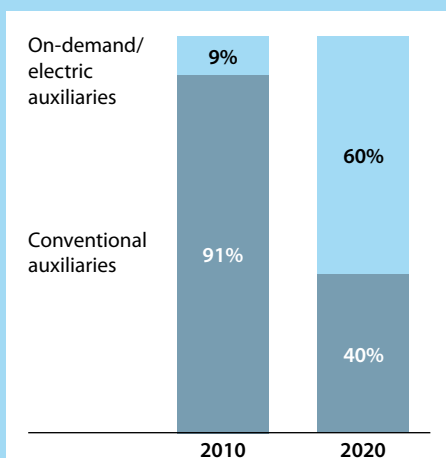
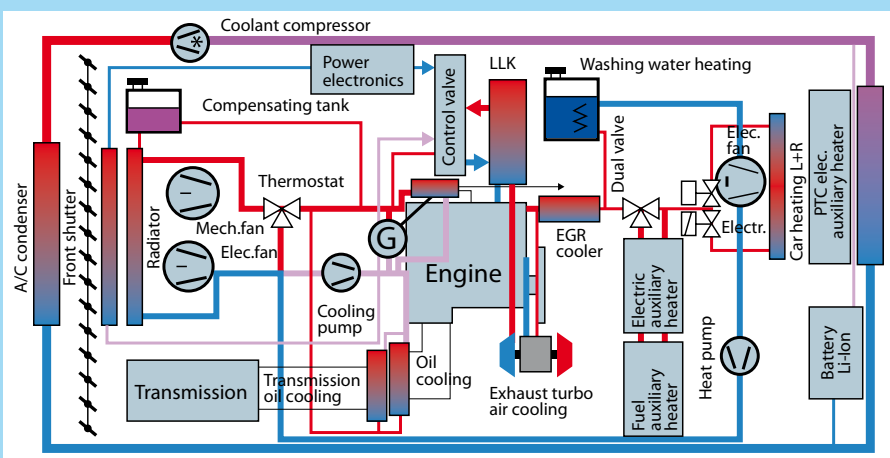
Motion systems

for challenging **thermal management** applications

Challenges in thermal management

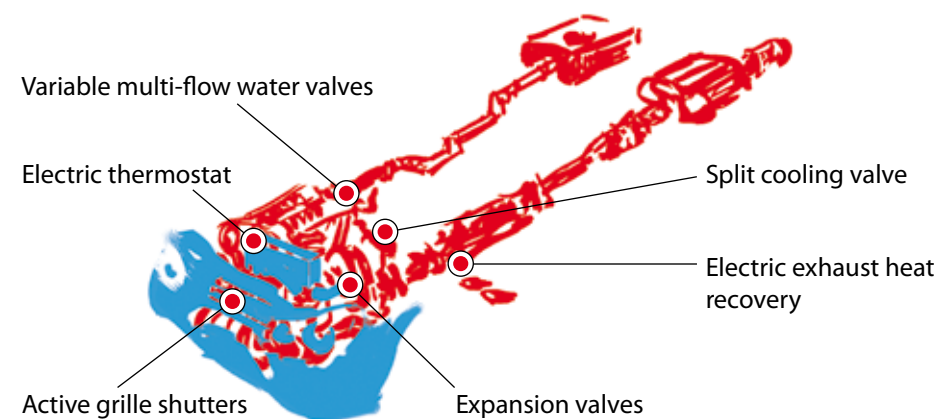
The mandatory reduction of CO₂ emissions on the horizon of 2020 calls for optimal temperature control and reduced energy losses in the traditional internal combustion engine. To do so, car manufacturers must shift from static to dynamic management of temperatures. As a result, there has been much focus on the electrification and motorization of thermal management systems in passenger cars, commercial vehicles and trucks.

Finding the optimum temperature's level in the water circuit and its distribution inside the vehicle is the main goal. All enhance controllability and variability on the air for the cabin as part of engine cooling, organs or batteries. Another challenge is to reduce engine friction losses that are highly influenced by the fluid temperatures on the crankshaft and the piston group.



Thermal management system schematic: complexity and diversity of auxiliary devices

Dedicated electrified auxiliaries required through 2020



From the front end to the exhaust line, cold or hot transfer fluids or gasses such as CO₂, ethanol, oil, and water have to be regulated with an elevated level of precision and motion dynamics. Decentralized, autonomous and smart electric drives contribute to digitally control the mass flow, to set flow priority depending on temperature needs, or to optimize the efficiency of the calorific loop. Such electric actuators need to operate in demanding environments with high temperature and pressure ranges in often highly corrosive conditions.

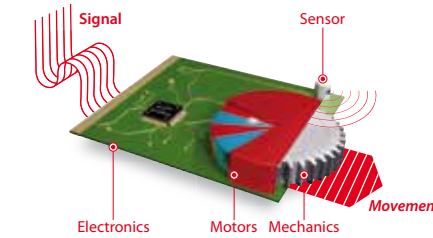
Why Sonceboz?

Brushless expertise



- Brushless electromagnetic structures
- Wear less
- Low consumption
- Compact
- Lightweight

Custom mechatronic drives



- All-in-one design and production: motors + sensors + electronics + gears
- Tailored to the application specifications
- Custom solution from small to high volumes

Expertise in harsh environments



- Corrosion resisting to aggressive fluids
- Engine vibration up to 50g
- Operating temperature: [-40°; +150°C]
- Watertight for high pressure
- Commercial vehicles compatible lifetime: up to 10 million movements cycle

Our mechatronic solutions

Sonceboz has long been favored for deploying our innovative and high quality mechatronic drive systems that add value to our customers applications. The compactness and robustness of our brushless DC (BLDC) or stepper motor technologies have been demonstrated in high-volume powertrain applications for years. We offer an outstanding flexibility in the design and controls strategy, enabling a simplified integration into OEM applications.



- LIN Bus, PWM
- Lightweight <70gr
- Up to 2.5 Nm
- 120°C chassis
- Speed up to 5 rpm
- Position sensors
- LIN Bus, PWM, h-bridge compatible
- Up to 1.5 Nm
- 150°C engine
- Speed up to 15 rpm
- Linear positioning
- Force up to 180 N
- Tightness cap
- 20 or 25 mm diameter
- CAN bus
- Up to 10 Nm
- Flexibility in electrical connection
- 150°C engine
- 95% motor efficiency
- CAN bus
- 12V-72V
- 6 kW
- Works as motor or generator

Your benefits

- Adjustable mechatronic solution to fit right your design
- Highly accurate flow regulation and mechanical positioning
- Easy integration into tight package space
- Outstanding torque density and motion dynamics
- Quick time-to-market solution



SONCEBOZ Motion systems

Our core competencies consist of design, development and production of **mechatronic drive systems** and **electric motors** that operate in **harsh environments**. We are committed to improving safety, decreasing energy consumption and minimizing the impact on the environment. Our focus on **innovation, best in class quality** and **exceptional service** is our key to success for worldwide OEM customers and their suppliers.

Your contact for thermal management solutions
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