

**SONCEBOZ**  
from mind to motion

# *Trucks & off-road vehicles*

Your partner for **mechatronics**



# From **mind** to **motion**

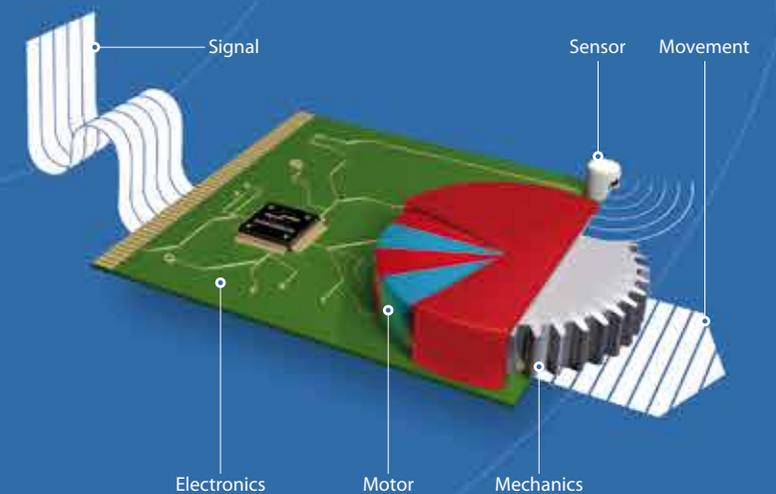
## Your partner for **mechatronics**

Sonceboz's core competencies consist of design, development and production of mechatronic drive systems, and electric motors that operate in challenging environments.

We are committed to increasing safety and comfort, enhancing machine's productivity and improving ecological footprint.

We offer compact, seamless and innovative motion systems. Our "from mind to motion" service is our key to our success for worldwide OEM customers and their suppliers.

**Welcome in Sonceboz, an enterprise in motion!**



## Challenges in **motion systems**

More efficient, cleaner, safer and totally connected medium and heavy-duty vehicles. These are the mega goals the truck and off-road industry has to face in the coming decades. Stringent continental legislation, with forthcoming regulations appearing on the horizon calls for drastic NO<sub>x</sub>, PM and CO<sub>2</sub> reduction, along with improved aerodynamics, more efficient emission control systems and an essential trend toward light-weight compact technologies.

The achievement of such challenges implies a change of paradigm in motion systems yielding to a higher electrification of aggregates inside the vehicle front-end, powertrain, driveline and cockpit. The shift towards electric actuation in the positioning or drive of valves, shutters or pumps calls for dedicated competence in electronics, mechanics and electromagnetism.

**Emission control**  
Modularity  
**Energy-efficiency**

## Transforming signal into motion

Our "From mind to motion" expertise centers around electromagnetic technology, and the transformation of an electrical signal into a mechanical movement dedicated to your application. By orchestrating mechanical, electronic, and software technologies into a single solution, we support our customers' cutting edge designs with a dependable, consistent, robust performance.

One unique partner  
for your project

Full industrial  
capabilities

Full mechatronics  
expertise

### Competencies

#### Design

- Actuators / Motors
- Electronics
- Mechanics

#### Production

- Automated Assembly
- Plastic Injection
- Metal Components
- SMD Assembly

#### Quality

- ISO/TS 16949
- ISO 14001
- 0ppm policy

### Technologies

#### Motors and Actuators

- Tin-Can Motors
- Stepper Motors
- BLDC Motors
- Torque Motors
- Hybrid steppers

#### Sensors

- Digital optical encoder
- Hall or magneto-resistive analogic sensor
- Incremental multi-polar sensor
- Digital switch
- Potentiometer

#### Electronics

- Close & open-loop
- BUS communication
- Customised software
- Customised interfaces
- Diagnostic

#### Mechanics

- Gears
- Screw-nuts
- Custom interfaces
- Raw material expertise
- Lubrication expertise



Your trucks &  
Off-Road applications:  
**compact, robust,  
innovative.**



# Comprehensive brushless technology portfolio up to 6kW...

Stepper motors and brushless actuators- all intended for harsh severe-service environments, and with relentless pursuit of 0ppm quality. Our broad range of motor technology and our integrated control of production and assembly mean we provide solutions that are robust, energy-efficient, and cost-effective: this is how we help you maximize your profit.

