

# Motion systems

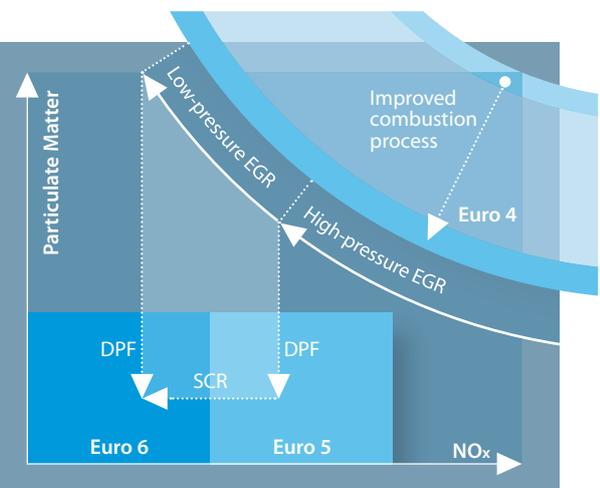
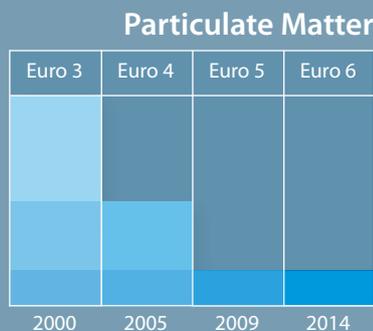
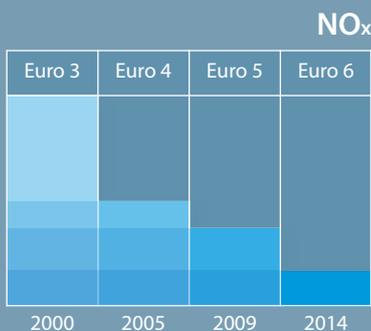
for challenging **EGR** applications



# Challenges in EGR

Consumers are displaying a growing awareness of their impact on the environment, pollution issues and energy efficiency. A major contributor to pollution is their vehicle's internal combustion engine that emits nitrogen oxides (NO<sub>x</sub>), which are the main source of urban smog. Significant NO<sub>x</sub> emission reductions have been achieved over the past decade thanks to Exhaust Gas Recirculation (EGR) technology. More stringent reduction regulations will come into force in the coming years, and will require higher performance components.

EGR valves have become electrically actuated with rapid and precise positioning requirements. In addition to diesel engines, EGR technology is now also utilized in a similar manner in direct injection gasoline engines. The current EGR applications in diesel engines are all installed in the high-pressure loop, right after the exhaust manifold. To help satisfy forthcoming emission regulations, a low-pressure EGR loop may be added after the diesel particle filter.



## • Passenger Cars

Brand styling and aerodynamic requirements continue to reduce the amount of under-the-hood space for emission control components. More worldwide stringent emission requirements and the intense focus on improving fuel economy will sustain demands for compact and reliable actuators.

## • Trucks

With typical usage requirements of a million miles / kilometers or more, EGR actuators must display robustness in harsh environments, and allow flexibility in design. High and reliable performance is needed over the service life.

## • Agriculture and Construction Vehicles

Reliable emission control systems have to be integrated in agriculture and construction equipments. Electric actuators must help contribute to meeting emission standards, while performing in aggressive environments and fitting to fuel economy objectives.

# Our solutions

Sonceboz has been active and recognized for years as an expert in emission control applications, and has gathered in-depth understanding of customers' expectations. Outstanding track record and successful performance are emphasized by competency and flexibility of our engineering team for a win-win partnership. Sonceboz torque motor and brushless DC motor technology can be modulated to form compact and precise EGR valve drive solutions. Developed specifically for the harsh environments of engine control applications, they yield robust and highly reliable products.

**The brushless DC (BLDC) actuator** is a high performance motor specifically developed for powertrain applications with peak torque values beyond 4 Nm. It features an integrated CAN-interfaced drive electronics for both 12 and 24 V nominal voltage operations and an integrated return-to-zero spring. Reliable operation in harsh environments and high durability make the Sonceboz BLDC actuator the optimal choice for medium- and heavy-duty EGR valves.

**The torque motor** is a rotary brushless actuator with a non-contact position sensor and no gears. It can deliver peak torque values up to 1.5 Nm with a very short positioning time typically below 100 ms. Additional features such as a return-to-zero spring and drive electronics can be integrated in a very compact footprint. Simple, robust and extremely reliable, it is benchmark in terms of service life for powertrain applications in passenger cars and commercial vehicles.



... a state-of-the-art expertise proven in diesel and gasoline EGR valves, as well as in several emission control applications:



Torque and brushless DC motors actuate butterfly valves or poppet valves for Exhaust Gas Recirculation, air intake throttle and Variable Turbine Geometry (VTG).

## Your benefits

- *Excellent reliability and robustness for high service life in harsh environments*
- *Compact design for optimum packaging in high-density integration*
- *Fast and precise positioning for accurate gas flow metering*
- *A close partnership with customer oriented solutions*



## SONCEBOZ Motion systems

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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 EGR solutions  
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