## Flexible product configuration

## Customized software

## Optimized total cost of ownership

### Linear actuator

- Robust lightweight packaging
- Easy to integrate
- Force up to 180N

### Smart stepper

- Watertight flat design
- Embedded electronics
- Torque up to 2.5Nm

### Torque motor

- Direct drive: up to 1.5Nm
- Fast positioning
- Rugged design

### Smart BLDC

- High torque: up to 20Nm
- Embedded electronics
- Failsafe

### Smart linear actuator

- High precision
- IP6k9k compact design
- Force up to 250N

### Compact power BLDC

- High efficiency: 90%
- High power density: 12V to 72V – 6kW
- Embedded electronics



# Mechatronics for challenging applications



## Engine & exhaust

### Air intake

Electric actuators optimize dynamically combustion in real-time response to changing engine speeds and loads, enhance the effective compression ratio or feed pre-compressed air to the intake.

### EGR

On the line that conveys burnt gases from stratified mode operating engine to exhaust pipe, robust mechatronic drives operate in low or high pressure EGR valves.

### EBPV

Engine brake assistance, exhaust gas temperature and back pressure regulation demand a seamless electrical regulation to achieve high braking performance and efficient denoxification.

### SCR

The reduction of NOx emissions requires a precise and reliable electrical regulation of AdBlue injection with the SCR pump.



## Forced air induction

### Wastegate

The electrification of an intern or extern wastegate enables an optimal bypass of exhaust gases, thus protecting the turbine from overload.

### Variable turbo charger geometry

Whenever it is a VGT or a VNT, fast moving electric actuators allow the synchronization of the effective aspect ratio of the turbo accordingly to the driving speeds.

### E-charger

Highly dynamic and fast turning electric motors avoid a delay in air boosting, improve drivability with an optimal response time and contributes to engine downsizing.

### E-turbo

To drive a compressor with the right pressure output exactly when needed and transforming surplus exhaust energy into electric power require high-speed electric actuation.



## Electro-hydraulic power

### Electro-hydraulic power steering

The use of very dynamic high power motors provides high steering stiffness, optimal response time and significant fuel reduction potentials.

### Rear axle steering & lift

Close loop hydraulics without distribution valves, directly driven with a highly efficient and dynamic BLDC-motor, contributes to a cost effective, energy-saver and hassle-free system.

### Electric valve actuation

Linear actuators for positioning of proportional valves allow making pilot pressure redundant and reducing system costs and complexity.

### Transmission

Electrically-actuated clutches, gear selectors or variable pumps facilitate the smooth, efficient transfer of torque with the optimal ratio for the load conditions at any given moment.



## Thermal management

### Aerodynamics

Sinceboz has been pioneering with smart actuators for active grille shutters. Movable shutters behind a radiator grille enhance vehicle aerodynamics and speed engine warm-up.

### Thermal management

The switch from a static loop to a dynamic management of temperatures focus on limiting energy losses and improving overall efficiency. That implies control systems with dependable mechatronic drives to accurately regulate flows.

### Waste Heat Recovery

Electric drives are exposed to aggressive working fluids: e-motors for fluid pumps, linear motors for flow splitter valves, actuators for exhaust bypass valves or high speed generators for turbine expanders.

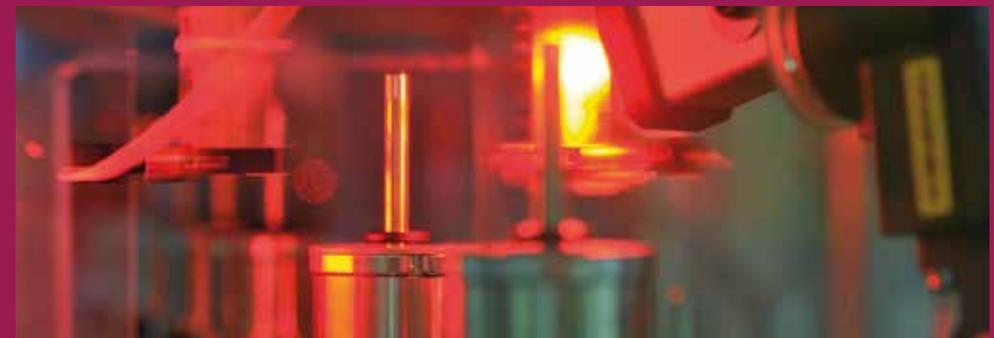
Validated application-specific  
motion systems

Track records in harsh  
environments

Quick time-to-market solutions

## Full engineering & production capabilities

As each problem is unique, so is every Sonceboz solution. Flexible, specialized and dedicated Sonceboz engineering teams play a fundamental role in the win-win partnerships we form with our customers. Based on a very deep vertical integration with most of our product's components manufactured by ourselves, we shorten development lead times and offer highest flexibility for product changes and customizations. Using performing simulation and validation tools, high quality process instruments and seamless production equipment we are able to reduce your development time, ensure a high level of quality and, in this way, guarantee customer satisfaction.



Automatic assembly lines  
SMD electronics assembly  
Injection molding   Coil winding  
Metal working   Testing and Simulation

High product availability  
and traceability

0ppm ensured in the whole  
product value chain

Short reaction time

## Ready for **the future?**

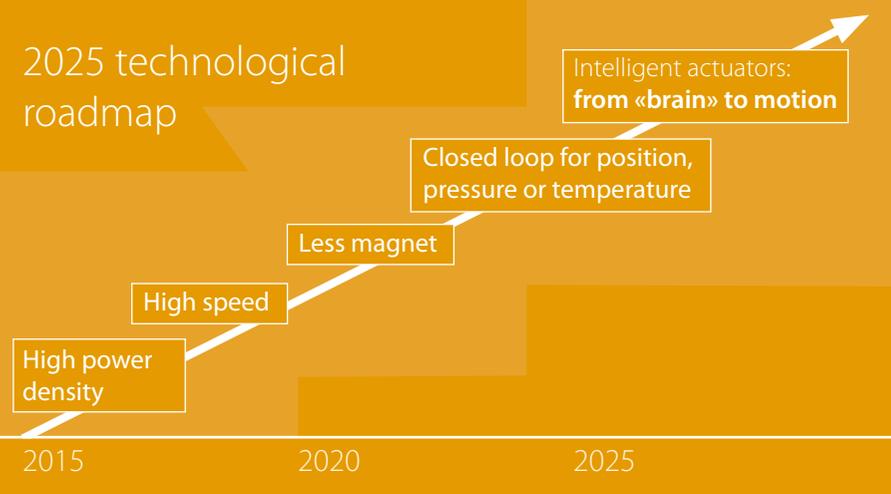
In close partnership with you; with our subsidiary MMT - Moving Magnet Technologies, a research lab in electromagnetism; and with strategic partners, we actively develop brushless DC solutions for drive and positioning. We manage our innovation process and the technological lifecycle by constantly anticipating tomorrow's trends, and by syndicating new and emerging technologies. Intensive research is pursued to always bring you state-of-the-art solutions.

Advanced technologies  
always at your disposal

**Partnership with  
a technological leader**

High market differentiation of your solution

### 2025 technological roadmap



## A partner on your side

As a family-owned company since 1936, we strive for sharing our passion for mechatronics with a clear vision you durably take benefit of. Our steady growth of more than 15% p.a. over the last 5 years is trusted by all the worldwide major OEMs. Our more than 1000 employees are committed each day at servicing our partners at their total satisfaction. Certified ISO/TS 16949, ISO 9001 and ISO 14001, our sturdy locations and agile industrial processes deliver more than 65 million motors yearly.



**Innovative technologies**  
from a country of nature and precision

A close partnership  
with a sustainable company

**Awarded quality and service**

Worldwide delivery and support

Proven **solutions portfolio**  
in **challenging environments**



*Extreme temperature*



*Low noise*



*Energy efficiency*



*High protection degrees*



*Compactness*



*Connectivity*



*Long lifetime*



*Direct drives*

**Contact us!**



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